Criterion 2- Teaching- Learning and Evaluation

Key Indicator- 2.6 Student Performance and Learning Outcome (90)

2.6.2. Attainment of Programme Outcomes and Course Outcomes are evaluated

Sr. No.	Documents	Link	Page No.
1.	Outcome Based Education Manual	aitpune.com/Documents/OBE_Manual_20Mar2022.pdf	
2.	Attainment of Course Outcomes, Program Outcomes and Program Specific Outcomes	--	2
3.	Evidence Document for evaluation of Attainment of POs and COs		355

Criterion 2- Teaching- Learning and Evaluation

Key Indicator- 2.6 Student Performance and Learning Outcome (90)

2.6.2: Attainment of Programme Outcomes and Course Outcomes are evaluated

2. Attainment of Course Outcomes, Program Outcomes and Program Specific Outcomes

Sr. No.	Documents	Page No.				
A.	**Department of Electronics & Telecommunication Engineering**	**AY 2022-23**	**AY 2021-22**	**AY 2020-21**	**AY 2019-20**	**AY 2018-19**
		4	**17**	**30**	**46**	**63**
	1. Course Outcomes Attainment	5-8	18-21	31-35	47-51	64-69
	2. Attainment of Program Outcomes and Program Specific Outcomes	9-16	22-29	37-45	52-62	70-80
	A. PO Attainment	10-13	23-26	38-41	54-58	71-76
	B. PSO Attainment	14-16	27-29	42-45	59-62	77-80
B.	**Department of Information Technology**	**AY 2022-23**	**AY 2021-22**	**AY 2020-21**	**AY 2019-20**	**AY 2018-19**
		81	**104**	**118**	**141**	**155**
	1. Course Outcomes Attainment	82-89	105-108	119-127	142-145	156-159
	2. Attainment of Program Outcomes and Program Specific Outcomes	89-103	109-117	128-140	146-154	160-168
	A. PO Attainment	93-98	111-114	131-135	148-151	162-165
	B. PSO Attainment	99-103	115-117	136-140	152-154	166-168
C.	**Department of Computer Engineering**	**AY 2022-23**	**AY 2021-22**	**AY 2020-21**	**AY 2019-20**	**AY 2018-19**
		169	**187**	**202**	**219**	**234**

	1. Course Outcomes Attainment	170-174	188-191	203-207	220-224	235-239
	2. Attainment of Program Outcomes and Program Specific Outcomes	175-186	192-201	208-218	224-230	240-250
	A. PO Attainment	177-183	194-197	210-214	226-230	242-246
	B. PSO Attainment	184-186	198-201	215-218	231-233	247-250
D.	**Department of Mechanical Engineering**	**AY 2022-23**	**AY 2021-22**	**AY 2020-21**	**AY 2019-20**	**AY 2018-19**
		251	**263**	**275**	**289**	**303**
	1. Course Outcomes Attainment	252-254	264-266	276-278	290-292	304-306
	2. Attainment of Program Outcomes and Program Specific Outcomes	255-262	266-274	279-288	293-302	307-316
	A. PO Attainment	257-259	269-271	281-285	295-298	309-312
	B. PSO Attainment	260-262	272-274	286-288	299-302	313-316
E.		**317**				

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Department of Electronics & Telecommunication Engineering

1. Attainment of Course Outcomes, Program Outcomes and Program Specific Outcomes.

AY 2022-23

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

The following assessment processes are used to evaluate the course outcomes

1. **University Examination**:

One of the assessment process used to measure course outcome is university examination. This includes: End Sem. Theory Exam, Practical Exam, Oral Exam, Term-work, Online Exams and Mid Sem. Exams. The average weightage for university examination is 70 %.

2. **Internal Assessment**:

Tool used for internal assessment process is: Tests, Assignments and Quizes, group discussion, mini project. The average weightage for internal assessment is 30 %.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

Attainment of COs can be measured directly and indirectly

1. Direct attainment of COs can be determined from the performances of students in all the above assessment processes.
2. The percentage weightage to direct attainment is 80%.
3. Indirect attainment of COs can be determined from the course outcome feedback.
4. The course outcome feedback form should permit receiving feedback from students on all the COs.
5. The percentage weightage to indirect attainment is 20%.

1. Direct attainment of Cos:

Direct attainment of COs is determined from the performances of students in Internal Assessment and University Examination.

2. Direct CO Attainment (% age) = 0.7 x University Examination Class Average + 0.3 x Internal Assessment Class Average
3. Total CO Attainment (% age) =0.8 x Direct CO Attainment + 0.2 x Indirect CO Attainment

CO Attainment Gap (% age) = Target – Attainment

The following targets of attainment levels are set for course outcomes:

Attainment Level 1: 60 % Students Scoring More than university average percentage marks or set attainment level in the final examination

Attainment Level 2: 70 % Students Scoring More than university average percentage marks or set attainment level in the final examination

Attainment Level 3: 80 % Students Scoring More than university average percentage marks or set attainment level in the final examination

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Course Outcome Attainment:

Direct CO Attainment (% age) = 0.7 x University Examination Class Average + 0.3 x Internal Assessment Class Average

Total CO Attainment (% age) =0.8 x Direct CO Attainment + 0.2 x Indirect CO Attainment

Academic Year 2022-23

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C204181:Electronic Circuits	SE-E&TC-A	0.84	0.81	0.84	0.84	0.83	0.83	**0.83**
	SE-E&TC-B	0.30	0.28	0.30	0.30	0.28	0.29	**0.29**
C204182:Digital Circuits	SE-E&TC-A	1.11	1.09	1.11	1.11	1.09	1.08	**1.10**
	SE-E&TC-B	0.30	0.27	0.30	0.30	0.27	0.56	**0.33**
C204183:Electrical Circuits	SE-E&TC-A	0.57	0.56	0.56	0.56	0.56	0.57	**0.56**
	SE-E&TC-B	0.56	0.56	0.56	0.54	0.54	0.53	**0.55**
C204184:Data structures	SE-E&TC-A	1.11	1.11	1.11	1.11	1.11	1.11	**1.11**
	SE-E&TC-B	1.11	1.09	1.11	1.11	1.09	1.08	**1.10**
2C04185:Electronic Circuit Lab	SE-E&TC-A	1.11	1.11	1.11				**1.11**
	SE-E&TC-B	1.11	1.11	1.11				**1.11**
C204186:Digital circuits Lab	SE-E&TC-A	1.11	1.11	1.11				**1.11**
	SE-E&TC-B	1.11	1.08	1.11				1.10
C204187:Electrical Circuit Lab	SE-E&TC-A	1.11	1.11	1.11				**1.11**
	SE-E&TC-B	1.10	1.74	1.71				**1.52**
C204188:Data Structures Lab	SE-E&TC-A	0.57	0.57					**0.57**
	SE-E&TC-B	1.11	1.11	1.11				**1.11**
C204191:Signals & Systems	SE-E&TC-A	0.57	0.57	0.57	0.57	0.57	0.57	**0.57**
	SE-E&TC-B	1.11	1.10	1.10	1.1	1.1	1.1	**1.10**
C204192:Control Systems	SE-E&TC-A	0.57	0.54	0.57	0.57	0.54	0.56	**0.56**
	SE-E&TC-B	1.10	1.11	1.10	1.10	1.11	1.11	**1.11**
C204193:Principles of Communication Systems	SE-E&TC-A	1.11	1.11	1.11	1.11	1.11	1.11	**1.11**
	SE-E&TC-B	1.10	1.11	1.10	1.10	1.11	1.11	**1.11**
C204194:Object Oriented Programming	SE-E&TC-A	1.11	1.09	1.11	1.11	1.09	1.08	**1.10**
	SE-E&TC-B	0.30	0.30	0.30	0.30	0.30	0.30	**0.30**
C204195:Signals & Control System Lab	SE-E&TC-A	2.37	2.37	2.37				**2.37**
	SE-E&TC-B	3.00	3.00	3.00				**3.00**
C204196:Principle of Communication Systems Lab	SE-E&TC-A	1.11	1.11	1.11				**1.11**
	SE-E&TC-B	0.00	0.00					**0.00**
C204197:Object Oriented Programming Lab	SE-E&TC-A	1.11	1.11	1.11				**1.11**
	SE-E&TC-B	1.11	1.11	0.30				**0.84**
C204198:Data Analytics Lab	SE-E&TC-A	2.46	2.46	2.43				**2.45**
	SE-E&TC-B	3.00	3.00	2.70				**2.90**
C204200:Project Based Learning	SE-E&TC-A	3.00	3.00	3.00	3.00	3.00	3.00	**3.00**
	SE-E&TC-B	3.00	3.00	3.00	3.00	3.00	3.00	**3.00**
C304181:Digital Communication	TE-E&TC-A	1.10	0.28	1.10	1.10	0.28	1.10	**0.83**
	TE-E&TC-B	1.1	0.82	1.1	1.1	0.55	1.1	**0.96**

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2.6 - Student Performance and Learning Outcomes

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C304182: Electromagnetics Field Theory	TE-E&TC-A	0.57	0.54	0.57	0.57	0.54	0.56	**0.56**
	TE-E&TC-B	0.57	0.54	0.57	0.57	0.54	0.56	**0.56**
C304183:Database Management	TE-E&TC-A	1.10	1.06	1.06	1.10	1.08	1.11	**1.09**
	TE-E&TC-B	1.1	1.06	1.05	1.1	1.08	1.11	**1.08**
C304184:Microcontrollers	TE-E&TC-A	1.10	0.28	1.10	1.10	0.28	1.10	**0.83**
	TE-E&TC-B	1.1	0.28	1.1	1.1	0.28	1.1	**0.83**
C304185:Fundamentals of JAVA Programming	TE-E&TC-A	0.84	0.80	0.84	0.84	0.80	0.83	**0.83**
	TE-E&TC-B							
C304185:Computer Networks	TE-E&TC-A	1.11	1.11	1.11	1.11	1.10	1.10	**1.11**
	TE-E&TC-B	1.11	1.11	1.11	1.11	1.10	1.10	**1.11**
C304186:Digital Communication (LAB)	TE-E&TC-A	1.11	1.11	1.11				**1.11**
	TE-E&TC-B	1.11	1.1	1.11				**1.11**
C304187:Database Management Lab (LAB)	TE-E&TC-A	2.37	2.37	2.37				**2.37**
	TE-E&TC-B							
C304188:Microcontroller Lab	TE-E&TC-A	1.11	1.11	1.11				**1.11**
	TE-E&TC-B	1.11	1.11	1.11				**1.11**
C304189:Fundamentals of JAVA Programming (LAB)	TE-E&TC-A	1.11	1.10	1.11				**1.11**
	TE-E&TC-B	1.11	1.10	1.11				**1.11**
C304189:Computer Networks (LAB)	TE-E&TC-A	2.99	2.99	3.00				**2.99**
	TE-E&TC-B							
C304190:Skill Development	TE-E&TC-A	0.84	0.81	0.84				**0.83**
	TE-E&TC-B	0.3	0.27	0.3				**0.29**
C304192:Cellular Networks	TE-E&TC-A	1.10	1.08	1.11	1.11	1.08	1.10	**1.10**
	TE-E&TC-B	1.11	1.11	1.11				**1.11**
C304193:Project Management	TE-E&TC-A	0.29	0.27	0.29	0.29	0.27	0.28	**0.28**
	TE-E&TC-B	0.3	0.28	0.3	0.3	0.28	0.29	**0.29**
C304194:Power Devices & Circuits	TE-E&TC-A	0.84	0.81	0.84	0.84	0.81	0.83	**0.83**
	TE-E&TC-B	0.57	0.54	0.57	0.57	0.54	0.56	**0.56**
C304195:Network Security	TE-E&TC-A	0.56	0.29	0.29	0.29	0.55	0.29	**0.38**
	TE-E&TC-B	0.56	0.28	0.29	0.29	0.55	0.29	**0.38**
C304200:Mini Project	TE-E&TC-A	2.37	2.37	2.36				**2.37**
	TE-E&TC-B							
C304196:Cellular Networks Lab	TE-E&TC-A	2.19	2.19	2.19				**2.19**
	TE-E&TC-B							
C304197:Power Devices & Circuits Lab	TE-E&TC-A	0.84	0.81	0.84				**0.83**
	TE-E&TC-B							
C304198:Network Security Lab	TE-E&TC-A	1.11	1.11	1.11				**1.11**
	TE-E&TC-B	1.10	1.09	1.10				**1.10**

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC PUNE-15

2.6 - Student Performance and Learning Outcomes

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C304199:Internship	TE-E&TC-A	1.74	1.71	1.20	1.74	1.71	1.73	**1.64**
	TE-E&TC-B	1.74	1.71	1.74	1.74	1.71	1.73	**1.73**
C404181:Radiation & Microwave Theory	BE-E&TC	0.57	0.54	0.57	0.57	0.54	0.56	**0.56**
C404182:VLSI Design & Technology	BE-E&TC	0.30	0.28	0.29	0.29	0.28	0.56	**0.33**
C404183:Cloud Computing	BE-E&TC	1.10	1.10	1.10	1.10	1.10	1.10	**1.10**
C404184:Elective III JAVA Script	BE-E&TC	1.11	0.53	0.57	0.57	0.53	0.56	**0.65**
C404185:Elective IV Data Mining	BE-E&TC	1.11	1.08	1.11	1.11	1.08	1.10	**1.10**
C404186:Lab Practice -I (RMT)	BE-E&TC	2.19	2.19	2.19				**2.19**
C404186:Lab Practice -I Cloud Computing)	BE-E&TC	2.99	2.99	2.99				**2.99**
C404187:Lab Practice -II (VLSI)	BE-E&TC	3.00	2.98	2.99				2.99
C404187:Elective III JAVA Script Lab	BE-E&TC	0.84	0.82	1.11				**0.92**
C404188:Project Stage - I	BE-E&TC	3.00	3.00	3.00				**3.00**
C404189:Mandatory Audit Course 7	BE-E&TC	2.98	2.98	2.98				**2.98**
C404190:Fiber Optic Communication	BE-E&TC	0.57	0.54	0.57	0.57	0.54	0.56	**0.56**
C404191:Elective - 5 Mobile Computing	BE-E&TC	1.09	1.09	1.09	1.09	1.09	1.09	**1.09**
C404191:Elective - 5 Android Development	BE-E&TC	1.11	1.06	1.11				**1.09**
C404192:Elective - 6 Digital Marketing	BE-E&TC	1.11	1.11	1.11	1.11	1.09	1.10	**1.11**
C404193:Innovation & Entrepreneurship	BE-E&TC	1.11	1.09	1.11	1.10	1.07	1.10	**1.10**
C404194:Digital Business Management	BE-E&TC	0.57	0.54	0.57				**0.56**
C404195:Fiber Optic Lab	BE-E&TC	0.30	0.30	0.30				**0.30**
C404196:Lab Practice - 3 Mobile Computing	BE-E&TC	2.98	2.98	2.98				**2.98**
C404196:Lab Practice - 3 Android Development	BE-E&TC	0.55	1.10	0.83				**0.83**
C404197:Project Stage - II	BE-E&TC	3.00	3.00	3.00				**3.00**

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.2 Attainment of Program Outcomes and Program Specific Outcomes

Assessment Tools / Processes Used:

The assessment tools / processes used for Assessing Attainment of Program Outcomes (POs) are as follows:

Sr. No.	Assessment Tool / Process	Frequency
Direct Assessment Tools		
1	End Sem. University Examination	Once in a semester
2	University Practical Examination	Once in a semester
3	Term Work	Continuous Assessment
4	Online Exam / In Sem Exam	Once in a semester
5	Unit Test / Assignments	One on each Course Outcome
6	Course Outcome Feedback	Once in a semester
In-Direct Assessment Tools		
7	Exit Students Feedback	Once in Year
8	Employer Feedback	Once in Year
9	Placement	Throughout year

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC PUNE-15

2.6 - Student Performance and Learning Outcomes

A PO Attainment

Academic Year 2022-23

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C204181:Electronic Circuits	SE-E&TC-A&B	0.5	0.54	0.37	0.44	0.48	0.41	0.23	0.37	0.29	0.22	0.19	0.34
C204182:Digital Circuits	SE-E&TC-A&B	0.61	0.69	0.5	0.56	0.62	0.52	0.31	0.48	0.24	0.29	0.23	0.45
C204183:Electrical Circuits	SE-E&TC-A&B	0.49	0.56	0.37	0.4	0.43	0.37	0.37	0.37	0.37	0.46	0	0.28
C204184:Data structures	SE-E&TC-A&B	1.04	1.04	0.58	0.8	1.01	0.4	0.23	0.37	0.19	0.21	0.18	0.34
2C04185:Electronic Circuit Lab	SE-E&TC-A&B	1.11	0.99	0.74	0.99	0.86	0.86	0.37	0.74	0.37	0.49	0.37	0.49
C204186:Digital circuits Lab	SE-E&TC-A&B	1.11	0.98	0.74	0.92	0.86	0.86	0.37	0.74	0.37	0.49	0.37	0.49
C204187:Electrical Circuit Lab	SE-E&TC-A&B	1.1	0.98	0.61	0.98	0.86	0.86	0.37	0.74	0.37	0.49	0.37	0.49
C204188:Data Structures Lab	SE-E&TC-A&B		0.78	0.56	0.78	0.72			0.46	0.47	0.53		0.34
C204191:Signals & Systems	SE-E&TC-A&B	0.45	0.5	0.33	0.4	0.45	0.36	0.23	0.33	0.44	0.19	0.19	0.31
C204192:Control Systems	SE-E&TC-A&B	0.78	0.78	0.55	0.64	0.69	0.2	0.12	0.19	0.09	0.11	0.09	0.17
C204193:Principles of Communication Systems	SE-E&TC-A&B	1.11	1.11	0.86	0.98								
C204194:Object Oriented Programming	SE-E&TC-A&B	0.64	0.66	0.42	0.53	0.61	0.4	0.23	0.37	0.19	0.21	0.18	0.34
C204195:Signals & Control System Lab	SE-E&TC-A&B	2.69	2.39	1.79	2.39	2.09	2.09	0.9	1.79	0.9	1.19	0.9	1.19
C204196:Principle of Communication Systems Lab	SE-E&TC-A&B	1.11	1.05	0.74	0.92	0.92							
C204197:Object Oriented Programming Lab	SE-E&TC-A&B	0.56	0.49	0.37	0.49	0.43	0.43	0.19	0.37	0.19	0.25	0.19	0.25
C204198:Data Analytics Lab	SE-E&TC-A&B	0	2.73	1.82	2.73	2.73	0	0	0.91	2.73	2.73	0	0.91
C204200: Project Based Learning	SE-E&TC-A&B	3	3	2.83	3	3	3	2	3	3	3	3	3

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC PUNE

2.6 - Student Performance and Learning Outcomes

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C304181:Digital Communication	TE-E&TC-A&B	0.9	0.9	0.68	0.77	0.9							
C304182: Electromagnetics Field Theory	TE-E&TC-A&B	0.53	0.53	0.37	0.43	0.46	0.4	0.23	0.37	0.19	0.22	0.19	0.34
C304183:Database Management	TE-E&TC-A&B	1.08	0.9	0.96	0.85	0.9	0	0	0	0	0	0.37	0.65
C304184:Microcontrollers	TE-E&TC-A&B	0.75	0.77	0.55	0.63	0.69	0.61	0.32	0.55	0.37	0.34	0.23	0.54
C304185:Fundamentals of JAVA Programming	TE-E&TC-A&B	0.37	0.39	0.28	0.32	0.34	0.3	0.17	0.28	0.14	0.16	0.14	0.25
C304185:Computer Networks	TE-E&TC-A&B	0.98	1.04	0.74	0.86	0.92	0.8	0.46	0.74	0.37	0.43	0.37	0.68
C304186:Digital Communication (LAB)	TE-E&TC-A&B	1.11	0.99	0.74	0.99	0.86	0.86	0.37	0.74	0.37	0.49	0.37	0.49
C304187:Database Management Lab (LAB)	TE-E&TC-A&B	1.74	1.16	1.16	1.16	1.35			0	0.58		0.58	0.58
C304188:Microcontroller Lab	TE-E&TC-A&B	2.33	0	0.61	0.74	0.37	0.37	0	0	0	0.37	0	0
C304189:Fundamentals of JAVA Programming (LAB)	TE-E&TC-A&B	1.11	0.98	0.74	0.86	0.86	0.86	0.37	0.74	0.37	0.49	0.37	0.49
C304189:Computer Networks (LAB)	TE-E&TC-A&B	1.5	1.5	1	0	0.5	0.5	0	0	0	0	0	0.67
C304190:Skill Development	TE-E&TC-A&B	0.42	0.37	0.28	0.32	0.32	0.32	0.14	0.28	0.14	0.19	0.14	0.19
C304192:Cellular Networks	TE-E&TC-A&B	0.66	0.77	0.6	0.66	0.74	0.67	0.39	0.55	0.28	0.34	0.27	0.54
C304193:Project Management	TE-E&TC-A&B	0.25	0.27	0.19	0.22	0.24	0.21	0.12	0.19	0.1	0.11	0.1	0.18
C304194:Power Devices & Circuits	TE-E&TC-A&B	0.63	0.67	0.51	0.55	0.62	0.52	0.29	0.46	0.24	0.29	0.23	0.42
C304195:Network Security	TE-E&TC-A&B	0.35	0.33	0.3	0.33	0.31	0.14	0.07	0.13	0.09	0.08	0.1	0.21
C304200:Mini Project	TE-E&TC-A&B	1.19	1.19	1.19	1.19	1.19	0	0	0	0	0.39	0	0
C304196:Cellular Networks Lab	TE-E&TC-A&B	1.65	1.09	1.65	1.65	0.92	0.12			0.86			0.73
C304197:Power Devices & Circuits Lab	TE-E&TC-A&B	0.83	0.74	0.55	0.64	0.65	0.65	0.28	0.55	0.28	0.37	0.28	0.37

Dept of E & TC

2.6 - Student Performance and Learning Outcomes

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C304198:Network Security Lab	TE-E&TC-A&B	1.6	0	0.31	0.37	0.18	0.18	0	0	0	0.18	0	0
C304199:Internship	TE-E&TC-A&B	1.68	1.68	1.68	1.68	1.68	1.68	1.56	1.67	1.67	1.67	1.67	1.67
C404181:Radiation & Microwave Theory	BE-E&TC	0.5	0.53	0.37	0.43	0.47	0.4	0.23	0.37	0.19	0.22	0.19	0.34
C404182:VLSI Design & Technology	BE-E&TC	0.3	0.32	0.22	0.27	0.29	0.24	0.16	0.22	0.1	0.13	0.1	0.22
C404183:Cloud Computing	BE-E&TC	1.1	0.8	0.73	0.73	0.73					0.37		0.55
C404184:Elective III JAVA Script	BE-E&TC	0.58	0.58	0.43	0.49	0.52	0.49	0.23	0.43	0.37	0.28	0.18	0.37
C404185:Elective IV Data Mining	BE-E&TC	0.98	1.04	0.73	0.85	0.92	0.79	0.46	0.73	0.37	0.43	0.37	0.67
C404186:Lab Practice -I (RMT)	BE-E&TC	2.19	1.95	1.46	1.95	1.7	1.7	0.73	1.46	0.73	0.97	0.73	0.97
C404186:Lab Practice -I Cloud Computing)	BE-E&TC	2.99	1.99	2.99	1.99	1.99	--	--	--	1	1.99	--	1.99
C404187:Lab Practice -II (VLSI)		2.99	2.66	1.99	2.32	2.33	2.33	1	1	1	1.33	1	1.33
C404187:Elective III JAVA Script Lab	BE-E&TC	0.92	0.83	0.62	0.71	0.74	0.71	0.32	0.62	0.28	0.4	0.32	0.43
C404188:Project Stage - I	BE-E&TC	3	3	3	3	3	3	3	3	2	1	1	1
C404189:Mandatory Audit Course 7	BE-E&TC	1.99	1.47	1.99	0	1.99	[illegible]	[illegible]	[illegible]	0.99	0.99	0.72	1.47
C404190:Fiber Optic Communication	BE-E&TC	0.5	0.53	0.37	0.43	0.47	0.4	0.23	0.37	0.19	0.22	0.19	0.34
C404191:Elective - 5 Mobile Computing	BE-E&TC	1.09	0.79	0.73	0.73	0.73	--	--	--	--	0.36	--	0.6
C404191:Elective - 5 Android Development	BE-E&TC	1.09	0.97	0.73	0.85	0.85	0.85	0.36	0.73	0.37	0.49	0.36	0.49
C404192:Elective - 6 Digital Marketing	BE-E&TC	0.98	1.1	0.86	0.86	0.92	0.8	0.46	0.74	0.37	0.43	0.37	0.67
C404193:Innovation & Entrepreneurship	BE-E&TC	0.1	[illegible]	0.1	[illegible]	[illegible]	0.2	0.29	[illegible]	0.1	[illegible]	[illegible]	0.1
C404194:Digital Business Management	BE-E&TC	0.56	0.5	0.37	0.43	0.44	0.44	0.19	0.37	0.19	0.25	0.19	0.25
C404195:Fiber Optic Lab	BE-E&TC	0.3	0.27	0.2	0.27	0.23	0.23	0.1	0.2	0.1	0.13	0.1	0.13
C404196:Lab Practice - 3 Mobile Computing	BE-E&TC	2.98	1.99	2.98	1.99	1.99	--	--	--	0.99	1.99	--	1.99
C404196:Lab Practice - 3 Android Development	BE-E&TC	3	2	2	2	2.33	2	--	2	1	1	1	1
C404197:Project Stage - II	BE-E&TC	3	3	3	[illegible]	[illegible]	3	3	3	3	3	3	[illegible]

2.6 - Student Performance and Learning Outcomes

Direct Attainment	1.24	1.18	0.96	0.99	0.97	0.73	0.46	0.65	0.54	0.60	0.44	0.64
Indirect Attainment	2.15	2.39	2.35	2.18	2.11	1.93	2.11	2.45	2.38	2.25	2.01	2.34
Direct Attainment 80%	0.99	0.94	0.77	0.79	0.78	0.58	0.36	0.52	0.43	0.48	0.36	0.51
Indirect Attainment 20%	0.43	0.48	0.47	0.44	0.42	0.39	0.42	0.49	0.48	0.45	0.40	0.47
PO Attainment =80% of direct assessment + 20% of indirect assessment	1.42	1.42	1.24	1.22	1.20	0.97	0.79	1.01	0.91	0.93	0.76	0.98

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B. PSO Attainment

Academic Year 2022-23

Course	Class	PSO1	PSO2
C204181:Electronic Circuits	SE-E&TC-A&B	2.49	1.43
C204182:Digital Circuits	SE-E&TC-A&B	2.83	2.17
C204183:Electrical Circuits	SE-E&TC-A&B	0.37	0.37
C204184:Data structures	SE-E&TC-A&B	0.98	0.73
2C04185:Electronic Circuit Lab	SE-E&TC-A&B	0.99	0.74
C204186:Digital circuits Lab	SE-E&TC-A&B	0.99	0.74
C204187:Electrical Circuit Lab	SE-E&TC-A&B	0.98	0.74
C204188:Data Structures Lab	SE-E&TC-A&B	0.68	0.46
C204191:Signals & Systems	SE-E&TC-A&B	0.5	0.37
C204192:Control Systems	SE-E&TC-A&B	0.78	0.6
C204193:Principles of Communication Systems	SE-E&TC-A&B	1.11	1.05
C204194:Object Oriented Programming	SE-E&TC-A&B	0.64	0.49
C204195:Signals & Control System Lab	SE-E&TC-A&B	2.39	1.79
C204196:Principle of Communication Systems Lab	SE-E&TC-A&B	1.11	0.74
C204197:Object Oriented Programming Lab	SE-E&TC-A&B	0.49	0.37
C204198:Data Analytics Lab	SE-E&TC-A&B	1.82	0.91
C204200:Project Based Learning	SE-E&TC-A&B	3	3
C304181:Digital Communication	TE-E&TC-A&B	0.9	0.87
C304182: Electromagnetics Field Theory	TE-E&TC-A&B	0.53	0.4
C304183:Database Management	TE-E&TC-A&B	0.54	--
C304184:Microcontrollers	TE-E&TC-A&B	0.77	0.61
C304185:Fundamentals of JAVA Programming	TE-E&TC-A&B	1.04	0.8
C304185:Computer Networks	TE-E&TC-A&B	1.05	0.74
C304186:Digital Communication (LAB)	TE-E&TC-A&B	1.16	--
C304187:Database Management Lab (LAB)	TE-E&TC-A&B	0.37	0.37
C304188:Microcontroller Lab	TE-E&TC-A&B	0.98	0.74
C304189:Fundamentals of JAVA Programming (LAB)	TE-E&TC-A&B	1.5	1
C304189:Computer Networks (LAB)	TE-E&TC-A&B	0.37	0.28

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2.6 - Student Performance and Learning Outcomes

Course	Class	PSO1	PSO2
C304190:Skill Development	TE-E&TC-A&B	0.78	0.64
C304192:Cellular Networks	TE-E&TC-A&B	0.27	0.21
C304193:Project Management	TE-E&TC-A&B	0.67	0.52
C304194:Power Devices & Circuits	TE-E&TC-A&B	0.36	0.26
C304195:Network Security	TE-E&TC-A&B	1.19	1.19
C304200:Mini Project	TE-E&TC-A&B	1.09	1.09
C304196:Cellular Networks Lab	TE-E&TC-A&B	0.74	0.55
C304197:Power Devices & Circuits Lab	TE-E&TC-A&B	0.37	0.37
C304198:Network Security Lab	TE-E&TC-A&B	1.68	1.68
C304199:Internship	TE-E&TC-A&B	0	0
C404181:Radiation & Microwave Theory	BE-E&TC	0.32	0.25
C404182:VLSI Design & Technology	BE-E&TC	0.73	0.73
C404183:Cloud Computing	BE-E&TC	0.58	0.46
C404184:Elective III JAVA Script	BE-E&TC	1.04	0.79
C404185:Elective IV Data Mining	BE-E&TC	1.95	1.46
C404186:Lab Practice -I (RMT)	BE-E&TC	1.99	1.99
C404186:Lab Practice -I Cloud Computing)	BE-E&TC	2.67	1.99
C404187:Lab Practice -II (VLSI)		0.83	0.62
C404187:Elective III JAVA Script Lab	BE-E&TC	3	3
C404188:Project Stage - I	BE-E&TC	1.99	1.66
C404189:Mandatory Audit Course 7	BE-E&TC	0.53	0.4
C404190:Fiber Optic Communication	BE-E&TC	0.73	0.73
C404191:Elective - 5 Mobile Computing	BE-E&TC	0.97	0.73
C404191:Elective - 5 Android Development	BE-E&TC	1.04	0.8
C404192:Elective - 6 Digital Marketing	BE-E&TC	0.1	0.1
C404193:Innovation & Entrepreneurship	BE-E&TC	0.5	0.37
C404194:Digital Business Management	BE-E&TC	0.23	0.2
C404195:Fiber Optic Lab	BE-E&TC	1.99	1.99
C404196:Lab Practice - 3 Mobile Computing	BE-E&TC	2	2
C404196:Lab Practice - 3 Android Development	BE-E&TC	3	3
C404197:Project Stage - II	BE-E&TC	2.49	1.43

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2.6 - Student Performance and Learning Outcomes

Course	Class	PSO1	PSO2
Direct Attainment		1.01	0.83
Indirect Attainment		2.95	2.94
Direct Attainment 80%		0.81	0.66
Indirect Attainment 20%		0.59	0.59
PO Attainment =80% of direct assessment + 20% of indirect assessment		1.40	1.25

Dr. Rajashree Suryawanshi
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ARMY INSTITUTE OF TECHNOLOGY * PUNE 15 * Dept of E & TC

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Department of Electronics & Telecommunication Engineering

17. Attainment of Course Outcomes, Program Outcomes and Program Specific Outcomes.

AY 2021-22

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

The following assessment processes are used to evaluate the course outcomes

1. University Examination:

One of the assessment process used to measure course outcome is university examination. This includes: End Sem. Theory Exam, Practical Exam, Oral Exam, Term-work, Online Exams and Mid Sem. Exams. The average weightage for university examination is 70 %.

2. Internal Assessment:

Tool used for internal assessment process is: Tests, Assignments and Quizes. The average weightage for internal assessment is 30 %.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

Attainment of COs can be measured directly and indirectly

1. Direct attainment of COs can be determined from the performances of students in all the above assessment processes.
2. The percentage weightage to direct attainment is 90%.
3. Indirect attainment of COs can be determined from the course outcome feedback.
4. The course outcome feedback form should permit receiving feedback from students on all the COs.
5. The percentage weightage to indirect attainment is 10%.

1. Direct attainment of Cos:

   Direct attainment of COs is determined from the performances of students in Internal Assessment and

   University Examination.

2. Direct CO Attainment (% age) = 0.7 x University Examination Class Average + 0.3 x Internal Assessment Class Average
3. Total CO Attainment (% age) =0.9 x Direct CO Attainment + 0.1 x Indirect CO Attainment

CO Attainment Gap (% age) = Target – Attainment

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2.6 - Student Performance and Learning Outcomes

The following targets of attainment levels are set for course outcomes:

Sr no	Assessment Process	Attainment Level 1	Attainment Level 2	Attainment Level 3
1	University Examination	50 % Students Scoring More than 80 % Marks	60 % Students Scoring More than 80 % Marks	70 % Students Scoring More than 80 % Marks
2	Internal Assessment	50 % Students Scoring More than 80 % Marks	60 % Students Scoring More than 80 % Marks	70 % Students Scoring More than 80 % Marks

Course Outcome Attainment:

Direct CO Attainment (% age) = 0.7 x University Examination Class Average + 0.3 x Internal Assessment Class Average

Total CO Attainment (% age) =0.9 x Direct CO Attainment + 0.1 x Indirect CO Attainment

Academic Year 2021-22

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C204181:Electronic Circuits	SE-E&TC-A	3.00	3.00	3.00	2.73	3.00	3.00	**2.96**
	SE-E&TC-B	2.99	2.99	2.98	2.99	2.98	2.98	**2.99**
C204182:Digital Circuits	SE-E&TC-A	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
	SE-E&TC-B	3.00	3.00	3.00	3.00	2.98	2.98	**2.99**
C204183:Electrical Circuits	SE-E&TC-A	2.99	2.99	2.99	2.97	2.95	2.94	**2.97**
	SE-E&TC-B	2.99	2.99	2.99	2.97	2.95	2.94	**2.97**
C204184:Data structures	SE-E&TC-A	3.00	2.99	2.99	2.99	2.99	2.72	**2.95**
	SE-E&TC-B	3.00	2.99	3.00	2.99	3.00	2.72	**2.95**
2C04185:Electronic Circuit Lab	SE-E&TC-A	1.11	1.11	1.11				**1.11**
	SE-E&TC-B	2.99	2.99	2.98				**2.99**
C204186:Digital circuits Lab	SE-E&TC-A	3.00	3.00	3.00				**3.00**
	SE-E&TC-B	3.00	3.00	3.00				**3.00**
C204187:Electrical Circuit Lab	SE-E&TC-A	2.37	2.37	2.34				**2.36**
	SE-E&TC-B	1.74	1.74	1.71				**1.73**
C204188:Data Structures Lab	SE-E&TC-A	1.71	1.73					**1.72**
	SE-E&TC-B	2.19	2.19	2.19				**2.19**
C204189:Electronic Skill Development	SE-E&TC-A	3.00	3.00	3.00				**3.00**
	SE-E&TC-B	3.00	3.00	3.00				**3.00**
C204191:Signals & Systems	SE-E&TC-A	2.46	2.46	2.46	2.46	2.46	2.46	**2.46**
	SE-E&TC-B	1.10	1.11	1.11	0.84	1.08	1.08	**1.05**
C204192:Control Systems	SE-E&TC-A	0.29	0.29	0.29	0.28	0.27	0.28	**0.28**
	SE-E&TC-B	0.29	0.29	0.29	0.29	0.28	0.27	**0.29**
	SE-E&TC-A	1.11	1.11	1.11	1.11	1.11	1.11	**1.11**

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2.6 - Student Performance and Learning Outcomes

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C204193:Principles of Communication Systems	SE-E&TC-B	1.10	1.10	1.10	1.09	1.10	1.10	**1.10**
C204194:Object Oriented Programming	SE-E&TC-A	0.29	0.56	0.56	1.10	1.10	1.10	**0.79**
	SE-E&TC-B	1.11	1.10	0.84	1.10	1.11	1.10	**1.06**
C204195:Signals & Control System Lab	SE-E&TC-A	3.00	2.99	2.99				**2.99**
	SE-E&TC-B	2.99	2.98	2.97				**2.98**
C204196:Principle of Communication Systems Lab	SE-E&TC-A	1.11	1.11	1.11				**1.11**
	SE-E&TC-B	1.11	1.10	1.10				**1.10**
C204197:Object Oriented Programming Lab	SE-E&TC-A	1.73	1.73					**1.73**
	SE-E&TC-B	1.11	1.11	0.30				**0.84**
C204198:Data Analytics Lab	SE-E&TC-A	3.00	3.00	3.00				**3.00**
	SE-E&TC-B	3.00	3.00	3.00				**3.00**
C204199:Employability Skill Development	SE-E&TC-A	2.70	2.43	1.89				**2.34**
	SE-E&TC-B	2.70	2.70	2.43				**2.61**
C204200:Project Based Learning	SE-E&TC-A	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
	SE-E&TC-B	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C304181:Digital Communication	TE-E&TC	2.72	2.98	2.98	2.71	2.99	2.99	**2.90**
C304182: Electromagnetics Field Theory	TE-E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C304183:Database Management	TE-E&TC	1.11	1.11	1.11	1.11	1.11	1.11	**1.11**
C304184:Microcontrollers	TE-E&TC	2.98	2.97	2.97	2.16	2.97	2.70	**2.79**
C304185:Digital Signal Processing	TE-E&TC	2.99	2.99	2.99	2.99	2.99	2.98	**2.99**
C304185:Fundamentals of JAVA Programming	TE-E&TC	2.72	2.99	2.99	3.00	2.97	2.97	**2.94**
C304185:Computer Networks	TE-E&TC	2.73	3.00	3.00	3.00	3.00	3.00	**2.96**
C304186:Digital Communication (LAB)	TE-E&TC	2.98	2.98	2.98				**2.98**
C304187:Database Management Lab (LAB)	TE-E&TC	3.00	3.00	3.00				**3.00**
C304188:Microcontroller Lab	TE-E&TC	1.11	1.11	1.11				**1.11**
C304189:Digital Signal Processing (LAB)	TE-E&TC	2.99	2.99	2.98				**2.99**
C304189:Fundamentals of JAVA Programming (LAB)	TE-E&TC	2.19	2.98	3.00				**2.72**
C304189:Computer Networks (LAB)	TE-E&TC	2.99	2.99	3.00				**2.99**
C304190:Skill Development	TE-E&TC	1.09	1.09	1.09				**1.09**
C304192:Cellular Networks	TE-E&TC	1.10	1.10	1.11	1.10	1.08	1.10	**1.10**
C304193:Project Management	TE-E&TC	1.10	1.10	1.11	1.10	1.08	1.10	**1.10**
C304194:Power Devices & Circuits	TE-E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C304195:Advanced JAVA Programming	TE-E&TC	2.72	3.00	3.00	3.00	2.97	2.97	**2.94**
C304195:Network Security	TE-E&TC	1.08	1.07	1.08	1.08	1.08	1.08	**1.08**

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2.6 - Student Performance and Learning Outcomes

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C304195:Digital Image Processing	TE-E&TC	1.11	1.11	1.11	1.11	1.11	1.11	**1.11**
C304200:Mini Project	TE-E&TC	2.37	2.37	2.36				**2.37**
C304196:Cellular Networks Lab	TE-E&TC	2.19	2.19	2.19				**2.19**
C304197:Power Devices & Circuits Lab	TE-E&TC	1.74	1.74	1.74				**1.74**
C304198:Network Security Lab	TE-E&TC	1.08	1.07	1.08				**1.08**
C304198:Digital Image Processing Lab	TE-E&TC	3.00	3.00	3.00				**3.00**
C304198:Advanced JAVA Programming	TE-E&TC	2.19	3.00	2.19				**2.46**
C404181:VLSI Design & Technology	BE-E&TC	2.99	2.99	3.00	2.99	2.97	2.99	**2.99**
C404182:Computer Networks & Security	BE-E&TC	3.00	2.97	3.00	3.00	2.97	2.98	**2.99**
C404183:Radiation & Microwave Techniques	BE-E&TC	2.37	2.37	2.37	2.36	2.34	2.34	**2.36**
C404184:Elective I Internet of Things	BE-E&TC	2.99	2.99	2.98	2.98			**2.99**
C404185:Elective II Electronics Product Design	BE-E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C404186:Lab Practice -I (CNS)	BE-E&TC	1.08	1.11	1.11				**1.10**
C404186:Lab Practice -I (RMT)	BE-E&TC	0.84	1.11	1.11				**1.02**
C404187:Lab Practice -II (VLSI)	BE-E&TC	3.00	3.00	3.00				**3.00**
C404187:Lab Practice -II (Elective II Internet of Things)	BE-E&TC	2.98	2.98	2.98				**2.98**
C404189:Mobile Communication	BE-E&TC	1.74	1.74	1.74	1.74	1.74	1.74	**1.74**
C404190:Broadband Communication Systems	BE-E&TC	0.57	1.11	0.84	0.57	1.08	1.08	**0.88**
C404191:Elective III Audio Video Engineering	BE-E&TC	1.11	1.11	1.11	1.10	1.08	1.08	**1.10**
C404191:Machine Learning	BE-E&TC	1.11	1.09	1.11	1.10	1.07	1.10	**1.10**
C404192:Elective IV Renewable Energy Systems	BE-E&TC	1.11	1.09	1.11	1.10	1.07	1.10	**1.10**
C404193:Lab Practice –III (MC)	BE-E&TC	0.29	0.30	0.29	0.29	0.29	0.29	**0.29**
C404193:Lab Practice –III (BCS)	BE-E&TC	1.60	1.60	1.60				**1.60**
C404194:Lab Practice –IV (Elective III Audio Video Engineering)	BE-E&TC	0.55	1.10	0.83				**0.83**
C404194:Machine Learning Lab	BE-E&TC	3.00	3.00	3.00				**3.00**

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2.6 - Student Performance and Learning Outcomes

.2 Attainment of Program Outcomes and Program Specific Outcomes

Assessment Tools / Processes Used:

The assessment tools / processes used for Assessing Attainment of Program Outcomes (POs) are as follows:

Sr. No.	Assessment Tool / Process	Frequency
Direct Assessment Tools		
1	End Sem. University Examination	Once in a semester
2	University Practical Examination	Once in a semester
3	Term Work	Continuous Assessment
4	Online Exam / In Sem Exam	Once in a semester
5	Unit Test / Assignments	One on each Course Outcome
6	Course Outcome Feedback	Once in a semester
In-Direct Assessment Tools		
7	Exit Students Feedback	Once in Year
8	Employer Feedback	Once in Year
9	Placement	Throughout year

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2.6 - Student Performance and Learning Outcomes

A. PO Attainment

Academic Year 2021-22

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	FE Comp-B	0.61	0.5	0.44	0.33	0.33	0.28	0.33	0.55	0.44	0.17	0.33	0.11
C204181:Electronic Circuits	SE-E&TC-A&B	2.97	2.47	2.64	2.30	2.47	--	--	--	--	--	1.00	1.78
C204182:Digital Circuits	SE-E&TC-A&B	2.66	2.82	2.99	2.82	2.82	1.00	--	--	1.16	0.50	--	1.99
C204183:Electrical Circuits	SE-E&TC-A&B	2.64	2.81	1.65	1.16	1.59	1.47	1.96	1.96	1.98	2.14	1.96	1.98
C204184:Data structures	SE-E&TC-A&B	1.48	2.15	2.21	2.06	2.71	--	--	--	--	--	0.45	0.89
2C04185:Electronic Circuit Lab	SE-E&TC-A&B	1.37	1.37	0.68	--	2.05	--	--	--	0.68	--	--	0.68
C204186:Digital circuits Lab	SE-E&TC-A&B	2.66	2.66	2.00	2.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
C204187:Electrical Circuit Lab	SE-E&TC-A&B	1.82	1.82	1.14	0.68	1.37	1.35	1.35	1.35	1.13	1.13	1.35	0.68
C204188:Data Structures Lab	SE-E&TC-A&B	1.30	0.73	0.37	0.86	1.95	--	--	--	1.08	0.58	--	0.37
C204189:Electronic Skill Development	SE-E&TC-A&B	2.33	2.00	2.00	2.00	2.33	2.00	1.33	0.67	1.00	1.00	0.50	0.50
C204191:Signals & Systems	SE-E&TC-A&B	1.17	1.42	1.16	--	--	--	--	--	--	--	--	--
C204192:Control Systems	SE-E&TC-A&B	0.27	0.27	0.19	0.19	0.19	0.09	--	--	0.19	0.19	0.09	0.19
C204193:Principles of Communication Systems	SE-E&TC-A&B	1.10	1.10	0.92	0.83	1.10	--	--	--	0.74	1.10	--	--
C204194:Object Oriented Programming	SE-E&TC-A&B	0.53	0.44	0.71	0.43	0.86	--	--	--	--	--	0.18	0.31
C204195:Signals & Control System Lab	SE-E&TC-A&B	2.66	2.66	1.99	1.00	2.32	--	--	--	--	--	--	--
C204196:Principle of Communication Systems Lab	SE-E&TC-A&B	0.74	--	0.74	0.74	1.11	--	--	--	0.74	0.74	--	--
C204197:Object Oriented Programming Lab	SE-E&TC-A&B	0.86	0.86	1.00	0.86	1.01	--	--	--	0.86	0.58	--	0.14
C204198:Data Analytics Lab	SE-E&TC-A&B	2.33	2.00	2.00	2.00	2.33	2.00	1.33	--	1.00	1.00	--	--
C204199:Employability Skill Development	SE-E&TC-A&B	1.80	1.44	1.71	0.79	--	2.07	--	2.70	2.70	1.08	0.72	--
C204200: Project Based Learning	SE-E&TC-A&B	1.10	1.11	1.11	1.11	1.11	1.11	0.74	1.11	1.08	1.08	0.74	0.74

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC PUNE-15

2.6 - Student Performance and Learning Outcomes

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C304181:Digital Communication	TE-E&TC	2.25	2.11	2.17	2.99	2.99	--	--	--	--	--	--	--
C304182: Electromagnetics Field Theory	TE-E&TC	2.33	2.20	1.99	--	--	--	--	--	--	--	--	--
C304183:Database Management	TE-E&TC	1.11	0.92	0.98	0.86	0.92	--	--	--	--	--	0.37	0.66
C304184:Microcontrollers	TE-E&TC	2.46	2.18	2.19	1.70	1.70	1.70	--	--	--	--	--	--
C304185:Digital Signal Processing	TE-E&TC	2.99	1.99	2.99	2.32	2.99	--	--	--	--	--	--	--
C304185:Fundamentals of JAVA Programming	TE-E&TC	2.72	--	1.99	--	--	--	--	--	--	--	--	--
C304185:Computer Networks	TE-E&TC	2.73	--	2.00	--	--	--	--	--	--	--	--	--
C304186:Digital Communication (LAB)	TE-E&TC	2.32	2.32	0.99	2.98	2.98	--	--	--	1.99	1.98	--	--
C304187:Database Management Lab (LAB)	TE-E&TC	3.00	2.00	2.00	2.00	2.33	2.00	1.33	--	1.00	1.00	1.00	1.00
C304188:Microcontroller Lab	TE-E&TC	3.19	3.19	0.61	0.74	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
C304189:Digital Signal Processing (LAB)	TE-E&TC	2.99	--	--	--	1.99	1.99	--	--	--	--	--	--
C304189:Fundamentals of JAVA Programming (LAB)	TE-E&TC	2.72	2.72	1.81	--	0.73	0.73	--	--	--	--	--	1.24
C304189:Computer Networks (LAB)	TE-E&TC	3.00	3.00	2.00	--	1.00	1.00	--	--	--	--	--	1.33
C304190:Skill Development	TE-E&TC	0.61	0.72	0.36	0.72	1.09	1.09	1.09	1.09	1.09	1.09	1.09	3.00
C304192:Cellular Networks	TE-E&TC	1.04	1.10	1.10	1.10	0.37	0.12	--	--	0.49	--	--	0.73
C304193:Project Management	TE-E&TC	1.04	1.10	1.10	1.10	0.37	0.12	--	--	0.49	--	--	0.73
C304194:Power Devices & Circuits	TE-E&TC	0.49	0.11	0.51	0.49	0.49	--	--	--	--	--	--	--
C304195:Advanced JAVA Programming	TE-E&TC	2.72	--	2.00	--	--	--	--	--	--	--	--	--
C304195:Network Security	TE-E&TC	0.96	0.84	0.84	0.65	0.65	0.65	--	--	--	--	--	--

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2.6 - Student Performance and Learning Outcomes

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C304195:Digital Image Processing	TE-E&TC	1.11	0.93	0.99	0.86	0.93	--	--	--	--	--	0.37	0.67
C304200:Mini Project	TE-E&TC	2.37	2.37	2.37	2.37	2.37	--	--	--	--	0.78	--	--
C304196:Cellular Networks Lab	TE-E&TC	2.19	2.19	2.19	2.19	0.73	0.24	--	--	0.97	--	--	1.46
C304197:Power Devices & Circuits Lab	TE-E&TC	0.97	--	0.77	0.77	0.97	--	--	--	0.77	0.77	--	--
C304198:Network Security Lab	TE-E&TC	0.72	--	0.60	0.72	0.36	0.36	--	--	--	0.36	--	--
C304198:Digital Image Processing Lab	TE-E&TC	3.00	2.00	2.00	2.00	2.33	2.00	1.33	--	1.00	1.00	1.00	1.00
C304198:Advanced JAVA Programming	TE-E&TC	0.82	0.82	0.55	0.58	0.24	0.24	--	--	0.24	--	--	0.35
C404181:VLSI Design & Technology	BE-E&TC	2.82	2.99	2.99	2.99	1.00	0.33	--	--	1.33	--	--	1.99
C404182:Computer Networks & Security	BE-E&TC	2.99	2.97	3.00	3.00	3.00	3.00	1.99	1.99	1.99	1.99	1.99	1.99
C404183:Radiation & Microwave Techniques	BE-E&TC	1.57	1.97	1.57	--	--	--	--	--	--	--	--	1.57
C404184:Elective I Internet of Things	BE-E&TC	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.99	2.14	2.14	2.14	1.99
C404185:Elective II Electronics Product Design	BE-E&TC	1.33	1.33	1.33	1.33	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.00
C404186:Lab Practice -I (CNS)	BE-E&TC	1.10	1.11	0.74	0.92	1.09	1.09	1.09	1.09	0.92	1.11	1.11	1.11
C404186:Lab Practice -I (RMT)	BE-E&TC	0.65	--	0.74	0.74	1.11	--	--	--	0.56	0.74	--	--
C404187:Lab Practice -II (VLSI)	BE-E&TC	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00	1.00	1.00	1.00
C404187:Lab Practice -II (Elective II Internet of Things)	BE-E&TC	1.99	1.47	1.99	--	1.99	--	--	--	0.99	0.99	0.72	1.47
C404189:Mobile Communication	BE-E&TC	1.45	1.26	1.16	1.06	1.06	--	--	--	1.94	1.88	--	1.16

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2.6 - Student Performance and Learning Outcomes

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C404190:Broadband Communication Systems	BE-E&TC	0.58	0.57	0.60	--	--	--	--	--	--	--	--	0.58
C404191:Elective III Audio Video Engineering	BE-E&TC	1.10	0.91	0.72	0.74	--	--	--	--	--	--	--	--
C404191:Machine Learning	BE-E&TC	1.10	0.92	0.97	0.85	0.91	--	--	--	--	--	0.37	0.65
C404192:Elective IV Renewable Energy Systems	BE-E&TC	0.10	--	0.10	--	--	0.20	0.29	--	0.10	--	--	0.10
C404193:Lab Practice –III (MC)	BE-E&TC	1.07	1.47	1.07	1.07	1.07	--	--	--	0.53	0.53	0.72	1.47
C404193:Lab Practice –III (BCS)	BE-E&TC	0.46	--	0.73	0.73	0.83	--	--	--	0.37	0.73	--	--
C404194:Lab Practice –IV (Elective III Audio Video Engineering)	BE-E&TC	1.10	--	1.10	1.10	1.10	--	--	--	1.10	1.10	--	--
C404194:Machine Learning Lab	BE-E&TC	3.00	2.00	2.00	2.00	2.33	2.00	--	2.00	1.00	1.00	1.00	1.00
C404195:Project Stage II	BE-E&TC	3.00	3.00	3.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Direct Attainment		**1.83**	**1.79**	**1.52**	**1.43**	**1.54**	**1.41**	**1.66**	**1.87**	**1.20**	**1.18**	**1.11**	**1.19**
Indirect Attainment		**1.87**	**2.17**	**2.16**	**1.87**	**1.93**	**1.68**	**1.70**	**2.15**	**2.13**	**2.17**	**1.69**	**2.10**
Direct Attainment 80%		**1.46**	**1.43**	**1.22**	**1.15**	**1.24**	**1.13**	**1.33**	**1.50**	**0.96**	**0.95**	**0.89**	**0.95**
Indirect Attainment 20%		**0.37**	**0.43**	**0.43**	**0.37**	**0.39**	**0.34**	**0.34**	**0.43**	**0.43**	**0.43**	**0.34**	**0.42**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**1.83**	**1.86**	**1.65**	**1.52**	**1.62**	**1.46**	**1.67**	**1.93**	**1.38**	**1.38**	**1.22**	**1.37**

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC PUNE 15

2.6 - Student Performance and Learning Outcomes

B PSO Attainment

Academic Year 2021-22

Course	Class	PSO1	PSO2
C204181:Electronic Circuits	SE-E&TC-A&B	2.97	1.98
C204182:Digital Circuits	SE-E&TC-A&B	2.99	2.66
C204183:Electrical Circuits	SE-E&TC-A&B	1.98	1.32
C204184:Data structures	SE-E&TC-A&B	1.97	0.98
2C04185:Electronic Circuit Lab	SE-E&TC-A&B	2.05	2.05
C204186:Digital circuits Lab	SE-E&TC-A&B	3.00	3.00
C204187:Electrical Circuit Lab	SE-E&TC-A&B	1.36	0.91
C204188:Data Structures Lab	SE-E&TC-A&B	1.95	1.10
C204189:Electronic Skill Development	SE-E&TC-A&B	2.00	2.00
C204191:Signals & Systems	SE-E&TC-A&B	1.47	1.66
C204192:Control Systems	SE-E&TC-A&B	0.19	0.11
C204193:Principles of Communication Systems	SE-E&TC-A&B	0.92	1.04
C204194:Object Oriented Programming	SE-E&TC-A&B	0.92	0.35
C204195:Signals & Control System Lab	SE-E&TC-A&B	1.99	1.99
C204196:Principle of Communication Systems Lab	SE-E&TC-A&B	1.11	1.11
C204197:Object Oriented Programming Lab	SE-E&TC-A&B	1.28	0.42
C204198:Data Analytics Lab	SE-E&TC-A&B	2.00	2.00
C204199:Employability Skill Development	SE-E&TC-A&B	2.48	2.48
C204200:Project Based Learning	SE-E&TC-A&B	1.10	0.98
C304181:Digital Communication	TE-E&TC	2.58	1.93
C304182: Electromagnetics Field Theory	TE-E&TC	2.66	2.00
C304183:Database Management	TE-E&TC	1.11	0.74
C304184:Microcontrollers	TE-E&TC	2.34	2.30
C304185:Digital Signal Processing	TE-E&TC	2.49	2.82
C304185:Fundamentals of JAVA Programming	TE-E&TC	2.94	1.96
C304185:Computer Networks	TE-E&TC	2.96	1.97
C304186:Digital Communication (LAB)	TE-E&TC	2.98	2.98
C304187:Database Management Lab (LAB)	TE-E&TC	2.00	2.00
C304188:Microcontroller Lab	TE-E&TC	0.37	0.37

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC

2.6 - Student Performance and Learning Outcomes

Course	Class	PSO1	PSO2
C304189:Digital Signal Processing (LAB)	TE-E&TC	2.99	2.99
C304189:Fundamentals of JAVA Programming (LAB)	TE-E&TC	2.72	1.81
C304189:Computer Networks (LAB)	TE-E&TC	3.00	2.00
C304190:Skill Development	TE-E&TC	1.09	1.09
C304192:Cellular Networks	TE-E&TC	1.10	1.10
C304193:Project Management	TE-E&TC	1.10	1.10
C304194:Power Devices & Circuits	TE-E&TC	0.92	1.04
C304195:Advanced JAVA Programming	TE-E&TC	2.94	1.96
C304195:Network Security	TE-E&TC	0.90	0.90
C304195:Digital Image Processing	TE-E&TC	1.11	0.74
C304200:Mini Project	TE-E&TC	2.37	2.37
C304196:Cellular Networks Lab	TE-E&TC	2.19	2.19
C304197:Power Devices & Circuits Lab	TE-E&TC	1.16	1.16
C304198:Network Security Lab	TE-E&TC	0.36	0.36
C304198:Digital Image Processing Lab	TE-E&TC	2.00	2.00
C304198:Advanced JAVA Programming	TE-E&TC	2.46	1.64
C404181:VLSI Design & Technology	BE-E&TC	2.99	2.99
C404182:Computer Networks & Security	BE-E&TC	2.99	2.99
C404183:Radiation & Microwave Techniques	BE-E&TC	1.97	2.23
C404184:Elective I Internet of Things	BE-E&TC	1.99	1.74
C404185:Elective II Electronics Product Design	BE-E&TC	2.49	2.83
C404186:Lab Practice -I (CNS)	BE-E&TC	1.10	0.61
C404186:Lab Practice -I (RMT)	BE-E&TC	0.68	0.68
C404187:Lab Practice -II (VLSI)	BE-E&TC	3.00	3.00
C404187:Lab Practice -II (Elective II Internet of Things)	BE-E&TC	1.99	1.66
C404189:Mobile Communication	BE-E&TC	1.74	1.45
C404190:Broadband Communication Systems	BE-E&TC	0.72	0.81
C404191:Elective III Audio Video Engineering	BE-E&TC	0.73	0.37
C404191:Machine Learning	BE-E&TC	1.10	0.73
C404192:Elective IV Renewable Energy Systems	BE-E&TC	0.10	0.10
C404193:Lab Practice –III (MC)	BE-E&TC	1.24	1.24

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C404193:Lab Practice –III (BCS)	BE-E&TC	0.55	0.55
C404194:Lab Practice –IV (Elective III Audio Video Engineering)	BE-E&TC	0.73	0.37
C404194:Machine Learning Lab	BE-E&TC	2.00	2.00
C404195:Project Stage II	BE-E&TC	3.00	3.00
AVERAGE		**1.83**	**1.60**
Direct Attainment		**1.83**	**1.60**
Indirect Attainment		**1.33**	**1.31**
Direct Attainment 80%		**1.46**	**1.28**
Indirect Attainment 20%		**0.27**	**0.26**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**1.73**	**1.54**

Dr. Rajashree Suryawanshi

Criteria Incharge

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ARMY INSTITUTE OF TECHNOLOGY * PUNE-15 * Dept of E & TC

ARMY INSTITUTE OF TECHNOLOGY

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Department of Electronics & Telecommunication Engineering

30. Attainment of Course Outcomes, Program Outcomes and Program Specific Outcomes.

AY 2020-21

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

The following assessment processes are used to evaluate the course outcomes

1. University Examination:

One of the assessment process used to measure course outcome is university examination. This includes: End Sem. Theory Exam, Practical Exam, Oral Exam, Term-work, Online Exams and Mid Sem. Exams. The average weightage for university examination is 70 %.

2. Internal Assessment:

Tool used for internal assessment process is: Tests, Assignments and Quizes. The average weightage for internal assessment is 30 %.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

Attainment of COs can be measured directly and indirectly

1. Direct attainment of COs can be determined from the performances of students in all the above assessment processes.
2. The percentage weightage to direct attainment is 90%.
3. Indirect attainment of COs can be determined from the course outcome feedback.
4. The course outcome feedback form should permit receiving feedback from students on all the COs.
5. The percentage weightage to indirect attainment is 10%.

1. Direct attainment of Cos:

   Direct attainment of COs is determined from the performances of students in Internal Assessment and

   University Examination.

2. Direct CO Attainment (% age) = 0.7 x University Examination Class Average + 0.3 x Internal Assessment Class Average
3. Total CO Attainment (% age) =0.9 x Direct CO Attainment + 0.1 x Indirect CO Attainment

CO Attainment Gap (% age) = Target – Attainment

The following targets of attainment levels are set for course outcomes:

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2.6 - Student Performance and Learning Outcomes

Sr no	Assessment Process	Attainment Level 1	Attainment Level 2	Attainment Level 3
1	University Examination	50 % Students Scoring More than 80 % Marks	60 % Students Scoring More than 80 % Marks	70 % Students Scoring More than 80 % Marks
2	Internal Assessment	50 % Students Scoring More than 80 % Marks	60 % Students Scoring More than 80 % Marks	70 % Students Scoring More than 80 % Marks

Course Outcome Attainment:

Direct CO Attainment (% age) = 0.7 x University Examination Class Average + 0.3 x Internal Assessment Class Average

Total CO Attainment (% age) =0.9 x Direct CO Attainment + 0.1 x Indirect CO Attainment

Academic Year 2020-21

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
107001 Engineering Mathematics-I	FE E&TC	2.95	2.95	2.95	2.95	0.25	0.25	**2.05**
107002 Engineering Physics	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
107009 Engineering Chemistry	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
102003 Systems in Mechanical Engineering	FE E&TC	3.00						**3.00**
103004 Basic Electrical Engineering	FE E&TC	2.94	2.94	2.94	2.94	2.94	2.94	**2.95**
104010 Basic Electronics Engineering	FE E&TC	2.95	2.95	2.95	2.95	2.95	2.95	**2.96**
110005 Programming and Problem Solving	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.51**
101011 Engineering Mechanics	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
111006 Workshop@	FE E&TC	0.26	0.26	0.26	0.26			**0.26**
107008 Engineering Mathematics-II	FE E&TC	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**
120120 Engineering Graphics	FE E&TC	3.00						**3.00**
110013 Project Based Learning§	FE E&TC	2.96	2.96	2.96				**2.96**

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2.6 - Student Performance and Learning Outcomes

C07005 Engineering Mathematics III	SE E&TC	0.81	0.81	0.81	0.81	0.81	0.81	**0.81**
C204181 Electronic Circuits	SE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C204182 Digital Circuits	SE E&TC	3.00	3.00	3.00	3.00	2.70	2.70	**2.90**
C204183 Electrical Circuits	SE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C204184 Data structures	SE E&TC	3.00	3.00	3.00	3.00	3.00	3.00	**3.00**
C204185 Electronic Circuit Lab	SE E&TC	3.00	3.00	3.00				**3.00**
C204186 Digital circuits Lab	SE E&TC	2.37	2.37	2.37				**2.37**
C204187 Electrical Circuit Lab	SE E&TC	3.00	3.00	2.99				**3.00**
C204188 Data Structures Lab	SE E&TC	2.10	2.10	2.10				**2.10**
C204189 Electronic Skill Development	SE E&TC	3.00	3.00	3.00				**3.00**
C204191 Signals & Systems	SE E&TC	2.73	2.73	2.73	3.00	2.97	2.97	**2.85**
C204192 Control Systems	SE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C204193 Principles of Communication Systems	SE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C204194 Object Oriented Programming	SE E&TC	2.19	2.19	2.19	2.19	2.16	2.16	**2.18**
C204195 Signals & Control System Lab	SE E&TC	3.00	3.00	3.00	0.00	0.00	0.00	**1.50**
C204196 Principle of Communication Systems Lab	SE E&TC	3.00	3.00	3.00				**3.00**
C204197 Object Oriented Programming Lab	SE E&TC	1.20	1.20	1.20				**1.20**
C204198 Data Analytics Lab	SE E&TC	3.00	3.00	3.00				**3.00**
C204199 Employability Skill Development	SE E&TC	2.70	2.16	2.70				**2.52**
C204200 Project Based Learning	SE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C304181 Digital Communication	TE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C304182 Digital Signal Processing	TE E&TC	2.99	2.99	2.98	2.98	2.99	2.99	**2.98**
C304183 Electromagnetics	TE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**

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C304184 Microcontrollers	TE E&TC	3.00	3.00	2.99	3.00	2.97	2.97	**2.99**
C304185 Mechatronics	TE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C304191 Signal Processing and Communications Lab (DC)	TE E&TC	2.99	2.99	2.99				**2.99**
C304191 Signal Processing and Communications Lab (DSP)	TE E&TC	2.99	2.99	2.99				**2.99**
C304192 Microcontrollers Lab	TE E&TC	2.37	2.37	2.37				**2.37**
C304192 Mechatronics Lab	TE E&TC	2.37	2.37	2.37				**2.37**
C304193 Electronics System Design	TE E&TC	3.00	3.00	3.00				**3.00**
C304186 Power Electronics	TE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C304187 Information Theory, Coding and Communication Networks	TE E&TC	3.00	3.00	3.00	3.00	3.00	2.72	**2.95**
C304188 Business Management	TE E&TC	3.00	3.00	3.00	3.00	3.00	2.99	**3.00**
C306189 Advanced Processors	TE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
SC304190 System Programming and Operating Systems	TE E&TC	3.00	3.00	3.00				**3.00**
C304194 Power Lab	TE E&TC	1.74	1.74	1.74				**1.74**
C304194 ITCT Lab	TE E&TC	1.11	1.11	1.11				**1.11**
C304195 Advanced Processors Lab	TE E&TC	2.37	2.37	2.37				**2.37**
C304195 System Programming Lab	TE E&TC	3.00	3.00	3.00				**3.00**
C304196 Employability Skills and Mini Project	TE E&TC	2.37	2.37	2.36				**2.37**
C404181 VLSI Design & Technology	BE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C404182 Computer Networks & Security	BE E&TC	2.71	2.17	2.98	2.16	2.16	2.17	**2.39**
C404183 Radiation & Microwave Techniques	BE E&TC	2.72	2.71	2.99	2.99	2.99	2.99	**2.90**
C404184 Elective I Internet of Things	BE E&TC	2.70	2.70	2.70	2.70	2.70	2.70	**2.70**

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C404185 Elective II Electronics Product Design	BE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C404186 Lab Practice -I (CNS)	BE E&TC	1.73	1.73					**1.73**
C404186 Lab Practice -I (RMT)	BE E&TC	1.74	1.73	1.73				**1.74**
C404187 Lab Practice -II (VLSI)	BE E&TC	3.00	3.00	3.00				**3.00**
C404187 Lab Practice -II (Elective IInternet of Things)	BE E&TC	2.70	2.70	2.70				**2.70**
C404188 Project Stage I	BE E&TC	3.00	3.00	3.00	3.00	3.00	3.00	**3.00**
C404189 Mobile Communication	BE E&TC	2.70	2.70	2.70	2.70	2.70	2.70	**2.70**
C404190 Broadband Communication Systems	BE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C404191 Elective III Audio Video Engineering	BE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C404192 Elective IV Renewable Energy Systems	BE E&TC	2.18	2.19	2.18	2.18	2.18	2.18	**2.18**
C404193 Lab Practice –III (MC)	BE E&TC	0.00	0.60	0.00				**0.20**
C404193 Lab Practice –III (BCS)	BE E&TC	1.74	1.74	1.74				**1.74**
C404194 Lab Practice –IV (Elective III Audio Video Engineering)	BE E&TC	2.36	2.36					**2.36**
C404195 Project Stage II	BE E&TC	3.00	3.00	3.00	3.00	3.00	3.00	**3.00**

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2.6 - Student Performance and Learning Outcomes

.2 Attainment of Program Outcomes and Program Specific Outcomes

Assessment Tools / Processes Used:

The assessment tools / processes used for Assessing Attainment of Program Outcomes (POs) are as follows:

Sr. No.	Assessment Tool / Process	Frequency
Direct Assessment Tools		
1	End Sem. University Examination	Once in a semester
2	University Practical Examination	Once in a semester
3	Term Work	Continuous Assessment
4	Online Exam / In Sem Exam	Once in a semester
5	Unit Test / Assignments	One on each Course Outcome
6	Course Outcome Feedback	Once in a semester
In-Direct Assessment Tools		
7	Exit Students Feedback	Once in Year
8	Employer Feedback	Once in Year
9	Placement	Throughout year

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A. PO Attainment

Academic Year 2020-21

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics-I	FE E&TC	2.05	2.05	-	2.05	2.05	-	-	-	-	2.41	-	2.05
107002 Engineering Physics	FE E&TC	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
107009 Engineering Chemistry	FE E&TC	1.97	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	1.97	2.96
102003 Systems in Mechanical Engineering	FE E&TC	2.67	2.08	1.83	1.66	1.00	1.58	1.75	1.33	2.00	1.92	1.00	1.50
103004 Basic Electrical Engineering	FE E&TC	2.71	2.71	1.56	2.71	2.05	2.05	1.71	1.47	2.22	2.07	1.15	2.38
104010 Basic Electronics Engineering	FE E&TC	2.96	2.80	1.97	2.30	2.47	2.14	1.23	1.97	0.99	1.18	0.99	1.97
110005 Programming and Problem Solving	FE E&TC	1.15	1.48	1.31	1.31	1.48	1.48	0.66	1.31	0.66	1.31	0.66	0.99
101011 Engineering Mechanics	FE E&TC	2.96	2.96	0.99	2.96	1.97	1.97	0.99	0.99	2.96	2.96	0.99	2.96
111006 Workshop@	FE E&TC	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.50	0.33	0.33
107008 Engineering Mathematics-II	FE E&TC	2.95	2.95	-	2.95	2.95	-	-	-	-	2.95	-	2.95
102012 Engineering Graphics	FE E&TC	1.99	2.32	1.82	1.99	2.66	1.16	0.50	1.16	1.16	0.50	0.66	0.99
110013 Project Based Learning§	FE E&TC	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
C07005 Engineering Mathematics III	SE E&TC	0.81	0.81	-	0.81	0.81	-	-	-	-	0.81	-	0.81
C204181 Electronic Circuits	SE E&TC	2.99	2.50	2.66	2.33	2.49	-	-	-	-	-	0.99	1.79
C204182 Digital Circuits	SE E&TC	2.57	2.73	2.90	2.73	2.73	0.97	-	-	1.12	-	-	1.93

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C204183 Electrical Circuits	SE E&TC	2.66	2.82	1.66	1.16	1.60	1.49	1.98	1.98	1.99	2.16	1.98	1.99
C204184 Data structures	SE E&TC	2.00	2.50	2.00	-	-	-	-	-	-	-	-	-
C204185 Electronic Circuit Lab	SE E&TC	2.00	2.00	1.00	-	3.00	-	-	-	1.00	-	-	1.00
C204186 Digital circuits Lab	SE E&TC	2.11	1.32	1.58	1.58	2.37	-	-	1.58	1.58	1.58	-	-
C204187 Electrical Circuit Lab	SE E&TC	2.67	2.67	1.67	1.00	2.00	2.00	2.00	2.00	1.66	1.66	2.00	1.00
C204188 Data Structures Lab	SE E&TC	1.40	-	1.40	1.40	2.10	-	-	-	1.40	1.40	-	-
C204189 Electronic Skill Development	SE E&TC	2.67	1.67	2.50	1.33	3.00	-	-	2.00	2.00	2.00	2.00	-
C204191 Signals & Systems	SE E&TC	1.90	2.41	1.90	-	-	-	-	-	-	-	-	-
C204192 Control Systems	SE E&TC	2.82	2.50	1.98	1.99	-	-	-	-	-	-	-	-
C204193 Principles of Communication Systems	SE E&TC	1.99	2.50	1.99	2.24	-	-	-	-	-	-	-	-
C204194 Object Oriented Programming	SE E&TC	1.45	1.83	1.45	-	-	-	-	-	-	-	-	-
C204195 Signals & Control System Lab	SE E&TC	3.00	3.00	2.00	1.00	2.00	-	-	-	-	-	-	-
C204196 Principle of Communication Systems Lab	SE E&TC	2.00	-	2.00	2.00	3.00	-	-	-	2.00	2.00	-	-
C204197 Object Oriented Programming Lab	SE E&TC	0.80	-	0.80	0.80	1.20	-	-	-	0.80	0.80	-	-
C204198 Data Analytics Lab	SE E&TC	2.33	2.00	2.00	2.00	2.33	2.00	1.33	-	1.00	1.00	-	-
C204199 Employability Skill Development	SE E&TC	1.80	1.44	1.44	0.72	-	2.07	-	2.70	2.70	1.08	0.72	-
C204200	SE E&TC	2.99	3.00	3.00	3.00	3.00	3.00	2.00	3.00	2.97	2.97	2.00	-

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Project Based Learning													
C304181 Digital Communication	TE E&TC	2.33	2.20	1.99	-	-	-	-	-	-	-	-	-
C304182 Digital Signal Processing	TE E&TC	2.98	2.82	2.98	2.99	2.82	0.99	-	-	1.16	-	-	1.99
C304183 Electromagnetics	TE E&TC	2.33	2.20	1.99	-	-	-	-	-	-	-	-	-
C304184 Microcontrollers	TE E&TC	2.65	2.32	2.32	1.79	1.79	1.79	-	-	-	-	0.22	-
C304185 Mechatronics	TE E&TC	1.99	2.50	1.99	-	-	-	-	-	-	-	-	1.99
C304191 Signal Processing and Communications Lab (DC)	TE E&TC	2.99	-	2.49	1.99	2.99	-	-	-	2.00	1.99	-	-
C304191 Signal Processing and Communications Lab (DSP)	TE E&TC	2.99	2.99	2.49	1.99	2.99	-	-	-	2.00	1.99	-	-
C304192 Microcontrollers Lab	TE E&TC	1.84	1.31	1.31	1.58	0.79	0.79	-	-	-	0.79	-	-
C304192 Mechatronics Lab	TE E&TC	1.58	-	1.58	1.58	2.37	-	-	-	1.58	1.58	-	1.58
C304193 Electronics System Design	TE E&TC	0.74	-	0.74	0.74	1.11	-	-	-	0.74	0.74	-	-
C304186 Power Electronics	TE E&TC	1.99	2.50	1.99	-	-	-	-	-	-	-	-	-
C304187 Information Theory, Coding and Communication Networks	TE E&TC	2.45	1.62	2.45	2.95	3.00	2.72	-	-	-	-	-	1.81
C304188 Business Management	TE E&TC	2.00	1.00	3.00	3.00	-	1.00	1.00	1.00	1.00	2.00	3.00	1.99
C306189 Advanced Processors	TE E&TC	2.99	2.99	2.99	2.99	2.99	0.66	0.66	0.99	0.66	1.33	0.66	0.66
C304190 System Programming and Operating Systems	TE E&TC	2.32	1.82	1.79	-	0.27	0.22	-	-	-	-	-	-

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C304194 Power Lab	TE E&TC	1.16	-	1.16	1.16	1.74	-	-	-	1.16	1.16	-	-
C304194 ITCT Lab	TE E&TC	0.99	0.62	0.74	0.74	1.11	-	-	0.74	0.74	0.74	-	3.00
C304195 Advanced Processors Lab	TE E&TC	2.37	2.37	2.37	2.37	2.37	-	-	-	-	0.79	-	-
C304195 System Programming Lab	TE E&TC	2.00	-	1.00	1.50	1.00	-	-	-	-	1.00	-	-
C304196 Employability Skills and Mini Project	TE E&TC	2.37	2.37	2.37	2.37	2.37	-	-	-	-	0.79	-	-
C404181 VLSI Design & Technology	BE E&TC	2.82	2.99	2.99	2.99	1.00	0.33	-	-	1.33	-	-	1.99
C404182 Computer Networks & Security	BE E&TC	2.39	2.17	2.98	-	-	-	1.63	-	-	-	-	-
C404183 Radiation & Microwave Techniques	BE E&TC	2.90	2.90	1.93	1.95	1.81	0.91	-	-	1.00	-	-	1.16
C404184 Elective I Internet of Things	BE E&TC	1.80	1.80	1.80	1.80	1.65	-	-	-	2.14	2.16	-	4.06
C404185 Elective II Electronics Product Design	BE E&TC	1.99	2.50	1.99	-	-	-	-	-	-	-	-	-
C404186 Lab Practice -I (CNS)	BE E&TC	1.73	1.73	1.15	1.44	1.73	-	-	-	1.15	1.73	-	-
C404186 Lab Practice -I (RMT)	BE E&TC	1.74	1.74	1.16	-	0.58	0.58	-	-	-	-	-	0.58
C404187 Lab Practice -II (VLSI)	BE E&TC	3.00	-	3.00	3.00	3.00	-	-	-	2.00	1.00	-	-
C404187 Lab Practice -II (Elective IInternet of Things)	BE E&TC	1.80	1.47	1.80	1.80	1.80	-	-	-	0.90	0.90	0.72	1.47
C404188 Project Stage I	BE E&TC	3.00	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	3.00	3.00
C404189 Mobile Communication	BE E&TC	2.25	1.95	1.80	1.65	1.65	-	-	-	2.06	2.03	-	4.06

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C404190 Broadband Communication Systems	BE E&TC	1.99	2.50	1.99	-	-	-	-	-	-	-	-	1.99
C404191 Elective III Audio Video Engineering	BE E&TC	2.66	2.59	2.79	2.73	-	-	-	-	0.99	0.99	-	0.99
C404192 Elective IV Renewable Energy Systems	BE E&TC	1.09	0.97	1.64	0.73	1.46	1.46	1.89	-	0.73	-	-	0.73
C404193 Lab Practice –III (MC)	BE E&TC	0.40	1.47	0.40	0.40	0.40	-	-	-	0.20	0.20	0.72	1.47
C404193 Lab Practice –III (BCS)	BE E&TC	1.16	-	1.16	1.16	1.74	-	-	-	1.16	1.16	-	-
C404194 Lab Practice –IV (Elective III Audio Video Engineering)	BE E&TC	2.36	2.36	1.57	1.97	2.36	-	-	-	1.97	2.36	-	-
C404195 Project Stage II	BE E&TC	3.00	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Direct Attainment		**2.2**	**2.24**	**1.92**	**1.91**	**1.97**	**1.66**	**1.66**	**1.76**	**1.63**	**1.63**	**1.34**	**1.87**
Indirect Attainment		**2.48**	**2.51**	**2.25**	**2.53**	**2.34**	**2.71**	**2.46**	**2.55**	**2.76**	**2.56**	**2.51**	**2.44**
Direct Attainment 80%		**1.76**	**1.79**	**1.54**	**1.53**	**1.58**	**1.33**	**1.33**	**1.41**	**1.30**	**1.30**	**1.07**	**1.50**
Indirect Attainment 20%		**0.50**	**0.50**	**0.45**	**0.51**	**0.47**	**0.54**	**0.49**	**0.51**	**0.55**	**0.51**	**0.50**	**0.49**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**2.26**	**2.29**	**1.99**	**2.03**	**2.04**	**1.87**	**1.82**	**1.92**	**1.86**	**1.82**	**1.57**	**1.98**

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2.6 - Student Performance and Learning Outcomes

B. PSO Attainment

Academic Year 2020-21

Course	Class	PSO1	PSO2
107001 Engineering Mathematics-I	FE E&TC	1.53	2.05
107002 Engineering Physics	FE E&TC	1.15	1.97
107009 Engineering Chemistry	FE E&TC	2.80	2.96
102003 Systems in Mechanical Engineering	FE E&TC	2.50	2.00
103004 Basic Electrical Engineering	FE E&TC	2.30	1.80
104010 Basic Electronics Engineering	FE E&TC	2.80	2.14
110005 Programming and Problem Solving	FE E&TC	1.97	1.64
101011 Engineering Mechanics	FE E&TC	1.97	0.99
111006 Workshop@	FE E&TC	2.67	1.83
107008 Engineering Mathematics-II	FE E&TC	2.13	2.95
102012 Engineering Graphics	FE E&TC	3.00	0.99
110013 Project Based Learning§	FE E&TC	2.46	0.99
C07005 Engineering Mathematics III	SE E&TC	0.68	0.27
C204181 Electronic Circuits	SE E&TC	2.99	1.99
C204182 Digital Circuits	SE E&TC	2.90	2.58
C204183 Electrical Circuits	SE E&TC	1.99	1.33
C204184 Data structures	SE E&TC	2.50	2.83
C204185 Electronic Circuit Lab	SE E&TC	3.00	3.00
C204186 Digital circuits Lab	SE E&TC	2.37	2.37
C204187 Electrical Circuit Lab	SE E&TC	2.00	1.33

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C204188 Data Structures Lab	SE E&TC	1.40	1.40
C204189 Electronic Skill Development	SE E&TC	3.00	3.00
C204191 Signals & Systems	SE E&TC	2.36	2.69
C204192 Control Systems	SE E&TC	2.49	1.82
C204193 Principles of Communication Systems	SE E&TC	2.49	2.82
C204194 Object Oriented Programming	SE E&TC	1.82	2.06
C204195 Signals & Control System Lab	SE E&TC	2.00	2.00
C204196 Principle of Communication Systems Lab	SE E&TC	3.00	3.00
C204197 Object Oriented Programming Lab	SE E&TC	0.80	0.80
C204198 Data Analytics Lab	SE E&TC	2.00	2.00
C204199 Employability Skill Development	SE E&TC	2.52	2.52
C204200 Project Based Learning	SE E&TC	2.99	2.66
C304181 Digital Communication	TE E&TC	2.66	1.16
C304182 Digital Signal Processing	TE E&TC	2.98	2.98
C304183 Electromagnetics	TE E&TC	2.66	2.00
C304184 Microcontrollers	TE E&TC	2.49	2.49
C304185 Mechatronics	TE E&TC	2.49	2.82
C304191 Signal Processing and Communications Lab (DC)	TE E&TC	2.99	2.99
C304191 Signal Processing and Communications Lab (DSP)	TE E&TC	2.99	2.99
C304192 Microcontrollers Lab	TE E&TC	0.79	0.79
C304192 Mechatronics Lab	TE E&TC	1.58	1.58
C304193 Electronics System Design	TE E&TC	0.74	0.74

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C304186 Power Electronics	TE E&TC	2.49	2.82
C304187 Information Theory, Coding and Communication Networks	TE E&TC	2.62	2.79
C304188 Business Management	TE E&TC	1.00	1.00
C306189 Advanced Processors	TE E&TC	2.99	2.99
C304190 System Programming and Operating Systems	TE E&TC	1.99	2.49
C304194 Power Lab	TE E&TC	1.16	1.16
C304194 ITCT Lab	TE E&TC	1.11	0.99
C304195 Advanced Processors Lab	TE E&TC	2.37	2.37
C304195 System Programming Lab	TE E&TC	1.00	1.00
C304196 Employability Skills and Mini Project	TE E&TC	2.37	2.37
C404181 VLSI Design & Technology	BE E&TC	2.99	2.99
C404182 Computer Networks & Security	BE E&TC	2.39	2.39
C404183 Radiation & Microwave Techniques	BE E&TC	1.93	0.97
C404184 Elective I Internet of Things	BE E&TC	2.25	2.55
C404185 Elective II Electronics Product Design	BE E&TC	2.49	2.82
C404186 Lab Practice -I (CNS)	BE E&TC	1.73	1.73
C404186 Lab Practice -I (RMT)	BE E&TC	1.16	0.58
C404187 Lab Practice -II (VLSI)	BE E&TC	3.00	3.00
C404187 Lab Practice -II (Elective IInternet of Things)	BE E&TC	2.10	2.10
C404188 Project Stage I	BE E&TC	3.00	3.00
C404189 Mobile Communication	BE E&TC	2.70	2.25
C404190 Broadband Communication Systems	BE E&TC	2.49	2.82
C404191	BE E&TC	1.99	1.00

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Elective III Audio Video Engineering			
C404192 Elective IV Renewable Energy Systems	BE E&TC	0.73	0.73
C404193 Lab Practice –III (MC)	BE E&TC	0.40	0.40
C404193 Lab Practice –III (BCS)	BE E&TC	1.16	1.16
C404194 Lab Practice –IV (Elective III Audio Video Engineering)	BE E&TC	1.57	0.79
C404195 Project Stage II	BE E&TC	3.00	3.00
Direct Attainment		**2.16**	**1.99**
Indirect Attainment		**2.75**	**2.63**
Direct Attainment 80%		**1.73**	**1.59**
Indirect Attainment 20%		**0.55**	**0.53**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**2.28**	**2.12**

Dr. G R Patil

HOD E&TC

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC PUNE-15

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Electronics & Telecommunication
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ARMY INSTITUTE OF TECHNOLOGY

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Department of Electronics & Telecommunication Engineering

46. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2019-20

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

*Attainment Level 1: **60%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 2: **70%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 3: **80%** students scoring more than University average percentage marks or set attainment level in the final examination.*

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2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment:

70% of University level + 30% of Internal level

Academic Year 2019-20

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C107001 Engineering Mathematics-I	FE E&TC	2.06	2.06	2.96	2.96	2.96	2.96	**2.66**
C107002 Engineering Physics	FE E&TC	2.96	2.96	2.06	2.96	2.96	2.96	**2.81**
C107009 Engineering Chemistry	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
C102003 Systems In Mechanical Engineering	FE E&TC	0.90	--	--	--	--	--	**0.90**
C103004 Basic Electrical Engineering	FE E&TC	2.04	2.94	2.94	2.94	2.94	2.94	**2.79**
C104010 Basic Electronics Engineering	FE E&TC	2.06	2.06	2.06	2.06	2.06	2.06	**2.06**
C110005 Programming and Problem Solving	FE E&TC	2.04	2.04	2.04	2.94	2.94	2.04	**2.34**
C101011 Engineering Mechanics	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
C111006 Workshop@	FE E&TC	3.00	--	--	--	--	--	**3.00**
C107008 Engineering Mathematics-II	FE E&TC	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**
C120120 Engineering Graphics	FE E&TC	2.30	--	--	--	--	--	**2.30**
C110013 Project Based Learning§	FE E&TC	2.96	2.96	2.96	--	--	--	**2.96**
C204181 Signals & Systems	SE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C204182 Electronic Devices & Circuits(TH)	SE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C204182 Electronic Devices & Circuits(PR)	SE E&TC	1.74	1.74	1.73	--	--	--	**1.74**
C204183 Electrical Circuits & Machines (TH)	SE E&TC	3.00	3.00	2.99	3.00	2.97	2.97	**2.99**
C204183 Electrical Circuits & Machines (PR)	SE E&TC	3.00	3.00	3.00	--	--	--	**3.00**
C204193 Data Structures & Algorithms(TH)	SE E&TC	0.30	0.30	0.30	0.30	0.27	0.27	**0.29**
C204193 Data Structures & Algorithms(PR)	SE E&TC	0.30	0.30	0.30	--	--	--	**0.30**

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C204185 Digital Electronics(TH)	SE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C204185 Digital Electronics(PR)	SE E&TC	1.74	1.74	1.74	--	--	--	**1.74**
C204186 Electronic Measuring Instruments &Tools(TH)	SE E&TC	3.00	3.00	3.00	--	--	--	**3.00**
C207005 Engineering Mathematics III	SE E&TC	2.43	2.43	2.43	2.43	2.43	2.43	**2.43**
C204187 Integrated Circuits (TH)	SE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C204187 Integrated Circuits (PR)	SE E&TC	2.37	2.37	2.37	--	--	--	**2.37**
C204188 Control Systems	SE E&TC	2.37	2.37	2.37	2.37	2.34	2.34	**2.36**
C204189 Analog Communication(TH)	SE E&TC	3.00	3.00	3.00	3.00	2.97	2.97	**2.99**
C204189 Analog Communication (PR)	SE E&TC	3.00	3.00	3.00	--	--	--	**3.00**
C204180 Object Oriented Programming (TH)	SE E&TC	3.00	3.00	3.00	3.00	3.00	3.00	**3.00**
C204190 Object Oriented Programming (PR)	SE E&TC	3.00	3.00	3.00	--	--	--	**3.00**
C204191 Employability Skill Development	SE E&TC	2.70	2.43	2.16	--	--	--	**2.43**
C304181 Digital Communication	TE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C304182 Digital Signal Processing	TE E&TC	1.10	0.83	1.09	1.09	1.10	1.10	**1.05**
C304183 Electromagnetics	TE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C304184 Microcontrollers	TE E&TC	0.30	0.30	0.29	0.30	0.27	0.27	**0.29**
C304185 Mechatronics	TE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C304191 Signal Processing and Communications Lab (DC)	TE E&TC	3.00	3.00	3.00	--	--	--	**3.00**
C304191 Signal Processing & Communications Lab (DSP)	TE E&TC	3.00	2.99	2.99	--	--	--	**2.99**
C304192 Microcontrollers Lab	TE E&TC	1.11	1.11	1.11	--	--	--	**1.11**
C304192 Mechatronics Lab	TE E&TC	1.74	1.74	1.74	--	--	--	**1.74**
C304193 Electronics System Design	TE E&TC	1.11	1.11	1.11	--	--	--	**1.11**
C304186 Power Electronics	TE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**

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C304187 Information Theory, Coding and Communication Networks	TE E&TC	1.74	1.74	1.74	1.74	1.74	1.73	**1.74**
C304188 Business Management	TE E&TC	1.00	1.00	1.00	1.00	1.00	1.00	**1.00**
C306189 Advanced Processors	TE E&TC	0.30	0.30	1.11	0.84	0.82	1.09	**0.74**
SC304190 System Programming and Operating Systems	TE E&TC	0.30	0.30	0.27	0.30	0.27	0.27	**0.28**
C304194 Power Lab	TE E&TC	1.11	1.11	1.11	--	--	--	**1.11**
C304194 ITCT Lab	TE E&TC	2.37	2.37	2.37	--	--	--	**2.37**
C304195 Advanced Processors Lab	TE E&TC	3.00	3.00	3.00	--	--	--	**3.00**
C304195 System Programming Lab	TE E&TC	2.19	2.19	2.19	--	--	--	**2.19**
C304196 Employability Skills & Mini Project	TE E&TC	3.00	3.00	2.99	--	--	--	**3.00**
C404181 VLSI Design & Technology	BE E&TC A&B	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C404182 Computer Networks & Security	BE E&TC A&B	0.00	0.00	0.00	0.00	0.00	0.00	**1.32**
C404183 Radiation &Microwave Techniques	BE E&TC A&B	0.30	0.30	0.30	0.56	0.56	0.56	**0.76**
C404184 Elective I Internet of Things	BE E&TC A&B	1.11	0.29	0.29	1.10	0.56	0.56	**0.35**
C404185 Elective II Electronics Product Design	BE E&TC A&B	0.70	0.70	0.70	0.70	0.70	0.70	**0.35**
C404185 ELECTIVE II-Artificial Intelligence	BE E&TC A&B	1.11	1.11	1.11	1.11	1.08	1.08	**1.09**
C404186 Lab Practice -I (CNS)	BE E&TC A&B	1.11	1.11	1.11	--	--	--	**2.05**
C404186 Lab Practice -I (RMT)	BE E&TC A&B	1.11	1.11	1.11	--	--	--	**1.42**
C404187 Lab Practice -II (VLSI)	BE E&TC A&B	2.37	2.37	2.37	--	--	--	**2.54**
C404187 Lab Practice -II (Elective IInternet of Things)	BE E&TC A&B	0.30	0.29	0.30	--	--	--	**1.65**
C404188 Project Stage I	BE E&TC A&B	0.90	0.90	0.90	0.90	0.90	0.90	**1.80**
C404189 Mobile Communication	BE E&TC A&B	1.74	1.74	1.74	1.74	1.71	1.71	**2.36**

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C404190 Broadband Communication Systems	BE E&TC A&B	2.19	2.19	2.19	2.73	2.72	2.72	**2.73**
C404191 Elective III Audio Video Engineering	BE E&TC A&B	3.00	3.00	3.00	3.00	3.00	3.00	**2.10**
C404191 Elective III Machine Learning	BE E&TC A&B	2.37	2.36	2.36	2.36	2.36	2.36	**2.68**
C404192 Elective IV Renewable Energy Systems	BE E&TC A&B	2.19	2.19	2.19	2.19	2.18	2.18	**2.44**
C404193 Lab Practice –III (MC)	BE E&TC A&B	3.00	3.00	3.00	--	--	--	**3.00**
C404193 Lab Practice –III (BCS)	BE E&TC A&B	3.00	3.00	3.00	--	--	--	**3.00**
C404194 Lab Practice –IV (Elective III Audio Video Engineering)	BE E&TC A&B	3.00	3.00	3.00	--	--	--	**3.00**
C404194 Elective III Machine Learning	BE E&TC A&B	2.18	2.18	2.19	--	--	--	**2.59**
C404195 Project Stage II	BE E&TC A&B	3.00	3.00	3.00	3.00	3.00	3.00	**1.50**

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2.6 - Student Performance and Learning Outcomes

.2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs
Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving capability, innovative thinking, communication skills etc.

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AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future.
Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

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A. PO Attainment

Academic Year 2019-20

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C107001 Engineering Mathematics-I	FE E&TC	2.66	2.66	--	2.66	2.66	--	--	--	--	2.60	--	2.66
C107002 Engineering Physics	FE E&TC	1.87	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.78	1.87	2.81
C107009 Engineering Chemistry	FE E&TC	1.97	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	1.97	2.96
C102003 Systems In Mechanical Engineering	FE E&TC	3.00	2.66	2.49	2.32	0.99	1.49	1.49	0.99	1.98	1.49	0.99	1.66
C103004 Basic Electrical Engineering	FE E&TC	2.46	2.35	2.02	2.35	2.19	1.97	1.70	1.86	1.53	1.37	1.32	2.02
C104010 Basic Electronics Engineering	FE E&TC	2.06	1.94	1.37	1.60	1.71	1.48	0.86	1.37	0.69	0.82	0.69	1.37
C110005 Programming and Problem Solving	FE E&TC	2.07	2.23	1.56	1.79	1.95	1.68	0.93	1.56	0.68	0.94	0.68	1.61
C101011 Engineering Mechanics	FE E&TC	2.96	2.96	0.99	2.96	1.97	1.97	0.99	0.99	2.96	2.96	0.99	2.96
C111006 Workshop@	FE E&TC	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.50	0.33	0.33
C107008 Engineering Mathematics-II	FE E&TC	2.95	2.95	--	2.95	2.95	--	--	--	--	2.95	--	2.95
C120120 Engineering Graphics	FE E&TC	1.99	2.32	1.82	1.98	2.66	1.49	1.16	1.65	1.32	1.48	1.15	0.99
C110013 Project Based Learning§	FE E&TC	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
C204181 Signals & Systems	SE E&TC	0.73	0.93	0.73	--	--	--	--	--	--	--	--	--
C204182 Electronic Devices & Circuits(TH)	SE E&TC	1.04	1.10	0.73	--	--	--	--	--	--	--	--	0.73
C204182 Electronic Devices & Circuits(PR)	SE E&TC	1.74	1.74	1.74	--	1.16	1.16	--	--	1.16	1.16	--	1.16

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C204183 Electrical Circuits & Machines (TH)	SE E&TC	1.99	2.50	1.99	2.23	--	--	--	--	--	--	--	--
C204183 Electrical Circuits & Machines (PR)	SE E&TC	2.00	--	2.00	2.00	3.00	--	--	--	2.00	2.00	--	--
C204193 Data Structures & Algorithms(TH)	SE E&TC	0.19	0.25	0.19	--	--	--	--	--	--	--	--	--
C204193 Data Structures & Algorithms(PR)	SE E&TC	0.20	--	0.20	0.20	0.30	--	--	--	0.20	0.20	--	--
C204185 Digital Electronics(TH)	SE E&TC	1.04	1.10	1.10	1.10	1.10	0.37	--	--	0.49	--	--	0.73
C204185 Digital Electronics(PR)	SE E&TC	1.55	--	1.16	1.16	1.74	--	--	--	1.16	1.16	--	--
C204186 Electronic Measuring Instruments &Tools(TH)	SE E&TC	2.00	--	2.00	2.00	3.00	--	--	--	2.00	2.00	--	--
C207005 Engineering Mathematics III	SE E&TC	2.43	2.43	--	2.43	2.43	--	--	--	--	2.43	--	2.43
C204187 Integrated Circuits (TH)	SE E&TC	2.99	2.99	2.99	2.99	2.99	--	--	--	1.33	1.33	--	--
C204187 Integrated Circuits (PR)	SE E&TC	2.37	2.37	2.37	2.37	2.37	--	--	--	0.79	0.79	--	--
C204188 Control Systems	SE E&TC	1.57	1.98	1.57	1.76	--	--	--	--	--	--	--	--
C204189 Analog Communication(TH)	SE E&TC	1.99	2.50	2.00	2.24	--	--	--	--	--	--	--	--
C204189 Analog Communication (PR)	SE E&TC	2.00	--	2.00	2.00	3.00	--	--	--	2.00	2.00	--	--
C204180 Object Oriented Programming (TH)	SE E&TC	2.00	2.50	2.00	--	--	--	--	--	--	--	--	--
C204190 Object Oriented Programming (PR)	SE E&TC	2.00	--	2.00	2.00	3.00	--	--	--	2.00	2.00	--	--
C204191 Employability Skill Development	SE E&TC	1.80	1.44	1.62	0.77	--	2.07	--	2.70	2.70	1.08	0.72	--
C304181 Digital Communication	TE E&TC	0.92	0.91	0.73	--	--	--	--	--	--	--	--	--

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C304182 Digital Signal Processing	TE E&TC	1.05	0.99	1.03	1.03	0.99	0.35	--	--	0.41	--	--	0.70
C304183 Electromagnetics	TE E&TC	0.86	0.81	0.73	--	--	--	--	--	--	--	--	--
C304184 Microcontrollers	TE E&TC	0.19	0.25	0.19	--	--	--	--	--	--	--	--	--
C304185 Mechatronics	TE E&TC	0.73	0.93	0.73	--	--	--	--	--	--	--	--	0.73
C304191 Signal Processing and Communications Lab (DC)	TE E&TC	2.33	2.33	1.00	3.00	3.00	--	--	--	2.00	2.00	--	--
C304191 Signal Processing & Communications Lab (DSP)	TE E&TC	2.99	2.99	2.49	1.99	2.99	--	--	--	2.00	1.99	--	--
C304192 Microcontrollers Lab	TE E&TC	0.86	--	0.61	0.74	0.37	0.37	--	--	--	0.37	--	--
C304192 Mechatronics Lab	TE E&TC	1.16	--	1.16	1.16	1.74	--	--	--	1.16	1.16	--	--
C304193 Electronics System Design	TE E&TC	0.74	--	0.74	0.74	1.11	--	--	--	0.74	0.74	--	--
C304186 Power Electronics	TE E&TC	0.73	0.93	0.73	--	--	--	--	--	--	--	--	--
C304187 Information Theory, Coding and Communication Networks	TE E&TC	1.45	0.96	1.45	1.74	1.74	1.44	--	--	--	--	--	1.15
C304188 Business Management	TE E&TC	0.78	0.89	1.00	1.00	1.00	1.00	1.00	0.87	--	--	--	--
C306189 Advanced Processors	TE E&TC	0.68	0.77	0.71	0.25	0.22	0.03	--	--	--	--	--	--
SC304190 System Programming and Operating Systems	TE E&TC	0.19	0.24	0.19	--	--	--	--	--	--	--	--	--
C304194 Power Lab	TE E&TC	0.74	--	0.74	0.74	1.11	--	--	--	0.74	0.74	--	--

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C304194 ITCT Lab	TE E&TC	2.11	1.32	1.58	1.58	2.37	--	--	1.58	1.58	1.58	--	3.00
C304195 Advanced Processors Lab	TE E&TC	2.67	3.00	2.33	1.00	0.78	0.11	--	--	--	--	--	--
C304195 System Programming Lab	TE E&TC	1.46	--	0.73	1.09	0.73	--	--	--	--	0.73	--	--
C304196 Employability Skills and Mini Project	TE E&TC	3.00	3.00	3.00	3.00	3.00	--	--	--	--	1.00	--	--
C404181 VLSI Design & Technology	BE E&TC A&B	1.04	1.10	1.10	1.10	0.37	0.12	--	--	0.49	--	--	0.73
C404182 Computer Networks & Security	BE E&TC A&B	1.17	1.23	1.32	1.23	1.23	0.44	--	--	0.51	--	--	0.88
C404183 Radiation & Microwave Techniques	BE E&TC A&B	0.76	0.76	0.51	0.37	0.37	0.18	--	--	0.18	--	--	0.22
C404184 Elective I Internet of Things	BE E&TC A&B	0.38	0.38	0.26	0.38	0.33	0.28	0.19	--	1.24	1.50	--	2.78
C404185 Elective II Electronics Product Design	BE E&TC A&B	2.11	2.34	2.11	2.34	2.34	2.00	2.00	2.34	2.34	1.65	1.65	1.65
C404185 ELECTIVE II-Artificial Intelligence	BE E&TC A&B	0.73	0.93	0.74	--	--	--	--	--	--	--	--	--
C404186 Lab Practice -I (CNS)	BE E&TC A&B	1.09	1.09	0.73	--	0.36	0.36	--	--	--	--	--	0.48
C404186 Lab Practice -I (RMT)	BE E&TC A&B	2.05	2.05	1.37	1.00	0.68	0.68	--	--	0.50	--	--	0.68
C404187 Lab Practice -II (VLSI)	BE E&TC A&B	2.05	--	2.05	2.05	2.05	--	--	--	1.37	0.68	--	--
C404187 Lab Practice -II (Elective IInternet of Things)	BE E&TC A&B	1.05	0.82	1.01	0.98	1.01	0.05	--	--	0.55	0.50	0.44	0.82
C404188 Project Stage I	BE E&TC A&B	1.95	1.95	1.95	--	--	1.95	1.95	1.95	1.95	1.95	1.95	1.95
C404189 Mobile Communication	BE E&TC A&B	1.85	1.60	1.48	1.35	1.35	--	--	--	1.32	1.30	--	2.61

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C404190 Broadband Communication Systems	BE E&TC A&B	2.16	2.42	2.10	1.11	--	--	0.45	--	--	--	--	1.41
C404191 Elective III Audio Video Engineering	BE E&TC A&B	3.00	3.00	--	2.00	2.00	--	--	--	--	--	--	--
C404191 Elective III Machine Learning	BE E&TC A&B	1.56	1.50	1.62	1.57	--	--	--	--	0.55	0.55	--	0.55
C404192 Elective IV Renewable Energy Systems	BE E&TC A&B	1.38	1.32	1.32	0.86	0.73	1.23	1.45	--	0.86	--	--	1.36
C404193 Lab Practice –III (MC)	BE E&TC A&B	1.90	1.74	1.90	1.90	1.90	--	--	--	0.95	0.95	0.86	1.74
C404193 Lab Practice –III (BCS)	BE E&TC A&B	2.33	1.50	2.33	1.00	1.50	--	--	--	1.00	1.00	--	0.50
C404194 Lab Practice –IV (Elective III Audio Video Engineering)	BE E&TC A&B	3.00	3.00	--	3.00	3.00	--	--	--	3.00	3.00	--	--
C404194 Elective III Machine Learning	BE E&TC A&B	2.59	1.73	--	1.44	--	--	0.86	--	--	--	--	0.86
C404195 Project Stage II	BE E&TC A&B	3.00	2.50	--	0.83	--	1.50	2.00	1.50	1.50	1.50	1.50	2.00
Direct Attainment		**1.72**	**1.79**	**1.44**	**1.67**	**1.73**	**1.18**	**1.45**	**1.75**	**1.42**	**1.50**	**1.13**	**1.50**
Indirect Attainment		**2.28**	**2.19**	**2.20**	**2.24**	**2.28**	**2.28**	**2.37**	**2.39**	**2.38**	**2.15**	**2.14**	**2.14**
Direct Attainment 80%		**1.38**	**1.44**	**1.16**	**1.34**	**1.38**	**0.94**	**1.16**	**1.40**	**1.13**	**1.20**	**0.91**	**1.20**
Indirect Attainment 20%		**0.46**	**0.44**	**0.44**	**0.45**	**0.46**	**0.46**	**0.47**	**0.48**	**0.48**	**0.43**	**0.43**	**0.43**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**1.84**	**1.87**	**1.60**	**1.79**	**1.84**	**1.40**	**1.63**	**1.87**	**1.61**	**1.63**	**1.33**	**1.63**



2.6 - Student Performance and Learning Outcomes

B. PSO Attainment

Academic Year 2019-20

Course	Class	PSO1	PSO2
C107001 Engineering Mathematics-I	FE E&TC	1.93	2.66
C107002 Engineering Physics	FE E&TC	2.65	2.81
C107009 Engineering Chemistry	FE E&TC	2.80	2.96
C102003 Systems In Mechanical Engineering	FE E&TC	3.00	2.15
C103004 Basic Electrical Engineering	FE E&TC	2.51	2.02
C104010 Basic Electronics Engineering	FE E&TC	1.94	1.48
C110005 Programming and Problem Solving	FE E&TC	2.23	1.68
C101011 Engineering Mechanics	FE E&TC	1.97	0.99
C111006 Workshop@	FE E&TC	2.67	1.83
C107008 Engineering Mathematics-II	FE E&TC	2.13	2.95
C120120 Engineering Graphics	FE E&TC	3.00	0.99
C110013 Project Based Learning§	FE E&TC	2.46	0.99
C204181 Signals & Systems	SE E&TC	0.92	1.04
C204182 Electronic Devices & Circuits(TH)	SE E&TC	1.10	0.73
C204182 Electronic Devices & Circuits(PR)	SE E&TC	1.16	1.16
C204183 Electrical Circuits & Machines (TH)	SE E&TC	2.49	2.82
C204183 Electrical Circuits & Machines (PR)	SE E&TC	3.00	3.00
C204193 Data Structures & Algorithms(TH)	SE E&TC	0.24	0.27
C204193 Data Structures & Algorithms(PR)	SE E&TC	0.20	0.20
C204185 Digital Electronics(TH)	SE E&TC	1.10	1.10

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2.6 - Student Performance and Learning Outcomes

C204185 Digital Electronics(PR)	SE E&TC	1.74	1.74
C204186 Electronic Measuring Instruments &Tools(TH)	SE E&TC	2.00	2.00
C207005 Engineering Mathematics III	SE E&TC	2.03	0.81
C204187 Integrated Circuits (TH)	SE E&TC	2.99	2.99
C204187 Integrated Circuits (PR)	SE E&TC	2.37	2.37
C204188 Control Systems	SE E&TC	1.97	2.23
C204189 Analog Communication(TH)	SE E&TC	2.49	2.83
C204189 Analog Communication (PR)	SE E&TC	3.00	3.00
C204180 Object Oriented Programming (TH)	SE E&TC	2.50	2.83
C204190 Object Oriented Programming (PR)	SE E&TC	2.00	2.00
C204191 Employability Skill Development	SE E&TC	2.43	2.43
C304181 Digital Communication	TE E&TC	0.98	0.43
C304182 Digital Signal Processing	TE E&TC	1.05	1.05
C304183 Electromagnetics	TE E&TC	0.98	0.74
C304184 Microcontrollers	TE E&TC	0.24	0.27
C304185 Mechatronics	TE E&TC	0.92	1.04
C304191 Signal Processing & Communications Lab (DC)	TE E&TC	3.00	3.00
C304191 Signal Processing & Communications Lab (DSP)	TE E&TC	2.99	2.99
C304192 Microcontrollers Lab	TE E&TC	0.37	0.37
C304192 Mechatronics Lab	TE E&TC	1.16	1.16
C304193 Electronics System Design	TE E&TC	0.74	0.74
C304186 Power Electronics	TE E&TC	0.92	1.04

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C304187 Information Theory, Coding and Communication Networks	TE E&TC	1.54	1.64
C304188 Business Management	TE E&TC	0.83	0.83
C306189 Advanced Processors	TE E&TC	0.64	0.53
SC304190 System Programming and Operating Systems	TE E&TC	0.24	0.27
C304194 Power Lab	TE E&TC	0.74	0.74
C304194 ITCT Lab	TE E&TC	2.37	2.11
C304195 Advanced Processors Lab	TE E&TC	3.00	3.00
C304195 System Programming Lab	TE E&TC	0.73	0.73
C304196 Employability Skills and Mini Project	TE E&TC	3.00	3.00
C404181 VLSI Design & Technology	BE E&TC A&B	1.10	1.10
C404182 Computer Networks & Security	BE E&TC A&B	1.19	1.04
C404183 Radiation & Microwave Techniques	BE E&TC A&B	0.51	0.25
C404184 Elective I Internet of Things	BE E&TC A&B	0.48	0.48
C404185 Elective II Electronics Product Design	BE E&TC A&B	0.40	0.40
C404185 ELECTIVE II-Artificial Intelligence	BE E&TC A&B	0.92	1.04
C404186 Lab Practice -I (CNS)	BE E&TC A&B	1.46	0.91
C404186 Lab Practice -I (RMT)	BE E&TC A&B	1.37	0.68
C404187 Lab Practice -II (VLSI)	BE E&TC A&B	2.05	2.05
C404187 Lab Practice -II (Elective I Internet of Things)	BE E&TC A&B	1.20	1.20
C404188 Project Stage I	BE E&TC A&B	1.95	1.95
C404189 Mobile Communication	BE E&TC A&B	2.22	1.85
C404190 Broadband Communication Systems	BE E&TC A&B	2.07	1.82

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C404191 Elective III Audio Video Engineering	BE E&TC A&B	3.00	3.00
C404191 Elective III Machine Learning	BE E&TC A&B	1.18	0.59
C404192 Elective IV Renewable Energy Systems	BE E&TC A&B	0.86	0.86
C404193 Lab Practice –III (MC)	BE E&TC A&B	2.22	2.22
C404193 Lab Practice –III (BCS)	BE E&TC A&B	2.00	1.50
C404194 Lab Practice –IV (Elective III Audio Video Engineering)	BE E&TC A&B	3.00	3.00
C404194 Elective III Machine Learning	BE E&TC A&B	1.73	0.86
C404195 Project Stage II	BE E&TC A&B	3.00	3.00
Direct Attainment		1.74	**1.59**
Indirect Attainment		2.10	**2.10**
Direct Attainment 80%		1.392	**1.272**
Indirect Attainment 20%		0.42	**0.42**
PO Attainment =80% of direct assessment + 20% of indirect assessment		1.81	**1.69**

Dr. Rajashree Suryawanshi

Criteria Incharge

Dr. G R Patil

HOD E&TC

ARMY INSTITUTE OF TECHNOLOGY * PUNE-15 * Dept of E & TC

ARMY INSTITUTE OF TECHNOLOGY

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Department of Electronics & Telecommunication Engineering

63. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2018-19

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

*Attainment Level 1: **60%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 2: **70%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 3: **80%** students scoring more than University average percentage marks or set attainment level in the final examination.*

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Course Outcome Attainment:

70% of University level + 30% of Internal level

Academic Year 2018-19

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C107001 Engineering Mathematics-I	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
C107002 Engineering Physics	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
C107009 Engineering Chemistry	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
C102006 Engineering Graphics I	FE E&TC	0.90	--	--	--	--	--	**0.90**
C103004 Basic Electrical Engineering	FE E&TC	2.95	2.95	2.95	2.95	2.95	2.05	**2.80**
C104012 Basic Electronics Engineering	FE E&TC	2.06	2.06	2.06	2.96	2.96	2.96	**2.51**
C101005 Basic Civil And Environmental Engineering	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
C110003 Fundamentals of Programming Languages I	FE E&TC	1.16	1.16	1.16	1.16	0.00	0.00	**0.77**
C111007 Workshop Practice	FE E&TC	3.00	--	--	--	--	--	**3.00**
C107008 Engineering Mathematics-II	FE E&TC	2.05	2.05	2.05	2.05	2.05	2.05	**2.05**
C102013 Basic Mechanical Engineering	FE E&TC	3.00	--	--	--	--	--	**3.00**
C101011 Engineering Mechanics	FE E&TC	2.96	2.96	2.06	2.96	2.06	2.96	**2.66**
C110010 Fundamentals Of Programming Languages II	FE E&TC	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
C102014 Engineering Graphics II	FE E&TC	0.90	--	--	--	--	--	**0.90**
C204181 Signals & Systems	SE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C204182 Electronic Devices & Circuits	SE E&TC	0.10	0.10	0.20	0.20	0.10	0.10	**0.13**
C204182 Electronic Devices & Circuits Lab	SE E&TC	0.10	0.10	0.20	--	--	--	**0.13**
C204183 Electrical Circuits	SE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C204183 Electrical Circuits Lab	SE E&TC	3.00	2.99	2.99	--	--	--	**2.99**

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C204184 Data structures and Algorithms	SE E&TC	0.55	0.54	0.53	1.08	1.07	1.06	**0.81**
C204184 Data structures & Algorithms Lab	SE E&TC	1.72	1.70	1.70	--	--	--	**1.71**
C204185 Digital Electronic	SE E&TC	1.11	1.11	1.11	1.11	1.10	1.08	**1.10**
C204185 Digital Electronic Lab	SE E&TC	1.11	1.11	1.11	--	--	--	**1.11**
C204186 Electronic Measuring Instruments & Tools	SE E&TC	3.00	3.00	3.00	--	--	--	**3.00**
C207005 Engineering Mathematics III	SE E&TC	1.80	1.80	1.80	1.80	1.80	1.80	**1.80**
C204187 Integrated Circuits	SE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C204187 Integrated Circuits Lab	SE E&TC	1.11	1.11	1.11	--	--	--	**1.11**
C204188 Control Systems	SE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C204189 Analog Communication	SE E&TC	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C204189 Analog Communication Lab	SE E&TC	1.11	1.11	1.11	--	--	--	**1.11**
C204190 Object Oriented Programming	SE E&TC	0.84	0.57	0.57	0.30	0.27	0.27	**0.47**
C204190 Object Oriented Programming Lab	SE E&TC	0.30	0.30	0.30	--	--	--	**0.30**
C204191 Employability Skill Development	SE E&TC	2.16	2.16	2.70	--	--	--	**2.34**
C304181 Digital Communication	TE E&TC A&B	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C304182 Digital Signal Processing	TE E&TC A&B	1.10	1.10	1.10	1.09	1.10	1.10	**1.09**
C304183 Electromagnetics	TE E&TC A&B	1.11	1.11	1.11	1.11	1.08	1.08	**1.73**
C304184 Microcontrollers	TE E&TC A&B	0.30	0.57	0.57	0.30	0.54	0.54	**0.47**
C304185 Mechatronics	TE E&TC A&B	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C304191 Signal Processing and Communications Lab (DC)	TE E&TC A&B	2.99	2.99	2.99	--	--	--	**3.00**
C304191 Signal Processing and Communications Lab (DSP)	TE E&TC A&B	2.99	2.99	2.99	--	--	--	**3.00**
C304192 Microcontrollers Lab	TE E&TC A&B	0.30	0.57	0.57	--	--	--	**1.42**
C304192 Mechatronics Lab	TE E&TC A&B	1.11	1.11	1.11	--	--	--	**1.74**

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2.6 - Student Performance and Learning Outcomes

C304193 Electronics System Design	TE E&TC A&B	3.00	3.00	2.98	--	--	--	**2.99**
C304186 Power Electronics	TE E&TC A&B	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C304187 Information Theory, Coding and Communication Networks	TE E&TC A&B	1.11	1.11	1.11	1.11	1.11	1.10	**1.11**
C304188 Business Management	TE E&TC A&B	0.10	0.10	0.10	0.20	0.20	0.20	**0.15**
C306189 Advanced Processors	TE E&TC A&B	0.29	0.29	0.29	0.30	0.27	0.27	**0.29**
C304190 System Programming & Operating Systems	TE E&TC A&B	1.11	1.11	1.08	1.11	1.08	1.08	**1.09**
C304194 Power Lab	TE E&TC A&B	3.00	3.00	2.99	--	--	--	**3.00**
C304194 ITCT Lab	TE E&TC A&B	3.00	3.00	2.99	--	--	--	**3.00**
C304195 Advanced Processors Lab	TE E&TC A&B	2.37	2.37	2.37	--	--	--	**1.19**
C304195 System Programming Lab	TE E&TC A&B	2.37	2.37	2.37	--	--	--	**2.37**
C304196 Employability Skills & Mini Project	TE E&TC A&B	1.11	1.10	1.09	--	--	--	**1.41**
C404181 VLSI Design & Technology	BE E&TC A&B	1.11	1.11	1.11	1.11	1.08	1.09	**1.10**
C404182 Computer Networks & Security	BE E&TC A&B	1.11	1.11	1.11	1.11	1.11	1.11	**1.08**
C404183 Radiation & Microwave Techniques	BE E&TC A&B	1.11	1.11	1.11	1.11	1.08	1.08	**0.76**
C404184 Elective I Internet of Things	BE E&TC A&B	3.00	3.00	3.00	3.00	2.98	2.98	**1.84**
C404184 Elective I Digital Image & Video Processing	BE E&TC A&B	1.73	1.73	1.47	1.73	1.73	1.74	**1.69**
C404184 Elective I Embedded Systems & RTOS	BE E&TC A&B	1.20	1.20	1.19	1.19	1.20	1.20	**1.20**
C404185 Elective II Electronics Product Design	BE E&TC A&B	0.10	0.10	1.00	1.00	0.20	0.20	**0.43**
C404185 Elective II Artificial Intelligence	BE E&TC A&B	1.00	1.00	1.00	1.00	1.00	1.00	**1.50**
C404186 Lab Practice -I (CNS)	BE E&TC A&B	0.29	0.30	0.30	--	--	--	**0.57**
C404186 Lab Practice -I (RMT)	BE E&TC A&B	1.10	1.10	1.11	--	--	--	**0.97**

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2.6 - Student Performance and Learning Outcomes

C404187 Lab Practice -II (VLSI)	BE E&TC A&B	3.00	3.00	3.00	--	--	--	**1.50**
C404184 Digital Image & Video Processing Lab	BE E&TC A&B	2.19	2.19	2.19	--	--	--	**2.19**
C404184 Embedded Systems & RTOS Lab	BE E&TC A&B	3.00	2.99	3.00	--	--	--	**2.99**
C404187 Lab Practice -II (Elective I Internet of Things)	BE E&TC A&B	2.10	2.10	2.10	--	--	--	**2.55**
C404188 Project Stage I	BE E&TC A&B	0.90	0.90	0.90	0.90	0.90	0.90	**0.90**
C404189 Mobile Communication	BE E&TC A&B	0.10	0.10	0.20	0.20	0.10	0.10	**0.32**
C404190 Broadband Communication Systems	BE E&TC A&B	1.11	1.11	1.11	1.11	1.08	1.08	**1.10**
C404191 Elective III Audio Video Engineering	BE E&TC A&B	2.19	2.19	2.19	2.19	2.19	2.19	**2.33**
C404191 Elective III Machine Learning	BE E&TC A&B	1.10	1.10	1.10	1.10	1.11	1.11	**1.80**
C404192 Elective IV Renewable Energy Systems	BE E&TC A&B	0.84	0.84	0.84	1.11	1.10	1.10	**1.15**
C404192 Elective IV Wireless Sensor Networks	BE E&TC A&B	0.30	0.30	0.30	0.30	0.27	0.27	**0.29**
C404193 Lab Practice -III (MC)	BE E&TC A&B	3.00	3.00	2.73	--	--	--	**2.91**
C404193 Lab Practice -III (BCS)	BE E&TC A&B	3.00	3.00	3.00	--	--	--	**3.00**
C404194 Lab Practice -IV (Elective III Audio Video Engineering)	BE E&TC A&B	3.00	3.00	3.00	--	--	--	**3.00**
C404194 Lab Practice -IV (Elective III Machine Learning)	BE E&TC A&B	3.00	3.00	3.00	--	--	--	**2.75**
C404195 Project Stage II	BE E&TC A&B	2.70	2.70	2.70	2.70	2.70	2.70	**2.85**

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2.6 - Student Performance and Learning Outcomes

.2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials Quiz Class Test	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination End semester exam (theory + practical)	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs
Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving capability, innovative thinking, communication skills etc.

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2.6 - Student Performance and Learning Outcomes

AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future.
Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

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2.6 - Student Performance and Learning Outcomes

A PO Attainment
Academic Year 2018-19

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C107001 Engineering Mathematics-I	FE E&TC	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	--	2.63
C107002 Engineering Physics	FE E&TC	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
C107009 Engineering Chemistry	FE E&TC	1.97	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	1.97	2.96
C102006 Engineering Graphics I	FE E&TC	0.45	0.75	0.50	0.50	0.15	0.15	0.35	0.25	0.30	0.30	0.10	0.30
C103004 Basic Electrical Engineering	FE E&TC	2.52	2.64	1.87	2.14	2.31	1.87	1.08	2.03	1.47	1.18	1.32	1.82
C104012 Basic Electronics Engineering	FE E&TC	2.51	2.39	1.67	1.95	2.11	1.78	1.08	1.67	0.69	0.94	0.69	1.77
C101005 Basic Civil And Environmental Engineering	FE E&TC	2.30	1.81	1.31	1.97	1.48	2.96	1.97	1.97	2.96	2.96	2.30	2.96
C110003 Fundamentals of Programming Languages I	FE E&TC	0.77	1.16	1.06	0.96	1.06	0.87	0.39	0.77	0.39	0.48	0.39	0.58
C111007 Workshop Practice	FE E&TC	2.33	2.50	2.17	1.83	1.83	1.83	2.00	0.67	1.83	1.50	0.33	0.67
C107008 Engineering Mathematics-II	FE E&TC	2.05	2.05	--	2.05	2.05	--	--	--	--	2.05	--	2.05
C102013 Basic Mechanical Engineering	FE E&TC	3.00	2.66	2.49	2.32	0.99	1.49	1.49	0.99	1.98	1.49	0.99	1.66
C101011 Engineering Mechanics	FE E&TC	2.66	2.66	0.89	2.66	1.77	1.77	0.89	0.89	2.66	2.60	0.89	2.66
C110010 Fundamentals Of Programming Languages II	FE E&TC	2.96	2.63	2.22	1.48	1.97	1.97	0.99	0.99	0.99	0.99	0.99	0.99
C102014 Engineering Graphics II	FE E&TC	0.45	0.75	0.50	0.50	0.15	0.15	0.35	0.25	0.30	0.30	0.10	0.30

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC PUNE-15

2.6 - Student Performance and Learning Outcomes

C204181 Signals & Systems	SE E&TC	0.73	0.93	0.73	--	--	--	--	--	--	--	--	--
C204182 Electronic Devices & Circuits	SE E&TC	0.30	0.30	0.60	0.30	0.60	0.30	0.30	0.30	0.60	0.60	0.60	0.60
C204182 Electronic Devices & Circuits Lab	SE E&TC	0.30	0.30	0.60	--	--	--	--	--	--	--	--	--
C204183 Electrical Circuits	SE E&TC	0.73	0.92	0.73	0.82	--	--	--	--	--	--	--	--
C204183 Electrical Circuits Lab	SE E&TC	2.00	--	1.99	1.99	2.99	--	--	--	2.00	1.99	--	--
C204184 Data structures and Algorithms	SE E&TC	0.81	0.37	--	--	0.54	--	--	--	--	--	--	--
C204184 Data structures & Algorithms Lab	SE E&TC	1.71	1.71	1.70	1.71	1.14	--	--	--	1.14	1.14	0.00	--
C204185 Digital Electronic	SE E&TC	1.04	1.10	1.10	1.10	1.10	0.37	--	--	0.49	--	--	0.74
C204185 Digital Electronic Lab	SE E&TC	0.99	--	0.74	0.74	1.11	--	--	0.74	0.74	0.74	--	--
C204186 Electronic Measuring Instruments & Tools	SE E&TC	2.00	2.00	2.00	2.00	2.33	2.00	1.00	2.00	2.00	2.00	2.00	2.00
C207005 Engineering Mathematics III	SE E&TC	1.80	1.80	--	1.80	1.80	--	--	--	--	1.80	--	1.80
C204187 Integrated Circuits	SE E&TC	1.10	1.10	1.10	1.10	1.10	--	--	--	0.49	0.49	--	--
C204187 Integrated Circuits Lab	SE E&TC	1.11	1.11	1.11	1.11	1.11	--	--	--	0.37	0.37	--	--
C204188 Control Systems	SE E&TC	0.73	0.93	0.73	0.82	--	--	--	--	--	--	--	--
C204189 Analog Communication	SE E&TC	0.73	0.92	0.73	0.82	--	--	--	--	--	--	--	--
C204189 Analog Communication Lab	SE E&TC	0.74	--	0.74	0.74	1.11	--	--	--	0.74	0.74	--	--
C204190 Object Oriented Programming	SE E&TC	0.31	0.34	0.28	--	--	--	--	--	--	--	--	--

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC PUNE 15

2.6 - Student Performance and Learning Outcomes

C204190 Object Oriented Programming Lab	SE E&TC	0.20	--	0.20	0.20	0.30	--	--	--	0.20	0.20	--	--
C204191 Employability Skill Development	SE E&TC	1.71	1.44	1.44	0.72	--	2.07	--	2.70	2.70	1.08	0.72	--
C304181 Digital Communication	TE E&TC A&B	0.93	0.90	0.72	--	--	--	--	--	--	--	--	--
C304182 Digital Signal Processing	TE E&TC A&B	1.10	0.91	1.10	1.10	1.04	0.37	--	--	0.43	--	--	0.73
C304183 Electromagnetics	TE E&TC A&B	0.31	0.34	0.33	--	--	--	--	--	--	--	--	--
C304184 Microcontrollers	TE E&TC A&B	0.31	0.34	0.33	--	--	--	--	--	--	--	--	--
C304185 Mechatronics	TE E&TC A&B	0.73	0.93	0.74	--	--	--	--	--	--	--	--	0.73
C304191 Signal Processing and Communications Lab (DC)	TE E&TC A&B	2.33	2.33	1.00	2.99	2.99	--	--	--	1.99	1.99	--	--
C304191 Signal Processing and Communications Lab (DSP)	TE E&TC A&B	2.99	--	1.99	1.99	2.99	--	--	--	2.00	1.99	--	--
C304192 Microcontrollers Lab	TE E&TC A&B	1.54	--	0.28	0.32	0.16	0.16	--	--	--	0.16	--	--
C304192 Mechatronics Lab	TE E&TC A&B	0.74	--	0.74	0.74	1.11	--	--	--	0.74	0.74	--	--
C304193 Electronics System Design	TE E&TC A&B	2.99	2.99	2.99	2.99	2.99	--	--	--	--	1.00	--	--
C304186 Power Electronics	TE E&TC A&B	0.73	0.93	0.73	--	--	--	--	--	--	--	--	--
C304187 Information Theory, Coding and Communication Networks	TE E&TC A&B	0.92	0.61	0.92	1.11	1.11	0.92	--	--	--	--	--	0.73
C304188 Business Management	TE E&TC A&B	0.30	0.30	0.30	0.60	0.60	0.60	0.30	0.60	0.30	0.60	0.60	0.30
C306189 Advanced Processors	TE E&TC A&B	0.29	0.29	0.19	--	--	--	--	--	--	--	--	--

Dept of E & TC

2.6 - Student Performance and Learning Outcomes

C304190 System Programming & Operating Systems	TE E&TC A&B	0.97	0.85	0.85	0.65	0.65	0.65	--	--	--	--	0.65	--
C304194 Power Lab	TE E&TC A&B	2.66	1.67	2.00	2.00	2.99	--	--	2.00	2.00	2.00	--	3.00
C304194 ITCT Lab	TE E&TC A&B	2.66	1.67	2.00	2.00	2.99	--	--	2.00	2.00	2.00	--	3.00
C304195 Advanced Processors Lab	TE E&TC A&B	2.37	2.37	1.58	--	0.79	0.79	--	--	--	--	--	1.05
C304195 System Programming Lab	TE E&TC A&B	1.58	--	0.79	1.18	0.79	--	--	--	--	0.79	--	--
C304196 Employability Skills & Mini Project	TE E&TC A&B	1.10	1.10	1.10	1.10	1.10	--	--	--	--	0.37	--	--
C404181 VLSI Design & Technology	BE E&TC A&B	1.04	1.10	1.10	1.10	0.37	0.12	--	--	0.49	--	--	0.73
C404182 Computer Networks & Security	BE E&TC A&B	1.11	1.11	0.74	--	--	--	--	--	--	--	--	--
C404183 Radiation & Microwave Techniques	BE E&TC A&B	1.10	1.10	0.73	0.73	0.74	0.37	--	--	0.36	--	--	0.44
C404184 Elective I Internet of Things	BE E&TC A&B	1.99	2.50	2.00	--	--	--	--	--	--	--	--	--
C404184 Elective I Digital Image & Video Processing	BE E&TC A&B	1.12	1.12	1.15	1.12	1.03	--	--	--	2.00	2.12	--	3.75
C404184 Elective I Embedded Systems & RTOS	BE E&TC A&B	1.20	0.80	0.80	0.80	--	--	0.80	--	--	--	--	1.20
C404185 Elective II Electronics Product Design	BE E&TC A&B	1.10	1.10	1.10	1.10	0.36	0.12	0.11	0.09	0.72	1.20	0.72	0.73
C404185 Elective II Artificial Intelligence	BE E&TC A&B	1.04	1.10	1.10	1.10	0.36	0.12	--	--	0.49	--	--	0.74
C404186 Lab Practice -I (CNS)	BE E&TC A&B	0.30	0.30	0.20	--	0.10	0.10	--	--	--	--	--	0.13

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2.6 - Student Performance and Learning Outcomes

C404186 Lab Practice -I (RMT)	BE E&TC A&B	1.10	1.10	0.74	0.73	0.37	0.37	--	--	0.37	--	--	0.37
C404187 Lab Practice -II (VLSI)	BE E&TC A&B	3.00	--	3.00	3.00	3.00	--	--	--	2.00	1.00	--	--
C404184 Digital Image & Video Processing Lab	BE E&TC A&B	1.46	--	1.46	1.46	2.19	--	--	--	1.46	1.46	--	--
C404184 Embedded Systems & RTOS Lab	BE E&TC A&B	2.00	1.47	2.00	2.00	2.00	--	--	--	1.00	1.00	0.72	1.47
C404187 Lab Practice -II (Elective I Internet of Things)	BE E&TC A&B	2.10	--	2.10	--	2.10	--	--	--	2.10	2.10	1.40	--
C404188 Project Stage I	BE E&TC A&B	0.90	0.90	0.90	--	--	0.90	0.90	0.90	0.90	0.90	0.90	0.90
C404189 Mobile Communication	BE E&TC A&B	1.04	1.10	1.10	1.10	0.36	0.12	--	--	0.49	--	--	0.74
C404190 Broadband Communication Systems	BE E&TC A&B	0.73	0.93	0.74	--	--	--	--	--	--	--	--	0.73
C404191 Elective III Audio Video Engineering	BE E&TC A&B	2.19	2.19	--	1.46	1.46	--	--	--	--	--	--	--
C404191 Elective III Machine Learning	BE E&TC A&B	0.98	0.96	1.03	1.01	--	--	--	--	0.37	0.37	--	0.37
C404192 Elective IV Renewable Energy Systems	BE E&TC A&B	0.97	0.97	0.97	0.69	0.32	0.32	0.97	--	0.32	--	--	0.32
C404192 Elective IV Wireless Sensor Networks	BE E&TC A&B	0.19	0.25	0.19	0.21	--	--	--	--	--	--	--	--
C404193 Lab Practice –III (MC)	BE E&TC A&B	1.94	1.47	1.94	1.94	1.94	--	--	--	0.97	0.97	0.72	1.47
C404193 Lab Practice –III (BCS)	BE E&TC A&B	2.00	--	2.00	2.00	3.00	--	--	--	2.00	2.00	--	--
C404194 Lab Practice –IV (Elective III Audio Video Engineering)	BE E&TC A&B	3.00	3.00	--	3.00	3.00	--	--	--	3.00	3.00	--	--

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2.6 - Student Performance and Learning Outcomes

C404194 Lab Practice –IV (Elective III Machine Learning)	BE E&TC A&B	3.00	2.00	--	1.66	--	--	1.00	--	--	--	--	1.00
C404195 Project Stage II	BE E&TC A&B	2.70	2.70	2.70	--	--	2.70	2.70	2.70	2.70	2.70	2.70	2.70
Direct Attainment		**1.46**	**1.40**	**1.19**	**1.45**	**1.44**	**1.07**	**1.13**	**1.28**	**1.33**	**1.39**	**0.99**	**1.34**
Indirect Attainment		**2.43**	**2.43**	**2.06**	**2.39**	**2.46**	**2.76**	**2.44**	**2.77**	**2.77**	**2.44**	**2.47**	**2.36**
Direct Attainment 80%		**1.17**	**1.12**	**0.95**	**1.16**	**1.16**	**0.85**	**0.91**	**1.02**	**1.06**	**1.11**	**0.79**	**1.08**
Indirect Attainment 20%		**0.49**	**0.49**	**0.41**	**0.48**	**0.49**	**0.55**	**0.49**	**0.55**	**0.55**	**0.49**	**0.49**	**0.47**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**1.65**	**1.61**	**1.36**	**1.64**	**1.65**	**1.41**	**1.39**	**1.58**	**1.62**	**1.60**	**1.29**	**1.55**

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC

2.6 - Student Performance and Learning Outcomes

B PSO Attainment

Academic Year 2018-19

Course	Class	PSO1	PSO2
C107001 Engineering Mathematics-I	FE E&TC	2.13	2.96
C107002 Engineering Physics	FE E&TC	1.15	1.97
C107009 Engineering Chemistry	FE E&TC	2.79	2.96
C102006 Engineering Graphics I	FE E&TC	0.35	0.40
C103004 Basic Electrical Engineering	FE E&TC	2.36	1.98
C104012 Basic Electronics Engineering	FE E&TC	2.39	1.83
C101005 Basic Civil And Environmental Engineering	FE E&TC	2.46	0.99
C110003 Fundamentals of Programming Languages I	FE E&TC	1.06	0.77
C111007 Workshop Practice	FE E&TC	2.67	1.83
C107008 Engineering Mathematics-II	FE E&TC	1.48	2.05
C102013 Basic Mechanical Engineering	FE E&TC	3.00	2.18
C101011 Engineering Mechanics	FE E&TC	1.77	0.89
C110010 Fundamentals Of Programming Languages II	FE E&TC	1.48	1.48
C102014 Engineering Graphics II	FE E&TC	0.35	0.40
C204181 Signals & Systems	SE E&TC	0.92	1.04
C204182 Electronic Devices & Circuits	SE E&TC	0.30	0.60
C204182 Electronic Devices & Circuits Lab	SE E&TC	0.30	0.30
C204183 Electrical Circuits	SE E&TC	0.92	1.04
C204183 Electrical Circuits Lab	SE E&TC	2.99	2.99
C204184 Data structures and Algorithms	SE E&TC	--	0.81
C204184	SE E&TC	--	1.71

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC PUNE-15

2.6 - Student Performance and Learning Outcomes

Data structures & Algorithms Lab			
C204185 Digital Electronic	SE E&TC	1.10	1.10
C204185 Digital Electronic Lab	SE E&TC	1.11	1.11
C204186 Electronic Measuring Instruments & Tools	SE E&TC	2.00	2.00
C207005 Engineering Mathematics III	SE E&TC	1.50	0.60
C204187 Integrated Circuits	SE E&TC	1.10	1.10
C204187 Integrated Circuits Lab	SE E&TC	1.11	1.11
C204188 Control Systems	SE E&TC	0.92	1.04
C204189 Analog Communication	SE E&TC	0.92	1.04
C204189 Analog Communication Lab	SE E&TC	1.11	1.11
C204190 Object Oriented Programming	SE E&TC	0.42	0.45
C204190 Object Oriented Programming Lab	SE E&TC	0.20	0.20
C204191 Employability Skill Development	SE E&TC	2.34	2.34
C304181 Digital Communication	TE E&TC A&B	0.99	0.42
C304182 Digital Signal Processing	TE E&TC A&B	1.00	1.06
C304183 Electromagnetics	TE E&TC A&B	1.54	1.16
C304184 Microcontrollers	TE E&TC A&B	0.39	0.44
C304185 Mechatronics	TE E&TC A&B	0.92	1.04
C304191 Signal Processing and Communications Lab (DC)	TE E&TC A&B	3.00	3.00
C304191 Signal Processing and Communications Lab (DSP)	TE E&TC A&B	3.00	3.00
C304192 Microcontrollers Lab	TE E&TC A&B	0.87	0.87
C304192 Mechatronics Lab	TE E&TC A&B	1.16	1.16
C304193	TE E&TC A&B	2.99	2.99

ARMY INSTITUTE OF TECHNOLOGY * PUNE-15 * Dept of E & TC

2.6 - Student Performance and Learning Outcomes

Electronics System Design			
C304186 Power Electronics	TE E&TC A&B	0.92	1.04
C304187 Information Theory, Coding and Communication Networks	TE E&TC A&B	0.98	1.05
C304188 Business Management	TE E&TC A&B	0.30	0.60
C306189 Advanced Processors	TE E&TC A&B	0.29	0.19
C304190 System Programming & Operating Systems	TE E&TC A&B	0.91	1.03
C304194 Power Lab	TE E&TC A&B	2.50	2.33
C304194 ITCT Lab	TE E&TC A&B	3.00	2.83
C304195 Advanced Processors Lab	TE E&TC A&B	1.58	1.18
C304195 System Programming Lab	TE E&TC A&B	0.79	0.79
C304196 Employability Skills & Mini Project	TE E&TC A&B	1.41	1.41
C404181 VLSI Design & Technology	BE E&TC A&B	5.05	5.05
C404182 Computer Networks & Security	BE E&TC A&B	1.08	0.72
C404183 Radiation & Microwave Techniques	BE E&TC A&B	0.58	0.32
C404184 Elective I Internet of Things	BE E&TC A&B	1.56	1.75
C404184 Elective I Digital Image & Video Processing	BE E&TC A&B	1.40	1.59
C404184 Elective I Embedded Systems & RTOS	BE E&TC A&B	1.20	1.20
C404185 Elective II Electronics Product Design	BE E&TC A&B	9.00	9.00
C404185 Elective II Artificial Intelligence	BE E&TC A&B	9.00	9.00
C404186 Lab Practice -I (CNS)	BE E&TC A&B	0.57	0.38
C404186 Lab Practice -I (RMT)	BE E&TC A&B	0.79	0.46
C404187 Lab Practice -II (VLSI)	BE E&TC A&B	1.65	1.65
C404184 Digital Image & Video Processing Lab	BE E&TC A&B	1.89	1.89

ARMY INSTITUTE OF TECHNOLOGY
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2.6 - Student Performance and Learning Outcomes

C404184 Embedded Systems & RTOS Lab	BE E&TC A&B	2.33	2.33
C404187 Lab Practice -II (Elective I Internet of Things)	BE E&TC A&B	2.55	2.55
C404188 Project Stage I	BE E&TC A&B	0.90	0.90
C404189 Mobile Communication	BE E&TC A&B	0.48	0.39
C404190 Broadband Communication Systems	BE E&TC A&B	0.92	1.04
C404191 Elective III Audio Video Engineering	BE E&TC A&B	2.33	2.33
C404191 Elective III Machine Learning	BE E&TC A&B	1.20	0.60
C404192 Elective IV Renewable Energy Systems	BE E&TC A&B	1.15	0.77
C404192 Elective IV Wireless Sensor Networks	BE E&TC A&B	0.24	0.27
C404193 Lab Practice -III (MC)	BE E&TC A&B	2.24	2.24
C404193 Lab Practice -III (BCS)	BE E&TC A&B	2.00	2.00
C404194 Lab Practice -IV (Elective III Audio Video Engineering)	BE E&TC A&B	3.00	3.00
C404194 Lab Practice -IV (Elective III Machine Learning)	BE E&TC A&B	1.83	0.92
C404195 Project Stage II	BE E&TC A&B	2.85	2.85
Direct Attainment		**1.70**	**1.61**
Indirect Attainment		**2.61**	**2.39**
Direct Attainment 80%		**1.36**	**1.29**
Indirect Attainment 20%		**0.52**	**0.48**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**1.88**	**1.77**

Dr. Rajashree Suryawanshi
Criteria Incharge

Dr. G R Patil
HOD E&TC

Dept of E & TC

ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411015

Department of Information Technology

81. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2022-23

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

Sr. No	Assessment Criteria	Assessment Tool	Assessment Method	
1	Marks obtained, average results, successful students, etc.	University and internal exam questions	Course examination result	Direct Assessment
2	No of students satisfied with the course content and delivery	Depth of Understanding the course contents	Feedback	
3	Number of students participated.	Student Co-curricular activities	Participation and organization of various activities	Indirect assessment
4	Quantitative data of placement and enterprise.	Placement Record	Placement Data	
5	Quantitative data of demonstration of various abilities in profession.	Alumni Feedback	Alumni Survey	
6	Number of students appeared and successful or opted for higher studies.	National/ International Level Exams	Quantitative data of Students appeared and successful in such examination	
7	Number of Graduates fulfills the employer's expectations	Employer Feedback	Employer Survey	
8	Level of satisfaction in terms of overall improvements	Parents Feedback	Parents Survey	
9	Relevance of curriculum and Industry content	Industry Feedback	Industry Survey	
10	No of students satisfied with the curriculam	Student Exit feedback	Current year graduated students	

Direct Assessment Tools:

Sr.No	Tool	Nature of Questions	Frequency of Assessment
01	Class Test	Descriptive	Twice in Semester
02	Assignment	Descriptive/MCQ	Once in Semester
03	Term Work Assessment Test	Continuous Assessment	After Every Experiment / Assignment
04	University Theory Exams	Descriptive/MCQ	End Semester
05	Oral Exams	Objective, Logical, case study based questions	End Semester
06	Practical Exams	Demonstrative and Synthesis	End Semester
07	Online Exam	Analytical, Logical, Objective	Twice in semester
08	Project and Seminars	Demonstrative, Analytical	Reviews are conducted twice per semester and End Semester exam

In-direct Assessment Tools:

Sr. No	Tool	Assessment Criteria	Frequency of Assessment
01	National Level Exam – GATE, GRE, TOFEL,AMCAT etc	No. of Students Participated	Yearly
02	Guest Lectures / Workshops	No. of Students Participated and Feedback given by students	Twice per semester for each class
03	Alumni	Alumni Feedback	Yearly
04	Parents	Parents Feedback	Yearly
05	Placement	Placement Record	Yearly
06	Employer	Employer Feedback	Yearly
07	Final Year student	Student exit feedback	Yearly

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

Assessment Tools			Weightage	Frequency	Responsibility	Final Course attainment
Direct Assessment	Internal	Test 1	40%	01	Department Level	80%
		Test 2		01		
		Assignment		01		
	External	University Exam (Insem & Endsem)	60%	02	University Level	
Indirect Assessment	Course Feedback		20%	02	Department Level	20%

Attainment Level 1: ***60%*** *students scoring more than University 60 percentage marks or set attainment level in the final examination.*

Attainment Level 2: ***70%*** *students scoring more than University 60 percentage marks or set attainment level in the final examination.*

Attainment Level 3: ***80%*** *students scoring more than University 60 percentage marks or set attainment level in the final examination.*

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Army Institute of Technology

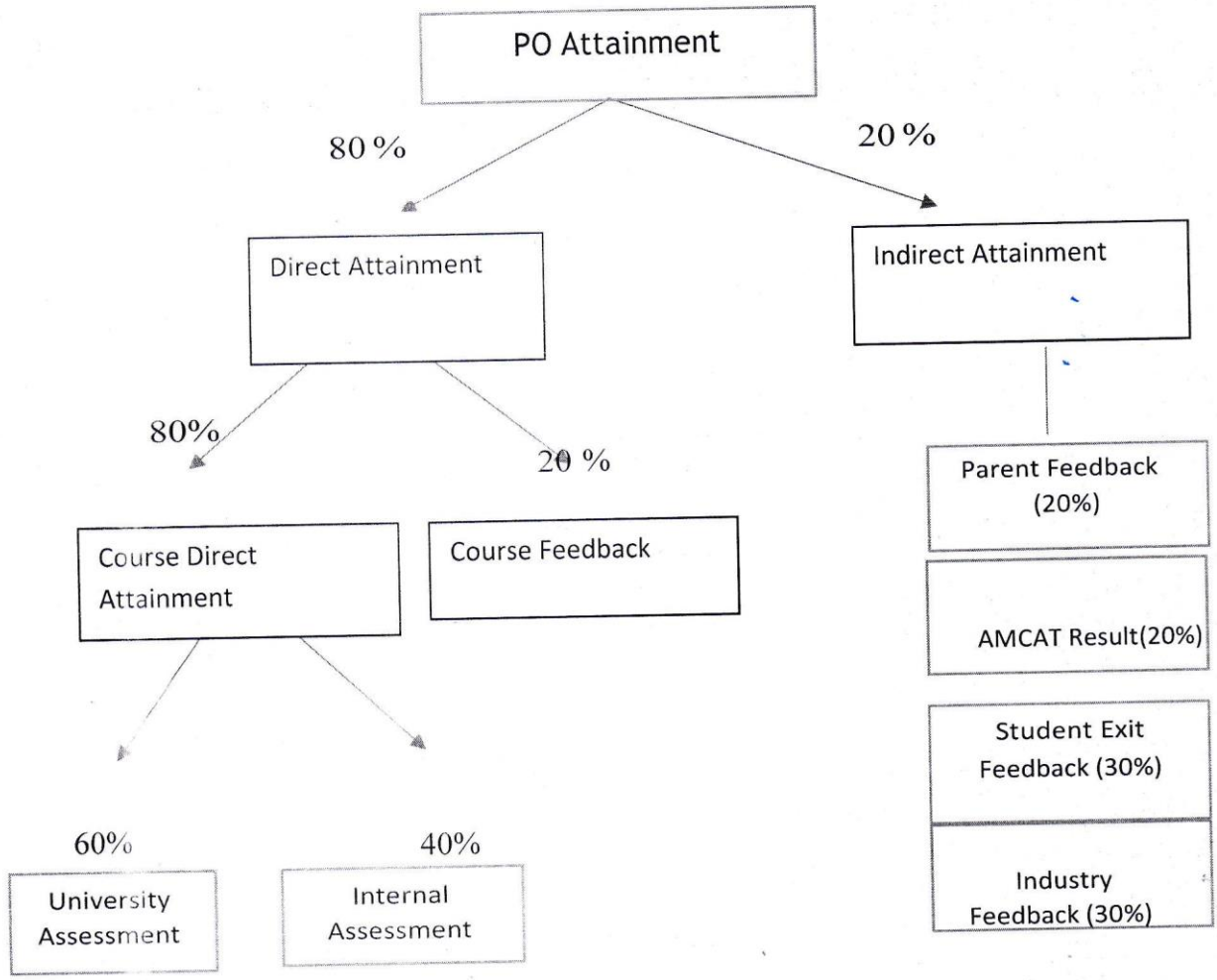

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Fig : PO-PSO attainment

2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment:

60% of University level + 40% of Internal level

Academic Year 2022-23

Course Code	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
214441 Discrete Mathematics	SE IT	2.90	1.30	1.30	2.10	2.10	2.90	2.10
214442 Logic Design & Computer Organization	SE IT	0.50	2.10	2.10	1.30	1.30	0.50	1.30
214443 Data Structure & Algorithm	SE IT	0.57	0.56	0.58	0.57	1.37	1.36	0.84
214444 Object Oriented Programming	SE IT	2.96	2.96	2.96	2.92	2.96	2.92	2.95
214445 Basics of Computer Network	SE IT	2.92	2.90	2.08	2.91	2.88	2.90	2.77
214446 Logic Design Computer Organization Lab	SE IT	0.50	0.50	0.50	0.50	0.50	0.50	0.50
214447 Data Structure & Algorithm Laboratory	SE IT	0.57	0.56	0.58	0.57	1.37	1.36	0.84
214448 Object Oriented Programming Laboratory	SE IT	1.38	1.38	1.38	1.38	1.38	1.39	1.39

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214449 Soft skills lab	SE IT	2.92	2.92	2.92	2.92	2.92	2.92	2.92
207003 Engineering Mathematics- III	SE IT	2.00	1.68	1.65	1.99	1.99	1.99	1.88
214451 Processor Architecture	SE IT	1.52	0.96	0.96	0.32	0.96	0.96	0.95
214452 Database Management System	SE IT	2.02	1.06	1.71	1.06	1.06	1.60	1.42
214453 Computer Graphics	SE IT	2.10	2.90	2.90	2.90	2.90	2.10	2.64
214454 Software Engineering	SE IT	2.10	2.90	2.90	2.90	2.90	2.10	2.64
214455 Programming Skill Development Lab	SE IT	2.17	2.49	2.48	2.48	2.49	2.48	2.43
214456 Database Management System Laboratory	SE IT	3.00	2.99	3.00	2.99	2.99	2.98	2.99
214457 Computer Graphics Laboratory	SE IT	2.10	2.90	2.90	2.90	2.90	2.10	2.64
214458 Project Based Learning	SE IT	2.98	2.98	2.98	2.98	2.98	2.98	2.98
314441 Theory of Computation	TE IT	0.58	0.57	1.37	1.37	1.34	1.34	1.09
314442 Operating System	TE IT	2.98	2.98	2.98	2.98	2.98	2.98	2.98

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314443 Machine Learning	TE IT	2.08	2.92	2.90	2.87	2.91	2.88	2.76
314444 Human-Computer Interaction	TE IT	1.30	1.32	1.35	2.89	2.94	2.13	1.99
314445 A Design and Analysis of Algorithms	TE IT	1.38	1.38	2.18	2.17	2.17	2.18	1.91
314446 Operating System Lab	TE IT	2.98	2.98	2.98	2.98	2.98	2.98	2.98
314447 Human-Computer Interaction Lab	TE IT	2.95	2.94	2.93	2.94	2.93	2.90	2.93
314448 Laboratory Practice I	TE IT	0.53	0.50	0.52	0.52	0.00	0.00	0.35
314449 Seminar	TE IT	2.94	2.95	2.94	2.94	2.94	2.94	2.94
314451 Computer Network & Security	TE IT	1.94	0.98	1.62	1.62	1.94	1.94	1.67
314452 Data Science & Big Data Analytics	TE IT	2.96	2.96	2.96	2.96	2.97	2.97	2.96
314453 Web Application Development	TE IT	2.96	2.96	2.96	2.96	2.97	2.97	2.96
314454 C Cloud Computing (EL-II)	TE IT	2.95	2.32	2.63	2.95	2.63	2.97	2.70
314454 D Software Modeling Design (EL II)	TE IT	2.93	2.28	2.61	2.61	2.61	2.61	2.61
314455 Internship	TE IT	2.30	2.30	0.00	0.00	0.00	0.00	0.77

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314456 Computer Network & Security - Lab	TE IT	2.94	2.93	2.94	2.95	2.94	2.94	2.94
314457 DS & BDA - Lab	TE IT	2.00	2.00	2.00	2.00	2.01	2.01	2.00
314458 Laboratory Practice - II	TE IT	2.97	2.97	2.96	2.97	2.98	2.97	2.97
414441 Information and Storage Retrieval	BE IT	2.96	2.96	2.95	2.95	2.96	2.90	2.95
414442 Software Project Management	BE IT	1.52	0.96	0.96	0.32	0.96	0.96	0.95
414443 Deep Learning	BE IT	1.37	1.36	1.37	2.97	2.97	2.17	2.04
414444 Multimedia Technology (Elective III)	BE IT	2.16	2.97	2.99	2.19	2.17	2.17	2.44
414445 Introduction to DevOps (Elective IV)	BE IT	2.77	2.77	2.77	2.77	2.77	2.77	2.77
414446 Lab Practice III	BE IT	2.95	2.95	2.95	2.95	2.95	2.88	2.94
414447 Lab Practice IV	BE IT	2.95	2.94	2.93	2.94	0.53	0.50	2.13
414448 Project Stage – I	BE IT	2.94	2.95	2.95	2.94	2.94	2.94	2.94
414450 Distributed Systems	BE IT	1.04	1.04	2.00	2.00	2.01	2.01	1.68

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414452 Block chain Technology (Elective VI)	BE IT	2.17	1.85	1.85	1.53	1.53	1.53	1.74
414454 Lab Practice V	BE IT	2.98	2.98	2.98	0.00	0.00	0.00	1.49
414455 Lab Practice VI	BE IT	2.99	2.99	0.00	0.00	0.00	0.00	1.00
414456 Project Stage II	BE IT	2.02	2.98	0.00	0.00	0.00	0.00	0.83

2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
.Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others

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2.6 - Student Performance and Learning Outcomes

Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination End semester exam (theory + practical)	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs.

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2.6 - Student Performance and Learning Outcomes

Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving capability, innovative thinking, communication skills etc.
AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future.

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2.6 - Student Performance and Learning Outcomes

Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

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2.6 - Student Performance and Learning Outcomes

A. PO Attainment Academic Year 2022-23

Course	Class	PO1	PO2	PO3	PO4	PO5	PO 6	PO7	PO 8	PO9	PO10	PO11	PO12
214441 Discrete Mathematics	SE IT	1.17	1.94	1.31	1.87	1.61	0.00	2.90	1.68	0.61	0.94	0.00	1.45
214442 Logic Design & Computer Organization	SE IT	0.90	1.27	0.96	1.16	0.85	0.00	0.50	0.97	0.52	0.48	0.00	0.82
214443 Data Structure & Algorithm	SE IT	0.84	0.81	0.77	0.67	0.74	0.70	0.56	0.84	0.81	0.47	0.84	0.77
214444 Object Oriented Programming	SE IT	2.13	2.78	1.96	2.29	2.46	2.13	1.23	1.96	0.99	1.18	1.97	1.96
214445 Basics of Computer Network	SE IT	2.33	2.28	2.01	2.28	2.28	2.77	0.92	1.20	0.00	1.49	1.80	2.46
214446 Logic Design Computer Organization Lab	SE IT	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00
214447 Data Structure & Algorithm Laboratory	SE IT	0.84	0.81	0.77	0.67	0.74	0.70	0.56	0.84	0.81	0.47	0.84	0.77
214448 Object Oriented Programming Laboratory	SE IT	1.00	1.31	0.92	1.08	1.15	1.00	0.58	0.92	0.00	0.55	0.92	0.92

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214449 Soft skills lab	SE IT	-	-	-	-	-	1.95	-	1.62	2.34	2.19	-	0.97
207003 Engineering Mathematics- III	SE IT	1.88	1.88	1.88	1.88	1.77	1.90	1.91	1.77	0.00	1.68	0.83	1.90
214451 Processor Architecture	SE IT	0.86	0.55	0.49	0.53	0.63	0.96	0.00	0.32	0.32	0.31	0.00	0.74
214452 Database Management System	SE IT	1.33	1.33	1.33	1.33	1.33	1.22	1.46	1.33	0.00	1.16	0.61	1.22
214453 Computer Graphics	SE IT	1.33	1.33	1.33	1.33	1.33	1.22	1.46	1.33	0.00	1.16	0.61	1.22
214454 Software Engineering	SE IT	1.76	2.52	2.64	2.52	2.47	0.00	2.31	2.04	2.04	2.55	0.00	1.76
214455 Programming Skill Development Lab	SE IT	2.29	2.43	2.43	2.43	2.43	2.43	2.16	1.88	1.90	1.05	2.17	2.03
214456 Database Management System Laboratory	SE IT	2.66	2.99	2.83	2.99	2.99	2.99	2.66	2.83	2.33	2.99	2.83	2.66
214457 Computer Graphics Laboratory	SE IT	2.66	2.99	2.83	2.99	2.99	2.99	2.66	2.83	2.33	2.99	2.83	2.66
214458 Project Based Learning	SE IT	2.15	2.81	1.99	2.32	2.48	2.15	1.24	1.99	0.99	1.19	1.99	1.99

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314441 Theory of Computation	TE IT	1.09	1.09	0.73	0.73	0.80	0.79	0.89	0.73	0.00	0.44	0.73	0.80
314442 Operating System	TE IT	2.98	2.98	2.15	2.81	2.15	-	1.98	1.98	1.98	0.99	-	1.98
314443 Machine Learning	TE IT	2.76	2.76	2.60	2.76	2.76	2.28	1.79	1.84	0.00	2.60	2.12	2.89
314444 Human-Computer Interaction	TE IT	1.02	1.84	1.67	1.52	1.76	1.59	1.12	1.44	0.00	0.92	1.01	1.75
314445 A Design and Analysis of Algorithms	TE IT	1.91	1.91	1.91	1.79	1.64	1.35	-	1.27	0.00	0.92	-	1.81
314446 Operating System Lab	TE IT	2.98	2.98	2.15	2.81	2.15	-	1.98	1.98	1.98	0.99	-	1.98
314447 Human-Computer Interaction Lab	TE IT	1.37	1.95	2.15	1.76	1.95	2.68	2.73	2.61	2.92	2.94	0.98	2.92
314448 Laboratory Practice I	TE IT	0.47	0.52	0.47	0.52	0.52	0.47	0.35	0.35	-	0.47	0.43	0.52
314449 Seminar	TE IT	2.45	2.78	2.29	2.78	2.61	1.96	0.98	1.80	0.98	2.16	1.96	2.29
314451 Computer Network & Security	TE IT	1.67	1.67	1.67	1.67	1.67	1.78	1.81	1.83	1.34	1.67	1.26	1.49

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314452 Data Science & Big Data Analytics	TE IT	1.80	2.02	2.02	2.02	1.80	-	0.00	1.48	0.00	1.59	0.67	1.31
314453 Web Application Development	TE IT	2.96	2.96	2.96	2.96	2.96	2.96	1.38	2.96	0.00	2.96	2.96	2.96
314454 C Cloud Computing (EL-II)	TE IT	2.74	2.74	2.74	2.74	2.58	2.74	2.70	2.58	0.00	2.74	0.91	2.74
314454 D Software Modeling Design (EL II)	TE IT	2.61	2.61	1.89	1.85	2.61	2.50	0.00	1.74	0.00	1.74	0.87	2.45
314455 Internship	TE IT	2.30	2.30	2.30	2.30	2.30	2.30	2.30	1.91	2.30	2.30	2.30	2.30
314456 Computer Network & Security - Lab	TE IT	2.94	2.94	2.94	2.94	2.78	2.94	2.55	2.55	0.98	2.61	1.31	2.94
314457 DS & BDA - Lab	TE IT	1.78	2.04	2.00	2.00	1.78	-	-	1.47	0.00	1.56	0.67	1.33
314458 Laboratory Practice - II	TE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.97	2.80	2.80	2.97	2.97
414441 Information and Storage Retrieval	BE IT	2.79	2.78	2.29	2.29	2.78	2.45	2.29	2.29	1.31	2.56	1.96	2.29

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414442 Software Project Management	BE IT	1.47	1.96	1.48	1.48	1.80	1.63	1.15	1.48	0.00	0.95	1.05	1.80
414443 Deep Learning	BE IT	1.47	1.96	1.48	1.48	1.80	1.63	1.15	1.48	0.00	0.95	1.05	1.80
414444 Multimedia Technology (Elective III)	BE IT	2.08	2.32	2.01	2.20	2.04	1.45	0.78	1.51	0.81	1.86	1.45	1.87
414445 Introduction to DevOps (Elective IV)	BE IT	2.77	2.77	2.77	2.77	2.46	2.77	2.77	2.46	2.16	2.22	2.46	2.31
414446 Lab Practice III	BE IT	2.78	2.78	2.28	2.28	2.78	2.45	2.28	2.28	2.28	2.56	1.96	2.28
414447 Lab Practice IV	BE IT	1.31	1.31	1.14	1.18	1.31	1.23	1.57	1.63	0.98	1.96	0.49	0.98
414448 Project Stage – I	BE IT	1.96	2.78	1.96	2.45	2.78	2.29	1.37	1.96	0.00	1.57	1.97	2.13
414450 Distributed Systems	BE IT	1.68	1.68	1.68	1.68	1.63	2.00	1.77	1.63	0.00	1.57	0.68	2.00
414452 Block chain Technology (Elective VI)	BE IT	1.30	1.75	1.75	1.75	1.75	1.75	1.79	1.75	0.00	1.21	0.81	1.75
414454 Lab Practice V	BE IT	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.65	-	2.32	2.65	2.98
414455 Lab Practice VI	BE IT	1.99	1.99	1.99	1.99	1.99	1.99	1.99	1.66	0.00	1.99	1.66	1.99

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414456 Project Stage II	BE IT	0.83	0.83	0.83	0.83	0.83	0.60	0.83	0.60	0.83	0.83	0.67	0.61
Direct Attainment		1.88	2.06	1.85	1.93	1.94	1.81	1.55	1.70	0.84	1.59	1.34	1.81
Indirect Attainment		2.40	2.63	2.53	2.42	2.22	2.22	2.08	2.41	2.39	2.55	1.75	2.28
Total		1.99	2.18	1.99	2.03	1.99	1.89	1.66	1.84	1.15	1.78	1.42	1.9

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2.6 - Student Performance and Learning Outcomes

B. PSO Attainment

Academic Year 2022-23

Course Code	Class	PSO1	PSO2	PSO3
214441 Discrete Mathematics	SE IT	1.24	1.56	1.87
214442 Logic Design & Computer Organization	SE IT	0.84	0.90	1.16
214443 Data Structure & Algorithm	SE IT	0.81	0.63	0.84
214444 Object Oriented Programming	SE IT	2.78	2.13	2.62
214445 Basics of Computer Network	SE IT	2.77	1.84	2.12
214446 Logic Design Computer Organization Lab	SE IT	0.00	0.00	0.00
214447 Data Structure & Algorithm Laboratory	SE IT	0.81	0.63	0.84
214448 Object Oriented Programming Laboratory	SE IT	1.31	1.00	1.23

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214449 Soft skills lab	SE IT	1.36	1.95	0.97
207003 Engineering Mathematics- III	SE IT	1.88	1.88	1.88
214451 Processor Architecture	SE IT	0.68	0.63	0.74
214452 Database Management System	SE IT	1.33	1.33	1.33
214453 Computer Graphics	SE IT	1.33	1.33	1.33
214454 Software Engineering	SE IT	1.64	1.87	2.36
214455 Programming Skill Development Lab	SE IT	2.31	2.43	2.43
214456 Database Management System Laboratory	SE IT	2.99	2.99	2.99
214457 Computer Graphics Laboratory	SE IT	2.99	2.99	2.99
214458 Project Based Learning	SE IT	2.81	2.15	2.65
314441 Theory of Computation	TE IT	1.06	0.44	0.95

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314442 Operating System	TE IT	2.98	2.98	1.98
314443 Machine Learning	TE IT	2.76	2.76	2.76
314444 Human-Computer Interaction	TE IT	1.99	1.44	1.91
314445 A Design and Analysis of Algorithms	TE IT	1.83	1.40	1.71
314446 Operating System Lab	TE IT	2.98	2.98	1.98
314447 Human-Computer Interaction Lab	TE IT	2.27	1.95	2.34
314448 Laboratory Practice I	TE IT	0.52	0.52	0.52
314449 Seminar	TE IT	2.78	2.29	2.61
314451 Computer Network & Security	TE IT	1.67	1.67	1.67
314452 Data Science & Big Data Analytics	TE IT	1.81	1.59	2.02
314453 Web Application Development	TE IT	2.96	2.96	2.96

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314454 C Cloud Computing (EL-II)	TE IT	2.74	2.74	2.74
314454 D Software Modeling Design (EL II)	TE IT	2.61	2.61	2.61
314455 Internship	TE IT	2.30	2.30	2.30
314456 Computer Network & Security - Lab	TE IT	2.94	2.94	2.94
314457 DS & BDA - Lab	TE IT	1.78	1.56	2.00
314458 Laboratory Practice - II	TE IT	2.97	2.97	2.97
414441 Information and Storage Retrieval	BE IT	2.95	1.80	1.96
414442 Software Project Management	BE IT	2.04	1.48	2.04
414443 Deep Learning	BE IT	2.04	1.48	2.04
414444 Multimedia Technology (Elective III)	BE IT	2.32	1.87	2.16
414445 Introduction to DevOps (Elective IV)	BE IT	2.77	2.77	2.46

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414446 Lab Practice III	BE IT	2.78	1.96	1.96
414447 Lab Practice IV	BE IT	0.65	0.98	1.63
414448 Project Stage – I	BE IT	2.94	2.13	2.62
414450 Distributed Systems	BE IT	1.68	1.68	1.68
414452 Block chain Technology (Elective VI)	BE IT	1.75	1.75	1.75
414454 Lab Practice V	BE IT	2.98	2.98	2.98
414455 Lab Practice VI	BE IT	1.99	1.99	1.99
414456 Project Stage II	BE IT	0.83	0.83	0.83
Direct Attainment		2.01	1.84	1.95
Indirect Attainment		2.33	2.23	2.29
Total		2.08	1.92	2.02

Prof Vaishali Ingale
Criteria Incharge

Dr Ashwini Sapkal
Criteria Incharge

Prof (Dr)Sangeeta Jadhav
HoD IT

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Department of Information Technology



104. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2021-22

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

Attainment Level 1: ***60%*** *students scoring more than University average percentage marks or set attainment level in the final examination.*

Attainment Level 2: ***70%*** *students scoring more than University average percentage marks or set attainment level in the final examination.*

Attainment Level 3: ***80%*** *students scoring more than University average percentage marks or set attainment level in the final examination.*

Course Outcome Attainment:

70% of University level + 30% of Internal level

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Academic Year 2021-22

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C214441: Discrete Mathematics	SE IT	2.90	2.90	2.90	2.90	2.90	2.90	**2.90**
C214442: Logic Design & Computer Organization	SE IT	2.90	2.90	2.90	2.90	2.90	2.90	**2.90**
C214443: Data Structure & Algorithm	SE IT	2.97	2.97	2.98	2.97	2.98	2.97	**2.97**
C214444: Object Oriented Programming	SE IT	2.96	2.96	2.97	2.97	2.96	2.96	**2.96**
C214445: Basics of Computer Network	SE IT	2.92	2.90	2.88	2.91	2.88	2.90	**2.90**
C214446: Logic Design Computer Organization Lab	SE IT	2.90	2.90	2.90	2.90	2.90	2.90	**2.90**
C214447: Data Structure & Algorithm Laboratory	SE IT	2.96	2.96	2.96	2.96	2.96	2.95	**2.96**
C214448Object Oriented Programming Laboratory	SE IT	2.95	2.95	2.96	2.95	2.95	2.95	**2.95**
C214449: Soft Skills Lab	SE IT	2.98	2.97	2.98	2.98	2.98	2.98	**2.98**
C207003Engineering Mathematics-III	SE IT	2.97	2.96	0.56	0.55	1.35	1.35	**1.63**
C214451Processor Architecture	SE IT	2.92	2.90	0.48	0.51	0.48	0.50	**1.30**
C214452Database Management System	SE IT	1.36	1.35	1.37	0.55	0.55	0.55	**0.96**
C214453 Computer Graphics	SE IT	1.37	1.36	2.96	2.15	2.15	2.15	**2.03**
C214454 Software Engineering	SE IT	2.10	2.90	2.90	0.50	0.50	0.50	**1.57**
C214455 Programming Skill Development Lab	SE IT	2.51	2.51	2.51	2.51	2.51	2.51	**2.51**
C214456 Database Management System Laboratory	SE IT	2.95	2.96	2.96	2.95	2.96	2.95	**2.96**
C214457 Computer Graphics Laboratory	SE IT	2.17	2.17	2.17	2.17	2.15	2.15	**2.16**
C214458 Project Based Learning	SE IT	2.95	2.96	2.90	2.95	2.96	2.95	**2.95**
C314441 Theory of Computation	TE IT	2.94	2.94	2.92	2.12	2.12	2.92	**2.66**
C314442 Operating Systems	TE IT	2.96	2.96	2.94	2.94	2.94	2.96	**2.95**
C314443 Machine Learning	TE IT	2.92	2.92	2.92	2.91	2.92	2.90	**2.92**
C314444 Human Computer Interaction	TE IT	2.95	2.96	2.95	2.95	2.95	2.95	**2.95**
C314445A Elective I - Design and Analysis of Algorithm	TE IT	2.94	2.92	2.92	2.92	2.92	2.92	**2.92**
C314445B Elective I - Advanced Database and Management System	TE IT	2.92	2.92	2.94	2.92	2.12	2.12	**2.66**
C314446 Operating Systems Lab	TE IT	2.96	2.96	2.94	2.94	2.94	2.96	**2.95**

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C314447 Human Computer Interaction Laboratory	TE IT	2.97	2.96	2.97	2.95	2.97	2.96	**2.96**
C314448 Laboratory Practice-I (DAA)	TE IT	2.94	2.92	2.92	2.92			**2.93**
C314448 Lab Practice-I (ML)	TE IT	2.94	2.94	2.94	2.94			**2.94**
C314448 Lab Practice-I (ADBMS)	TE IT	2.92	2.92	2.94	2.92	2.92	2.92	**2.92**
C314451 Computer Networks& Security	TE IT	2.96	2.96	2.95	2.95	2.96	2.90	**2.95**
C314452 Data Science and Big Data Analytics	TE IT	2.96	2.96	2.96	2.16	2.16	2.16	**2.56**
C314453 Web Application Development	TE IT	2.77	2.77	2.77	2.77	2.77	2.77	**2.77**
C314454C Elective II- Cloud Computing	TE IT	2.93	2.93	2.93	2.93	2.93	2.93	**2.93**
C314454D Elective II- Software Modeling and Design	TE IT	0.55	0.54	2.15	2.14	2.14	1.28	**1.47**
C314455 Internship	TE IT	2.16	2.13	2.15	2.97	2.95	2.96	**2.55**
C314456 Computer Networks& Security Lab	TE IT	2.95	2.95	2.95	2.95	2.95	2.88	**2.94**
C314457 DS & BDA-Lab	TE IT	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**
C314458Laboratory Practice-II(Web Application Development)	TE IT	2.77	2.77	2.77	2.77	2.77	2.77	**2.77**
C314458 Laboratory Practice-II(Cloud Computing)	TE IT	2.93	2.93	2.93	0.53	0.53	0.53	**1.73**
C314458 Laboratory Practice-II(Software Modeling and Design)	TE IT	2.94	2.93	2.94				**2.94**
C414453 Information and Cyber Security	BE IT	2.93	2.92	2.92	2.90	2.92	2.90	**2.92**
C414454 Machine Learning and Applications	BE IT	2.92	2.92	2.92	2.91	2.91	2.92	**2.92**
C414455 Software Design and Modeling	BE IT	2.95	2.94	2.93	2.92	2.92	2.92	**2.93**
C414456E Elective-I Business Analytics and Intelligence	BE IT	2.93	2.94	2.92	2.92	2.92	2.92	**2.92**
C414457C Elective-II Software Testing and Quality Assurance	BE IT	2.90	2.90	2.90	2.90	2.90	2.90	**2.90**
C414458 Computer Laboratory VII	BE IT	2.91	2.92					**2.92**
C414459 Computer Laboratory VIII	BE IT	2.94	2.93	2.93	2.92	2.93	2.92	**2.93**
C414460 Project Phase - I	BE IT	2.94	2.95	2.95	2.94	2.94	2.94	**2.94**
C 414462Distributed Computing System	BE IT	2.98	2.97	2.97	2.97			**2.98**
C414463Ubiquitous Computing	BE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
C414466Computer Laboratory-IX	BE IT	2.98	2.97	2.97				**2.97**

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C414467Computer Laboratory-X	BE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
C414468Project Work	BE IT	2.98	2.98	2.98	2.98	2.98	2.98	**2.98**
C414464BElective-III Information Storage & Retrieval	BE IT	2.90	2.90	2.90	2.90	2.90	2.90	**2.90**
C414464BElective-III Information Storage & Retrieval	BE IT	2.90	2.90	2.90	2.90	2.90	2.90	**2.90**
C414465D Elective-IV Social Media Analytics	BE IT	2.96	2.97	2.96	2.96	2.96	2.97	**2.96**

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2.6 - Student Performance and Learning Outcomes

.2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs
Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving capability, innovative thinking, communication skills etc.
AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student

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	quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

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A. PO Attainment

Academic Year 2021-22

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
214441: Discrete Mathematics	SE IT	2.90	2.74	1.94	2.58	2.10	0.00	2.90	2.26	0.97	1.21	0.00	1.94
214442: Logic Design & Computer Organization	SE IT	2.10	2.74	1.94	2.58	2.10	-	2.90	2.26	0.97	1.21	-	1.94
214443: Data Structure & Algorithm	SE IT	2.97	2.81	2.81	2.64	2.48	2.48	1.98	1.98	1.98	1.98	2.97	2.48
214444: Object Oriented Programming	SE IT	2.14	2.80	1.98	2.31	2.47	2.14	1.23	1.98	-	1.19	1.98	1.98
214445: Basics of Computer Network	SE IT	2.42	2.42	2.09	2.42	2.42	2.90	0.97	1.29	-	1.55	1.94	2.66
214446: Logic Design Computer Organization Lab	SE IT	2.10	2.74	1.94	2.58	2.10	-	2.90	2.26	0.97	1.21	-	1.94
214447: Data Structure & Algorithm Laboratory	SE IT	2.97	2.81	2.64	2.31	2.48	2.48	1.98	2.97	2.81	2.18	2.97	2.64
214448Object Oriented Programming Laboratory	SE IT	1.25	1.64	1.18	1.33	1.45	1.30	0.63	1.18	-	0.76	0.91	1.18
214449: Soft Skills Lab	SE IT	-	-	-	-	-	1.99	-	1.65	2.38	2.23	-	0.99
207003Engineering Mathematics-III	SE IT	1.63	1.63	0.00	1.63	1.63	0.00	0.00	0.00	0.00	1.68	0.00	1.63
214451Processor Architecture	SE IT	1.14	0.70	0.68	0.54	0.87	0.50	0.00	0.43	0.43	0.49	0.00	0.92
214452Database Management System	SE IT	0.77	0.80	0.67	0.80	0.73	0.37	0.29	0.61	0.32	0.73	0.37	0.65

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214453 Computer Graphics	SE IT	2.03	2.03	1.55	1.62	1.95	1.43	1.35	2.03	1.05	1.19	2.03	1.44
214454 Software Engineering	SE IT	1.57	1.45	1.57	1.45	1.41	0.00	1.38	1.19	1.02	1.38	0.00	0.82
214455 Programming Skill Development Lab	SE IT	0.44	0.74	0.57	0.71	0.61	0.51	0.44	0.36	0.31	0.34	0.46	0.56
214456 Database Management System Laboratory	SE IT	2.47	2.63	2.14	2.63	2.46	1.97	0.99	1.81	0.99	2.17	1.97	2.30
214457 Computer Graphics Laboratory	SE IT	2.16	2.16	1.56	2.04	2.04	1.56	1.44	2.16	2.04	1.30	2.16	1.80
214458 Project Based Learning	SE IT	2.13	2.78	1.96	2.29	2.45	2.13	1.23	1.96	0.98	1.18	1.96	1.96
314441 Theory of Computation	TE IT	2.66	2.66	1.77	1.77	1.94	1.88	1.95	1.77	-	1.01	1.77	1.94
314442 Operating Systems	TE IT	2.95	2.95	2.13	2.79	2.13	-	1.97	1.97	1.97	0.98	-	1.97
314443 Machine Learning	TE IT	2.92	2.92	2.75	2.92	2.92	2.43	1.94	1.94	-	2.73	2.27	2.91
314444 Human Computer Interaction	TE IT	1.48	2.62	2.62	2.30	2.62	2.46	1.80	2.13	-	1.48	1.97	2.62
314445A Elective I - Design and Analysis of Algorithm	TE IT	2.92	2.92	2.92	2.76	2.44	2.11	-	1.95	-	1.96	-	2.43
314445B Elective I - Advanced Database and Management System	TE IT	1.28	2.33	1.89	2.33	2.17	1.41	2.52	1.65	1.45	2.04	1.41	2.49
314446 Operating Systems Lab	TE IT	2.95	2.95	2.13	2.79	2.13	2.95	1.97	1.97	1.97	0.98	-	1.97
314447 Human Computer Interaction Laboratory	TE IT	1.38	1.97	2.17	1.78	1.97	2.71	2.76	2.63	2.96	2.96	0.99	2.96
314448 Laboratory Practice-I (DAA)	TE IT	2.93	2.93	2.93	2.68	2.19	2.20	-	1.95	-	1.96	-	1.95
314448 Lab Practice-I (ML)	TE IT	2.70	2.94	2.70	2.94	2.94	2.70	1.96	1.96	-	2.70	2.45	2.94
314448 Lab Practice-I (ADBMS)	TE IT	1.46	2.60	2.11	2.60	2.44	1.95	2.92	1.79	1.62	2.15	1.95	2.76

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314451 Computer Networks& Security	TE IT	2.46	2.95	2.29	2.29	2.95	2.45	2.29	2.29	1.31	2.96	1.96	2.29
314452 Data Science and Big Data Analytics	TE IT	1.38	2.40	1.71	2.23	2.07	0.00	0.00	0.97	0.00	1.71	0.00	1.42
314453 Web Application Development	TE IT	2.00	2.62	1.85	2.16	2.31	5.54	1.16	1.85	1.23	1.11	1.85	2.16
314454C Elective II- Cloud Computing	TE IT	0.98	1.14	0.98	0.98	0.98	2.93	0.98	0.98	0.00	0.98	0.00	2.54
314454D Elective II- Software Modeling and Design	TE IT	1.04	1.10	0.61	0.76	1.05	1.08	0.00	0.49	0.00	0.45	0.90	0.95
314455 Internship	TE IT	2.42	2.14	2.14	2.14	1.76	2.47	2.12	2.76	2.55	2.47	2.43	2.55
314456 Computer Networks& Security Lab	TE IT	2.78	2.78	2.28	2.28	2.78	2.45	2.28	2.28	2.28	2.56	1.96	2.28
314457 DS & BDA-Lab	TE IT	1.64	2.78	1.96	2.62	2.46	0.00	0.00	1.18	0.00	1.96	0.00	1.47
314458Laboratory Practice-II(Web Application Development)	TE IT	2.00	2.62	1.85	2.16	2.31	2.77	1.69	1.85	1.85	1.85	2.16	2.00
314458 Laboratory Practice-II(Cloud Computing)	TE IT	0.98	1.30	0.98	1.96	1.63	0.00	0.00	0.98	0.00	0.98	0.00	1.96
314458 Laboratory Practice-II(Software Modeling and Design)	TE IT	1.96	1.96	1.96	1.96	1.96	0.00	0.00	0.00	2.94	0.98	1.96	0.98
414453 Information and Cyber Security	BE IT	1.78	2.27	0.97	1.94	2.92	2.92	-	1.46	-	0.97	-	1.13
414454 Machine Learning and Applications	BE IT	2.92	2.92	2.76	2.92	2.92	2.43	1.95	1.95	-	2.72	2.27	2.92

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414455 Software Design and Modeling	BE IT	2.11	2.77	1.95	2.11	2.93	2.93	2.28	2.93	1.63	1.37	1.96	1.95
414456E Elective-I Business Analytics and Intelligence	BE IT	1.95	2.60	2.76	1.95	2.60	2.44	1.95	1.95	-	0.97	1.71	2.60
414457C Elective-II Software Testing and Quality Assurance	BE IT	2.90	2.90	1.94	2.26	2.74	2.58	2.10	1.94	2.90	2.90	2.10	2.90
414458 Computer Laboratory VII	BE IT	2.00	2.00	2.00	2.00	2.00	2.00	1.00	2.00	-	2.00	2.00	-
414459 Computer Laboratory VIII	BE IT	2.28	2.76	1.95	2.28	2.44	2.93	1.22	2.93	1.46	1.17	1.95	1.95
414460 Project Phase - I	BE IT	1.96	2.78	1.96	2.45	2.78	2.29	1.37	1.96	-	1.57	1.97	2.13
414462Distributed Computing System	BE IT	1.98	2.73	2.48	2.48	2.23	2.98	0.99	1.98	0.00	1.24	1.98	1.98
414463Ubiquitous Computing	BE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.63	0.99	0.99	1.18	1.97	2.80
414466Computer Laboratory-IX	BE IT	0.99	0.99	0.99	0.99	1.65	2.97	0.99	0.99	-	-	-	1.98
414467Computer Laboratory-X	BE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.63	0.99	0.99	1.18	1.97	2.80
414468Project Work	BE IT	2.98	2.82	2.49	2.32	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98
414464BElective-III Information Storage & Retrieval	BE IT	2.10	2.74	1.94	2.26	2.42	0.00	2.90	2.26	1.94	1.16	0.00	0.00
414464BElective-III Information Storage & Retrieval	BE IT	2.10	2.74	1.94	2.26	2.42	0.00	2.90	2.26	1.94	1.16	0.00	0.00
414465D Elective-IV Social Media Analytics	BE IT	2.47	2.63	2.57	2.37	2.14	2.97	2.96	2.80	0.00	2.37	2.96	2.14
Direct Attainment		**1.91**	**2.18**	**1.78**	**1.97**	**2.02**	**1.72**	**1.47**	**1.61**	**1.16**	**1.46**	**1.36**	**1.79**
Indirect Attainment		**2.38**	**2.37**	**2.39**	**2.37**	**2.47**	**2.47**	**2.51**	**2.54**	**2.57**	**2.39**	**2.52**	**2.56**
Direct Attainment 80%		**1.53**	**1.74**	**1.42**	**1.58**	**1.61**	**1.37**	**1.17**	**1.28**	**0.92**	**1.16**	**1.08**	**1.43**
Indirect Attainment 20%		**0.48**	**0.47**	**0.47**	**0.47**	**0.49**	**0.49**	**0.50**	**0.50**	**0.51**	**0.47**	**0.50**	**0.51**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**2.01**	**2.22**	**1.89**	**2.05**	**2.11**	**1.87**	**1.67**	**1.79**	**1.43**	**1.64**	**1.59**	**1.94**

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B. PSO Attainment

Academic Year 2021-22

Course	Class	PSO1	PSO2	PSO3
214441: Discrete Mathematics	SE IT	1.77	2.10	2.58
214442: Logic Design & Computer Organization	SE IT	1.77	2.10	2.58
214443: Data Structure & Algorithm	SE IT	2.81	2.15	2.64
214444: Object Oriented Programming	SE IT	2.80	2.14	2.63
214445: Basics of Computer Network	SE IT	2.90	1.93	2.25
214446: Logic Design Computer Organization Lab	SE IT	1.77	2.10	2.58
214447: Data Structure & Algorithm Laboratory	SE IT	2.81	2.14	2.97
214448Object Oriented Programming Laboratory	SE IT	1.64	1.25	1.57
214449: Soft Skills Lab	SE IT	1.39	1.98	0.99
207003Engineering Mathematics-III	SE IT	1.63	1.46	1.63
214451Processor Architecture	SE IT	0.89	0.87	1.05
214452Database Management System	SE IT	0.88	0.70	0.80
214453 Computer Graphics	SE IT	1.95	1.47	1.79
214454 Software Engineering	SE IT	0.93	1.07	1.29
214455 Programming Skill Development Lab	SE IT	0.48	0.54	0.71
214456 Database Management System Laboratory	SE IT	2.79	2.30	2.63
214457 Computer Graphics Laboratory	SE IT	2.16	1.80	2.16
214458 Project Based Learning	SE IT	2.78	2.13	2.62
314441 Theory of Computation	TE IT	2.50	1.05	2.17
314442 Operating Systems	TE IT	2.95	2.95	1.97
314443 Machine Learning	TE IT	2.92	2.92	2.92
314444 Human Computer Interaction	TE IT	2.95	2.13	2.79
314445A Elective I - Design and Analysis of Algorithm	TE IT	2.76	2.11	2.60
314445B Elective I - Advanced Database and Management System	TE IT	2.49	1.77	2.33
314446 Operating Systems Lab	TE IT	2.95	2.95	1.97
314447 Human Computer Interaction Laboratory	TE IT	2.30	1.97	2.37
314448 Laboratory Practice-I (DAA)	TE IT	2.68	1.95	2.44

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314448 Lab Practice-I (ML)	TE IT	2.94	2.94	2.94
314448 Lab Practice-I (ADBMS)	TE IT	2.76	1.95	2.60
314451 Computer Networks& Security	TE IT	2.95	1.96	1.96
314452 Data Science and Big Data Analytics	TE IT	1.75	1.26	1.99
314453 Web Application Development	TE IT	2.62	4.62	3.08
314454C Elective II- Cloud Computing	TE IT	2.45	1.63	1.96
314454D Elective II- Software Modeling and Design	TE IT	1.25	1.25	1.01
314455 Internship	TE IT	2.55	2.55	2.55
314456 Computer Networks& Security Lab	TE IT	2.78	1.96	1.96
314457 DS & BDA-Lab	TE IT	1.96	1.47	2.29
314458Laboratory Practice-II(Web Application Development)	TE IT	2.62	2.77	2.62
314458 Laboratory Practice-II(Cloud Computing)	TE IT	1.96	2.93	2.93
314458 Laboratory Practice-II(Software Modeling and Design)	TE IT	1.96	1.96	0.98
414453 Information and Cyber Security	BE IT	2.11	1.46	1.94
414454 Machine Learning and Applications	BE IT	2.92	2.92	2.92
414455 Software Design and Modeling	BE IT	2.77	2.11	2.60
414456E Elective-I Business Analytics and Intelligence	BE IT	2.44	2.27	2.76
414457C Elective-II Software Testing and Quality Assurance	BE IT	2.90	2.42	2.90
414458 Computer Laboratory VII	BE IT	2.00	2.00	2.00
414459 Computer Laboratory VIII	BE IT	2.76	2.11	2.60
414460 Project Phase - I	BE IT	2.94	2.13	2.62
414462Distributed Computing System	BE IT	2.73	1.98	2.23
414463Ubiquitous Computing	BE IT	2.96	2.80	2.47
414466Computer Laboratory-IX	BE IT	1.98	2.31	1.98
414467Computer Laboratory-X	BE IT	2.96	2.80	2.47
414468Project Work	BE IT	2.98	2.98	2.98
414464BElective-III Information Storage & Retrieval	BE IT	2.74	2.26	2.58
414464BElective-III Information Storage & Retrieval	BE IT	2.74	2.26	2.58
414465D Elective-IV Social Media Analytics	BE IT	2.80	2.31	2.80
Direct Attainment		**2.16**	**1.88**	**2.05**
Indirect Attainment		**2.43**	**2.43**	**2.41**

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Direct Attainment 80%	1.73	1.50	1.63
Indirect Attainment 20%	0.48	0.48	0.48
PO Attainment =80% of direct assessment + 20% of indirect assessment	2.21	1.98	2.11

Prof. Vaishali Ingale
Criteria In charge

Dr. Ashwini Sapkal
Criteria In charge

Dr. Sangeeta Jadhav
HOD Information Technology

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Dighi Hills, Alandi Road, Pune 411015

Department of Information Technology

118. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2020-21

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

Sr. No	Assessment Criteria	Assessment Tool	Assessment Method	
1	Marks obtained, average results, successful students, etc.	University and internal exam questions	Course examination result	Direct Assessment
2	No of students satisfied with the course content and delivery	Depth of Understanding the course contents	Feedback	
3	Number of students participated.	Student Co-curricular activities	Participation and organization of various activities	Indirect assessment
4	Quantitative data of placement and enterprise.	Placement Record	Placement Data	
5	Quantitative data of demonstration of various abilities in profession.	Alumni Feedback	Alumni Survey	
6	Number of students appeared and successful or opted for higher studies.	National/ International Level Exams	Quantitative data of Students appeared and successful in such examination	
7	Number of Graduates fulfills the employer's expectations	Employer Feedback	Employer Survey	
8	Level of satisfaction in terms of overall improvements	Parents Feedback	Parents Survey	
10	Relevance of curriculum and Industry content	Industry Feedback	Industry Survey	
11	No of students satisfied with the curriculum	Student Exit feedback	Current year graduated students	

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2.6 - Student Performance and Learning Outcomes

Direct Assessment Tools:

Sr. No	Tool	Nature of Questions	Frequency of Assessment
01	Class Test	Descriptive/**MCQ based**	Twice in Semester
02	Term Work Assessment Test	Continuous Assessment	After Every Experiment / Assignment
03	University Theory Exams	Descriptive/MCQ	End Semester
04	Oral Exams	Objective, Logical, case study based questions	End Semester
05	Practical Exams	Demonstrative and Synthesis	End Semester
06	Online Exam	Analytical, Logical, Objective	Twice in semester
07	Project and Seminars	Demonstrative, Analytical	Reviews are conducted twice per semester and End Semester exam

2.6 - Student Performance and Learning Outcomes

In-direct Assessment Tools:

Sr. No	Tool	Assessment Criteria	Frequency of Assessment
01	National Level Exam – GATE, GRE, TOFEL,AMCAT etc	No. of Students Participated	Yearly
02	Guest Lectures / Workshops	No. of Students Participated and Feedback given by students	Twice per semester for each class
03	Alumni	Alumni Feedback	Yearly
04	Parents	Parents Feedback	Yearly
05	Placement	Placement Record	Yearly
06	Employer	Employer Feedback	Yearly
07	Final Year student	Student exit feedback	Yearly

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2.6 - Student Performance and Learning Outcomes

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

Assessment Tools			Weightage	Frequency	Responsibility	Final Course attainment
Direct Assessment	Internal	T1	60%	01	Department Level	80%
		T2		01		
	External	University Exam (Insem & Endsem)	40%	02	University Level	
Indirect Assessment	Feedback		20%	02	Department Level	20%

Attainment Level 1: ***60%*** *students scoring more than University 60 percentage marks or set attainment level in the final examination.*

Attainment Level 2: ***70%*** *students scoring more than University 60 percentage marks or set attainment level in the final examination.*

Attainment Level 3: ***80%*** *students scoring more than University 60 percentage marks or set attainment level in the final examination.*

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2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment:

60% of University level + 40% of Internal level

Academic Year 2020-21

Course Code	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
107001 Engineering Mathematics I	FE IT	2.95	2.95	2.95	2.95	0.25	2.95	**2.5**
107002 Engineering Physics	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
103004 Basic Electrical Engineering	FE IT	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**
102003 Systems in Mechanical	FE IT	0.9	0.9	0.9	0.9	0.9	0.9	**0.9**
110013 Project Based Learning	FE IT	2.96	2.96	2.96	-	-	-	**2.96**
111007 Workshop Practices	FE IT	1	1	1	1	1	1	**1**
107008 Engineering Mathematics II	FE IT	1.15	1.15	2.95	2.95	2.95	2.95	**2.35**
107009 Engineering Chemistry	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
110005 Programming and Problem Solving	FE IT	2.96	2.96	2.96	2.96	2.7	2.7	**2.87**
101011 Engineering Mechanics	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
104012 Basic Electronics Engineering	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
102013 Engineering Graphics	FE IT	0.78	0.78	0.78	0.78	0.78	0.78	**0.78**
214441 Discrete Mathematics	SE IT	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**

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214442 Logic Design & Computer Organization	SE IT	2.9	2.9	2.9	2.9	2.9	2.9	**2.9**
214443 Data Structure & Algorithm	SE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**
214444 Object Oriented Programming	SE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**
214445 Basics of Computer Network	SE IT	2.77	2.77	2.77	2.77	2.77	2.77	**2.77**
214446 Logic Design Computer Organization Lab	SE IT	0.5	0.5	0.5	0.5	0.5	0.5	**0.5**
214447 Data Structure & Algorithm Laboratory	SE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**
214448 Object Oriented Programming Laboratory	SE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**
214449 Soft skills lab	SE IT	2.12	2.12	2.12	2.12	2.12	2.12	**2.12**
207003 Engineering Mathematics- III	SE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**
214451 Processor Architecture	SE IT	2.91	2.91	2.91	2.91	2.91	2.91	**2.91**
214452 Databse Management System	SE IT	2.92	2.92	2.92	2.92	2.92	2.92	**2.92**
214453 Computer Graphics	SE IT	2.93	2.93	2.93	2.93	2.93	2.93	**2.93**
214454 Software Engineering	SE IT	2.92	2.92	2.92	2.12	2.12	2.12	**2.52**
214455 Programming Skill Development Lab	SE IT	2.52	2.52	2.53	2.52	2.52	2.53	**2.52**
214456 Database Management System	SE IT	2.92	2.92	2.92	2.92	2.92	2.92	**2.92**

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2.6 - Student Performance and Learning Outcomes

Laboratory								
214457 Computer Graphics Laboratory	SE IT	2.93	2.93	2.93	2.93	2.93	2.93	**2.93**
214458 Project Based Learning	SE IT	0.5	0.5	0.5	0.5	0.5	0.5	**0.5**
314441 Theory of Computation	TE IT	2.94	2.94	2.94	1.34	1.34	2.94	**2.41**
314442 Database Management Systems	TE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
314443 Software Engineering & Project Management	TE IT	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**
314444 Operating System	TE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
314445 Human-Computer Interaction	TE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
314446 Software Laboratory-I	TE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
314447 Software Laboratory -II	TE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
314448 Software Laboratory-III	TE IT	3	3	3	3	3	3	**3**
314450 Computer Network Technology	TE IT	2.85	2.85	2.85	2.85	2.85	2.85	**2.85**
314451 Systems Programming	TE IT	2.53	2.27	2.27	2.76	2.76	2.77	**2.56**
314452 Design and Analysis of Algorithms	TE IT	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**
314453 Cloud Computing	TE IT	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**
314454 Data Science & Big Data Analytics	TE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**

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314455 Software Laboratory-IV	TE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**
314456 Software Laboratory-V	TE IT	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**
314457 Software Laboratory-VI	TE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**
314458 Project Based Seminar	TE IT	2.94	2.94	2.94	2.94	2.94	2.94	**2.94**
414453 Information and Cyber Security	BE IT	2.93	2.93	2.93	2.93	2.93	2.93	**2.93**
414454 Machine Learning and Applications	BE IT	2.93	2.93	2.93	2.93	2.93	2.93	**2.93**
414455 Software Design and Modeling	BE IT	2.94	2.94	2.94	2.94	2.94	2.94	**2.94**
414458 Computer Laboratory VII	BE IT	2.93	2.93	-	-	-	-	**2.93**
414459 Computer Laboratory VIII	BE IT	2.92	2.92	2.92	2.92	2.92	2.92	**2.92**
414460 Project Phase - I	BE IT	2.92	2.92	2.92	2.92	2.92	2.92	**2.92**
414456E Business Analytics and Intelligence (EL-I)	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**
414457C Elective 2:- Software Testing & Quality Assurance	BE IT	2.9	2.9	2.9	2.9	2.9	2.9	**2.9**
414462 Distributed Computing System	BE IT	2.9	2.9	2.9	2.9	2.9	2.9	**2.9**
414463 Ubiquitous Computing	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**
414466 Computer Laboratory-IX	BE IT	2.9	2.9	2.9	2.9	2.9	2.9	**2.9**

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2.6 - Student Performance and Learning Outcomes

414467 Computer Laboratory-X	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	**2.97**
414468 Project Work	BE IT	2.94	2.94	2.94	2.94	2.94	2.94	**2.94**
414464B Elective-III Information Storage & Retrieval	BE IT	2.9	2.9	2.9	2.9	2.9	2.9	**2.9**
414464B Elective- III Information Storage & Retrieval Laboratory	BE IT	2.9	2.9	2.9	2.9	2.9	2.9	**2.9**
414465D Elective-IV Social Media Analytics	BE IT	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**

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2.6 - Student Performance and Learning Outcomes

2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

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2.6 - Student Performance and Learning Outcomes

Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs
Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving capability, innovative thinking, communication skills etc.
AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future

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2.6 - Student Performance and Learning Outcomes

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Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year



2.6 - Student Performance and Learning Outcomes

A. PO Attainment

Academic Year 2020-21

Course	Class	PO1	PO2	PO3	PO4	PO5	PO 6	PO7	PO 8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	FE IT	2.50	2.50	-	2.50	2.50	-	-	-	-	2.41	-	2.50
107002 Engineering Physics	FE IT	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
103004 Basic Electrical Engineering	FE IT	2.78	2.78	2.13	2.46	2.46	2.13	1.23	2.13	0.98	1.18	0.98	1.80
102003 Systems in Mechanical	FE IT	1.00	0.72	0.78	0.77	0.33	0.78	0.83	0.33	0.89	1.00	0.33	0.89
110013 Project Based Learning	FE IT	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
111007 Workshop Practices	FE IT	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.50	0.33	0.33
107008 Engineering Mathematics II	FE IT	2.35	2.35	-	2.35	2.35	-	-	-	-	2.23	-	2.35
107009 Engineering Chemistry	FE IT	1.97	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	1.97	2.96
110005 Programming and Problem Solving	FE IT	1.15	1.48	1.31	1.31	1.48	1.48	0.66	1.31	0.66	1.31	0.66	0.99
101011 Engineering Mechanics	FE IT	2.96	2.96	0.99	2.96	1.97	1.97	0.99	0.99	2.96	2.96	0.99	2.96
104012 Basic Electronics Engineering	FE IT	2.96	2.79	1.97	2.30	2.46	2.13	1.23	1.97	0.99	1.18	0.99	1.97
102013 Engineering Graphics	FE IT	0.66	0.77	0.61	0.66	0.89	0.50	0.39	0.55	0.44	0.49	0.38	0.33
214441 Discrete Mathematics	SE IT	2.95	2.79	2.30	2.30	2.46	2.46	2.13	2.95	1.97	1.97	2.36	2.79

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214442 Logic Design & Computer Organization	SE IT	2.10	2.74	1.94	2.58	2.10	-	2.90	2.26	0.97	1.21	-	1.94
214443 Data Structure & Algorithm	SE IT	2.97	2.80	2.80	2.64	2.47	2.47	1.98	2.97	1.98	1.98	2.97	2.47
214444 Object Oriented Programming	SE IT	2.14	2.80	1.98	2.31	2.47	2.14	1.24	1.98	0.99	1.19	1.98	1.98
214445 Basics of Computer Network	SE IT	2.31	2.31	2.00	2.31	2.31	2.77	1.08	1.23	1.29	1.48	1.85	2.54
214446 Logic Design Computer Organization Lab	SE IT	0.36	0.47	0.34	0.45	0.36	-	0.50	0.39	0.17	0.21	-	0.34
214447 Data Structure & Algorithm Laboratory	SE IT	2.97	2.80	2.64	2.31	2.47	2.47	1.98	2.97	2.80	2.18	2.97	2.64
214448 Object Oriented Programming Laboratory	SE IT	2.14	2.80	1.98	2.31	2.47	2.14	1.24	1.98	0.99	1.19	1.98	1.98
214449 Soft skills lab	SE IT	-	-	-	-	-	1.41	-	1.18	1.70	1.59	-	0.71
207003 Engineering Mathematics- III	SE IT	2.97	2.97	-	2.97	2.97	-	-	-	-	2.97	-	2.97
214451 Processor Architecture	SE IT	2.75	1.78	1.62	1.62	1.94	2.91	-	1.94	0.97	0.97	-	2.26
214452 Databse Management System	SE IT	2.43	2.59	2.27	2.59	2.43	2.92	2.92	2.75	1.94	2.14	2.92	2.27
214453 Computer Graphics	SE IT	2.93	2.93	2.28	2.44	2.77	2.12	1.95	2.93	1.56	1.76	2.93	1.95
214454 Software Engineering	SE IT	2.03	2.36	1.84	2.36	2.08	1.84	1.02	1.68	0.97	1.06	1.08	1.59
214455 Programming Skill Development Lab	SE IT	2.52	2.52	2.52	2.52	2.52	2.53	2.52	2.52	2.52	2.52	2.52	2.52

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214456 Database Management System Laboratory	SE IT	2.43	2.59	2.27	2.59	2.43	2.92	2.92	2.75	1.94	2.14	2.92	2.27
214457 Computer Graphics Laboratory	SE IT	2.93	2.93	2.12	2.77	2.77	2.12	1.95	2.93	2.77	1.76	2.93	2.44
214458 Project Based Learning	SE IT	0.36	0.47	0.34	0.39	0.42	0.36	0.21	0.34	0.17	0.20	0.34	0.34
314441 Theory of Computation	TE IT	2.41	2.41	2.41	2.41	2.33	1.77	1.96	1.60	-	1.96	1.60	1.78
314442 Database Management Systems	TE IT	2.14	2.63	2.30	2.63	2.47	2.96	2.96	2.79	2.63	2.17	2.96	2.79
314443 Software Engineering & Project Management	TE IT	2.13	2.79	1.97	2.30	2.46	2.13	1.23	1.97	0.98	1.18	1.97	1.97
314444 Operating System	TE IT	2.96	2.96	2.14	2.80	2.14	-	1.97	1.97	1.97	0.99	-	1.97
314445 Human-Computer Interaction	TE IT	1.81	2.63	2.63	2.30	2.63	2.46	1.81	2.14	-	1.48	1.97	2.63
314446 Software Laboratory-I	TE IT	2.47	2.63	2.30	2.63	2.47	2.96	2.96	2.79	1.97	2.17	2.96	2.30
314447 Software Laboratory -II	TE IT	2.96	2.96	2.14	2.80	2.14	-	1.97	1.97	1.97	0.99	-	1.97
314448 Software Laboratory-III	TE IT	3.00	3.00	2.00	2.33	2.50	3.00	1.83	3.00	2.83	2.60	2.83	2.33
314450 Computer Network Technology	TE IT	2.38	2.53	1.90	2.22	2.53	2.69	1.90	1.58	1.90	0.95	2.14	1.74
314451 Systems Programming	TE IT	1.97	2.62	2.62	2.29	2.62	2.46	1.97	2.13	-	1.48	1.97	2.62
314452 Design and Analysis of Algorithms	TE IT	2.95	2.95	2.95	2.78	2.46	2.13	-	1.97	-	1.97	-	2.46

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2.6 - Student Performance and Learning Outcomes

314453 Cloud Computing	TE IT	2.79	2.79	1.97	2.30	2.46	2.95	1.23	1.97	1.31	1.18	1.97	2.30
314454 Data Science & Big Data Analytics	TE IT	2.64	2.80	2.14	2.64	2.47	-	2.97	2.17	1.98	1.98	2.97	1.48
314455 Software Laboratory-IV	TE IT	2.97	2.81	2.64	2.81	2.48	2.97	1.98	1.98	1.16	1.58	1.98	1.98
314456 Software Laboratory-V	TE IT	2.95	2.95	2.95	2.95	2.56	1.97	1.97	1.97	-	-	-	2.46
314457 Software Laboratory-VI	TE IT	2.64	2.80	2.14	2.64	2.47	-	2.97	2.17	1.98	1.98	2.97	1.48
314458 Project Based Seminar	TE IT	1.30	2.28	2.77	2.61	2.45	2.61	2.61	1.79	2.12	2.94	2.45	2.45
414453 Information and Cyber Security	BE IT	1.47	2.28	1.63	1.96	2.45	2.93	0.98	2.45	0.98	1.17	1.96	1.76
414454 Machine Learning and Applications	BE IT	1.47	2.28	1.63	1.96	2.45	2.93	0.98	2.45	0.98	1.17	1.96	1.76
414455 Software Design and Modeling	BE IT	2.93	2.93	2.77	2.93	2.93	2.44	1.95	1.95	-	2.74	2.28	2.93
414458 Computer Laboratory VII	BE IT	2.12	2.78	1.96	2.12	2.94	2.94	2.29	1.96	1.63	1.37	1.96	1.96
414459 Computer Laboratory VIII	BE IT	2.93	2.93	2.93	2.93	2.93	2.93	1.95	1.95	-	2.44	1.95	-
414460 Project Phase - I	BE IT	2.27	2.76	1.95	2.27	2.43	2.92	1.22	1.95	1.46	1.17	1.95	1.95
414456E Business Analytics and Intelligence (EL-I)	BE IT	1.95	2.76	1.95	2.43	2.76	2.27	1.36	1.95	2.43	1.56	1.95	2.11
414457C Elective 2:- Software Testing & Quality Assurance	BE IT	2.90	2.90	1.94	2.26	2.74	2.58	2.10	1.94	2.90	2.90	2.10	2.90

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015. IT DEPT.

2.6 - Student Performance and Learning Outcomes

414462 Distributed Computing System	BE IT	2.10	2.74	2.58	2.58	2.42	2.90	1.21	1.94	1.29	1.16	1.94	2.26
414463 Ubiquitous Computing	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.64	0.99	0.99	1.19	1.98	2.81
414466 Computer Laboratory-IX	BE IT	2.10	2.74	1.94	2.26	2.42	2.90	1.21	1.94	1.29	1.16	1.94	2.26
414467 Computer Laboratory-X	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.64	0.99	0.99	1.19	1.98	2.81
414468 Project Work	BE IT	2.94	2.78	2.45	2.29	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94
414464B Elective-III Information Storage & Retrieval	BE IT	2.10	2.74	1.94	2.26	2.42	-	2.90	2.26	1.94	1.16	-	-
414464B Elective- III Information Storage & Retrieval Laboratory	BE IT	2.10	2.74	1.94	2.26	2.42	-	2.90	2.26	1.94	1.16	-	-
414465D Elective-IV Social Media Analytics	BE IT	2.47	2.63	2.56	2.37	2.14	2.96	2.96	2.79	2.30	2.37	2.96	2.14
Direct Attainment		**2.36**	**2.55**	**2.08**	**2.33**	**2.31**	**2.38**	**1.86**	**1.97**	**1.70**	**1.69**	**1.98**	**2.07**
Indirect Attainment		**2.24**	**2.24**	**2.26**	**2.23**	**2.10**	**2.10**	**2.25**	**2.32**	**2.32**	**2.38**	**2.32**	**2.29**
Total		**2.34**	**2.49**	**2.12**	**2.31**	**2.27**	**2.33**	**1.94**	**2.04**	**1.82**	**1.83**	**2.05**	**2.12**

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2.6 - Student Performance and Learning Outcomes

B. PSO Attainment

Academic Year 2020-21

Course Code	Class	PSO1	PSO2	PSO3
107001 Engineering Mathematics I	FE IT	2.34	2.50	1.67
107002 Engineering Physics	FE IT	1.15	1.97	1.97
103004 Basic Electrical Engineering	FE IT	2.78	2.13	2.46
102003 Systems in Mechanical	FE IT	3.00	2.67	1.33
110013 Project Based Learning	FE IT	1.00	0.33	1.00
111007 Workshop Practices	FE IT	2.67	1.83	2.00
107008 Engineering Mathematics II	FE IT	2.28	2.35	1.57
107009 Engineering Chemistry	FE IT	2.79	2.96	2.63
110005 Programming and Problem Solving	FE IT	1.97	1.64	1.64
101011 Engineering Mechanics	FE IT	1.97	0.99	1.97
104012 Basic Electronics Engineering	FE IT	2.79	2.13	2.63
102013 Engineering Graphics	FE IT	1.97	1.48	1.97
214441 Discrete Mathematics	SE IT	2.95	2.62	2.62

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214442 Logic Design & Computer Organization	SE IT	1.77	2.10	2.58
214443 Data Structure & Algorithm	SE IT	2.80	2.14	2.64
214444 Object Oriented Programming	SE IT	2.80	2.14	2.64
214445 Basics of Computer Network	SE IT	2.77	1.85	2.16
214446 Logic Design Computer Organization Lab	SE IT	0.31	0.36	0.45
214447 Data Structure & Algorithm Laboratory	SE IT	2.80	2.14	2.97
214448 Object Oriented Programming Laboratory	SE IT	2.80	2.14	2.64
214449 Soft skills lab	SE IT	0.99	1.41	0.71
207003 Engineering Mathematics- III	SE IT	2.97	2.80	2.97
214451 Processor Architecture	SE IT	2.10	1.94	2.26
214452 Databse Management System	SE IT	2.75	2.27	2.59
214453 Computer Graphics	SE IT	2.77	2.12	2.61
214454 Software Engineering	SE IT	2.36	1.80	2.19
214455 Programming Skill Development Lab	SE IT	2.52	2.52	2.52
214456 Database Management System Laboratory	SE IT	2.75	2.27	2.59

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214457 Computer Graphics Laboratory	SE IT	2.93	2.44	2.93
214458 Project Based Learning	SE IT	0.47	0.36	0.45
314441 Theory of Computation	TE IT	2.24	1.77	2.08
314442 Database Management Systems	TE IT	2.79	2.30	2.63
314443 Software Engineering & Project Management	TE IT	2.79	2.13	2.62
314444 Operating System	TE IT	2.96	2.96	1.97
314445 Human-Computer Interaction	TE IT	2.96	2.14	2.79
314446 Software Laboratory-I	TE IT	2.79	2.30	2.63
314447 Software Laboratory -II	TE IT	2.96	2.96	1.97
314448 Software Laboratory-III	TE IT	3.00	3.00	2.50
314450 Computer Network Technology	TE IT	2.53	1.43	2.22
314451 Systems Programming	TE IT	2.95	2.13	2.79
314452 Design and Analysis of Algorithms	TE IT	2.78	2.13	2.62
314453 Cloud Computing	TE IT	2.79	2.13	2.46
314454 Data Science & Big Data Analytics	TE IT	1.98	2.14	2.31

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2.6 - Student Performance and Learning Outcomes

314455 Software Laboratory-IV	TE IT	2.81	2.15	2.48
314456 Software Laboratory-V	TE IT	2.78	2.29	2.62
314457 Software Laboratory-VI	TE IT	1.98	2.14	2.31
314458 Project Based Seminar	TE IT	2.94	2.12	2.61
414453 Information and Cyber Security	BE IT	2.12	2.12	2.77
414454 Machine Learning and Applications	BE IT	2.12	2.12	2.77
414455 Software Design and Modeling	BE IT	2.93	2.93	2.93
414458 Computer Laboratory VII	BE IT	2.78	2.12	2.61
414459 Computer Laboratory VIII	BE IT	2.93	2.93	2.93
414460 Project Phase - I	BE IT	2.76	2.11	2.60
414456E Business Analytics and Intelligence (EL-I)	BE IT	2.92	2.11	2.60
414457C Elective 2:- Software Testing & Quality Assurance	BE IT	2.90	2.42	2.90
414462 Distributed Computing System	BE IT	2.74	2.10	2.42
414463 Ubiquitous Computing	BE IT	2.97	2.81	2.48
414466 Computer Laboratory-IX	BE IT	2.74	2.10	2.42

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2.6 - Student Performance and Learning Outcomes

414467 Computer Laboratory-X	BE IT	2.97	2.81	2.48
414468 Project Work	BE IT	2.94	2.94	2.94
414464B Elective-III Information Storage & Retrieval	BE IT	2.74	2.26	2.58
414464B Elective- III Information Storage & Retrieval Laboratory	BE IT	2.74	2.26	2.58
414465D Elective-IV Social Media Analytics	BE IT	2.79	2.30	2.79
Direct Attainment		2.52	2.14	2.35
Indirect Attainment		**2.40**	**2.37**	**2.40**
Total		**2.49**	**2.19**	**2.36**

Dr Ashwini Sapkal
Criteria In-charge

Prof Vaishali Ingale
Criteria In-charge

Dr.(Mrs.) Sangeeta Jadhav
HOD IT

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ARMY INSTITUTE OF TECHNOLOGY

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Department of Information Technology

141. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2019-20

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

Attainment Level 1: ***60%*** *students scoring more than University average percentage marks or set attainment level in the final examination.*

Attainment Level 2: ***70%*** *students scoring more than University average percentage marks or set attainment level in the final examination.*

Attainment Level 3: ***80%*** *students scoring more than University average percentage marks or set attainment level in the final examination.*

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2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment:

70% of University level + 30% of Internal level

Academic Year 2019-20

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
107001 Engineering Mathematics-I	FE IT	2.06	2.06	2.96	2.96	2.96	2.96	2.66
107002 Engineering Physics	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
103004 Basic Electronics Engineering	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
102003 Systems in Mechanical Engineering	FE IT	0.86	0.86	0.52	0.48	0.48	0.48	0.61
110013 Project Based Learning	FE IT	2.96	2.96	2.96	0.00	0.00	0.00	1.48
111007 Audit Course 1	FE IT	1	1	1	1	1	1	1.00
107008 Engineering Mathematics-II	FE IT	2.95	2.95	2.95	2.95	2.95	2.95	2.95
107009 Engineering Chemistry	FE IT	0.26	0.26	0.26	0.26	0.26	0.26	0.26
110005 Programming and Problem Solving	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
101011 Engineering Mechanics	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
102012 Engineering Graphics	FE IT	2.06	2.06	2.06	2.96	2.96	2.96	2.51
102013 Basic Mechanical Engineering	FE IT	0.91	0.91	0.91	0.91	0.93	0.93	0.92
214441 Discrete Structures	SE IT	2.93	2.93	2.93	2.93	2.93	2.93	2.93
214442 Computer Organization & Architecture	SE IT	1.97	1.97	1.97	2.77	2.77	2.77	2.37
214443 Digital Electronics and Logic Design	SE IT	1.30	2.10	2.10	0.50	0.50	0.50	1.17
214444 Fundamentals of Data Structures	SE IT	2.95	2.95	2.95	2.15	2.15	2.15	2.55
214445 Problem Solving and Object Oriented programming	SE IT	2.98	2.98	2.98	2.98	2.98	2.98	2.98
214446 Digital Laboratory	SE IT	2.10	2.10	2.10	0.50	0.50	0.50	1.30
214447 Programming Laboratory	SE IT	2.98	2.98	2.98	2.98	2.98	2.98	2.98
214448 Object Oriented programming Lab	SE IT	2.98	2.98	2.98	2.98	2.98	2.98	2.98
214449 Communication Skills	SE IT	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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2.6 - Student Performance and Learning Outcomes

207003 Engineering Mathematics -III	SE IT	2.15	1.35	2.15	1.35	1.35	2.15	1.75
214450 Computer Graphics	SE IT	2.91	2.91	2.91	2.91	2.91	2.91	2.91
214451 Processor Architecture and Interfacing	SE IT	2.90	2.90	2.90	2.90	2.90	2.90	2.90
214452 Data Structure and File	SE IT	2.98	2.98	2.98	2.98	2.98	2.98	2.98
214453 Foundations of Communication and Computer Network	SE IT	2.79	2.79	2.79	2.79	2.79	2.79	2.79
214454 Processor Interfacing Laboratory	SE IT	2.90	2.90	2.90	2.90	2.90	2.90	2.90
214455 Data Structure & File Laboratory	SE IT	2.98	2.98	2.98	2.98	2.98	2.98	2.98
214456 Computer Graphics Laboratory	SE IT	2.91	2.91	2.91	2.91	2.91	2.91	2.91
314441 Theory of Computation	TE IT	0.50	0.50	0.50	1.30	1.30	1.30	0.90
314442 Database Management Systems	TE IT	1.33	0.53	0.53	2.93	2.93	2.93	1.86
314443 Software Engineering & Project Management	TE IT	2.77	2.77	2.77	2.77	2.77	2.77	2.77
314444 Operating System	TE IT	2.95	2.95	2.95	2.95	2.95	2.95	2.95
314445 Human-Computer Interaction	TE IT	2.16	2.96	2.96	2.96	2.96	2.96	2.83
314446 Software Laboratory-I	TE IT	2.93	2.93	2.93	2.93	2.93	2.93	2.93
314447 Software Laboratory -II	TE IT	2.95	2.95	2.95	2.95	2.95	2.95	2.95
314448 Software Laboratory-III	TE IT	3.00	3.00	3.00	3.00	3.00	3.00	3.00
314450 Computer Network Technology	TE IT	2.93	2.93	2.93	2.93	2.93	2.93	2.93
314451 Systems Programming	TE IT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
314452 Design and Analysis of Algorithms	TE IT	2.90	2.90	2.90	2.10	2.10	2.10	2.50
314453 Cloud Computing	TE IT	0.53	0.53	0.53	2.93	2.93	2.93	1.73
314454 Data Science & Big Data Analytics	TE IT	0.57	0.57	0.57	2.97	2.97	2.97	1.77
314455 Software laboratory-IV	TE IT	2.90	2.90	2.90	2.90	2.90	2.90	2.90

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2.6 - Student Performance and Learning Outcomes

314456 Software laboratory-V	TE IT	2.90	2.90	2.90	2.90	2.90	2.90	2.90
314457 Software Laboratory-VI	TE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97
314458 Project Based Seminar	TE IT	2.94	2.94	2.94	2.94	2.94	2.94	2.94
414453 Information and Cyber Security	BE IT	2.93	2.93	2.93	2.93	2.93	2.93	2.93
414454 Machine Learning and Applications	BE IT	2.93	2.93	2.93	2.93	2.93	2.93	2.93
414455 Software Design and Modeling	BE IT	0.52	0.52	0.52	2.92	2.92	2.92	1.72
414458 Computer Laboratory VII	BE IT	2.93	2.93	0.00	0.00	0.00	0.00	0.98
414459 Computer Laboratory VIII	BE IT	2.93	2.93	2.93	2.93	2.93	2.93	2.93
414460 Project Phase - I	BE IT	2.77	2.77	2.77	2.77	2.77	2.77	2.77
414456E Business Analytics and Intelligence (EL-I)	BE IT	2.15	2.95	2.95	2.95	2.95	2.95	2.82
414457C Software Testing and Quality Assurance (EL-II)	BE IT	2.90	2.90	2.90	2.90	2.90	2.90	2.90
414462 Distributed Computing System	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97
414463 Ubiquitous Computing	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97
414466 Computer Laboratory-IX	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97
414467 Computer Laboratory-X	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97
414468 Project Work	BE IT	2.94	2.94	2.94	2.94	2.94	2.94	2.94
414464B Elective-III Information Storage & Retrieval	BE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
414464B Elective- III Information Storage & Retrieval Laboratory	BE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
414465D Elective-IV Social Media Analytics	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97

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2.6 - Student Performance and Learning Outcomes

.2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs
Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving

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2.6 - Student Performance and Learning Outcomes

	capability, innovative thinking, communication skills etc.
AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future.
Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

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2.6 - Student Performance and Learning Outcomes

A PO Attainment

Academic Year 2019-20

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
101011 Engineering Mechanics	FE IT	2.96	2.96	0.99	2.96	1.97	1.97	0.99	0.99	2.96	2.96	0.99	2.96
102003 Systems in Mechanical Engineering	FE IT	0.70	0.60	0.40	0.30	0.30	0.25	0.30	0.50	0.40	0.25	0.30	0.10
102012 Engineering Graphics	FE IT	1.15	1.92	1.28	1.28	0.38	0.38	0.89	0.64	0.77	0.77	0.26	0.77
103004 Basic Electrical Engineering	FE IT	2.96	2.79	1.97	2.30	2.46	2.13	1.23	1.97	0.99	1.18	0.99	1.97
104012 Basic Electronics Engineering	FE IT	0.34	0.23	0.23	0.23	0.23	0.34	-	0.23	0.69	0.27	-	0.11
107001 Engineering Mathematics I	FE IT	2.66	2.66	-	2.66	2.66	-	-	-	-	2.60	-	2.66
107002 Engineering Physics	FE IT	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
107008 Engineering Mathematics II	FE IT	2.95	2.95	-	2.95	2.95	-	-	-	-	2.95	-	2.95
107009 Engineering Chemistry	FE IT	1.57	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.24	1.57	2.36
110005 Programming and Problem Solving	FE IT	2.63	2.79	1.97	2.30	2.46	2.13	1.23	1.97	0.99	1.18	0.99	1.97
110013 Project Based Learning	FE IT	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
111007 Workshop Practices	FE IT	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.50	0.33	0.33
207003 Engineering Mathematics –III	SE IT	1.75	1.75	-	1.75	1.75	-	-	-	-	1.67	-	1.75
214441 Discrete Structures	SE IT	2.93	2.77	1.95	2.28	2.44	2.11	1.22	1.95	0.98	1.17	1.95	1.95
214442 Computer Organization & Architecture	SE IT	1.18	1.82	1.60	0.97	0.97	1.97	1.79	1.49	0.75	0.76	-	1.54
214443 Digital Electronics and Logic Design	SE IT	0.81	1.10	0.82	0.98	0.72	-	0.50	0.88	0.61	0.48	-	0.65
214444 Fundamentals of Data Structures	SE IT	2.06	2.38	2.06	2.06	1.89	1.61	1.74	1.77	0.72	1.45	2.13	1.37

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2.6 - Student Performance and Learning Outcomes

214445 Problem Solving and Object Oriented programming	**SE IT**	2.98	2.82	2.15	2.32	2.82	2.49	1.82	2.65	1.99	2.39	2.98	2.32
214446 Digital Laboratory	**SE IT**	1.58	2.24	1.66	2.05	1.54	-	0.96	1.72	0.85	0.87	-	1.48
214447 Programming Laboratory	**SE IT**	2.49	2.82	2.49	2.49	2.32	1.99	2.19	2.15	0.99	1.74	2.59	1.66
214448 Object Oriented programming Lab	**SE IT**	2.98	2.82	2.15	2.32	2.82	2.49	1.82	2.65	1.99	2.39	2.98	2.32
214449 Communication Skills	**SE IT**	-	-	-	-	-	1.95	-	1.62	2.34	2.19	-	0.97
214450 Computer Graphics	**SE IT**	2.75	2.59	2.42	1.78	2.59	2.91	1.21	2.91	2.91	2.52	2.91	2.10
214451 Processor Architecture and Interfacing	**SE IT**	2.10	2.74	1.94	2.58	2.10	-	2.90	2.26	0.97	1.21	-	1.94
214452 Data Structure and File	**SE IT**	2.98	2.82	2.32	2.32	2.49	2.49	2.15	2.98	1.99	1.99	2.39	2.82
214453 Foundations of Communication and Computer Network	**SE IT**	2.33	2.17	1.40	2.17	1.55	2.79	1.24	2.17	1.09	1.30	1.86	2.48
214454 Processor Interfacing Laboratory	**SE IT**	2.10	2.74	1.94	2.58	2.10	-	2.90	2.26	0.97	1.21	-	1.94
214455 Data Structure & File Laboratory	**SE IT**	2.98	2.82	2.82	2.82	2.65	2.65	1.99	2.98	2.82	2.19	2.98	2.49
214456 Computer Graphics Laboratory	**SE IT**	2.75	2.59	2.42	1.78	2.59	2.91	1.16	2.91	2.91	2.52	2.91	2.10
314441 Theory of Computation	**TEIT**	0.90	0.90	0.90	0.90	0.83	0.63	0.87	0.60	-	0.34	0.60	0.95
314442 Database Management Systems	**TEIT**	1.63	1.72	1.39	1.72	1.69	2.93	1.73	1.70	1.76	1.24	0.98	1.79
314443 Software Engineering & Project Management	**TEIT**	1.43	1.91	1.58	1.74	1.95	1.74	0.96	1.58	0.92	1.00	1.85	1.49
314444 Operating System	**TEIT**	2.95	2.95	2.13	2.79	2.13	-	1.97	1.97	1.97	0.98	-	1.97
314445 Human-Computer Interaction	**TEIT**	1.72	2.54	2.49	2.21	2.54	2.33	1.67	2.05	-	1.28	1.84	2.49
314446 Software Laboratory-I	**TEIT**	2.45	2.61	2.28	2.61	2.45	2.93	2.93	2.77	1.96	2.15	0.98	2.28
314447 Software Laboratory -II	**TEIT**	2.95	2.95	2.13	2.79	2.13	-	1.97	1.97	1.97	0.98	-	1.97
314448 Software Laboratory-III	**TEIT**	3.00	3.00	2.00	2.33	2.50	3.00	1.83	3.00	2.83	2.60	2.83	2.33

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2.6 - Student Performance and Learning Outcomes

314450 Computer Network Technology	**TEIT**	2.75	2.59	2.42	1.78	2.59	2.91	1.16	2.91	2.91	2.52	2.91	2.10
314451 Systems Programming	**TEIT**	1.97	2.62	2.62	2.29	2.62	2.46	1.97	2.13	-	1.48	1.97	2.62
314452 Design and Analysis of Algorithms	**TEIT**	2.50	2.50	2.50	2.34	2.06	1.83	-	1.67	2.90	1.94	-	1.89
314453 Cloud Computing	**TEIT**	1.70	1.70	1.15	1.35	1.51	1.73	0.82	1.15	0.24	0.53	0.35	2.28
314454 Data Science & Big Data Analytics	**TEIT**	1.70	1.73	1.34	1.70	1.67	-	2.97	1.53	1.58	1.18	2.97	0.48
314455 Software laboratory-IV	**TEIT**	1.45	1.45	1.77	2.10	2.42	-	0.97	0.97	0.97	1.74	-	1.94
314456b Software laboratory-V	**TEIT**	2.90	2.90	2.90	2.90	2.52	1.94	1.94	1.94	-	-	-	2.42
314457 Software Laboratory-VI	**TEIT**	2.64	2.80	2.14	2.64	2.47	-	2.97	2.17	1.98	1.98	2.97	1.48
314458 Project Based Seminar	**TEIT**	1.31	2.29	2.78	2.62	2.45	2.62	2.62	1.80	2.13	2.94	2.45	2.45
414453 Information and Cyber Security	**BEIT**	1.47	2.28	1.63	1.96	2.45	2.93	0.98	2.45	0.98	1.17	1.96	1.76
414454 Machine Learning and Applications	**BE IT**	2.93	2.93	2.77	2.93	2.93	2.44	1.95	1.95	-	2.74	2.28	2.93
414455 Software Design and Modeling	**BE IT**	1.31	1.69	1.15	1.31	1.72	1.72	1.74	1.72	0.17	0.53	0.35	1.41
414458 Computer Laboratory VII	**BE IT**	2.93	2.93	2.93	2.93	2.93	2.93	1.95	1.95	-	2.44	1.95	-
414459 Computer Laboratory VIII	**BE IT**	2.27	2.76	1.95	2.27	2.43	2.92	1.22	1.95	1.46	1.17	1.95	1.95
414460 Project Phase - I	**BE IT**	1.85	2.62	1.85	2.31	2.62	2.16	1.29	1.85	2.31	1.48	1.23	2.00
414462 Distributed Computing System	**BE IT**	2.97	2.97	2.97	2.97	2.97	2.97	2.64	0.99	0.99	1.19	1.98	2.81
414463 Ubiquitous Computing	**BE IT**	2.97	2.97	2.97	2.97	2.97	2.97	2.64	0.99	0.99	1.19	1.98	2.81
414466 Computer Laboratory-IX	**BE IT**	2.97	2.97	2.97	2.97	2.97	2.97	2.64	0.99	0.99	1.19	1.98	2.81
414467 Computer Laboratory-X	**BE IT**	2.97	2.97	2.97	2.97	2.97	2.97	2.64	0.99	0.99	1.19	1.98	2.81
414468 Project Work	**BE IT**	2.31	2.80	1.98	2.31	2.47	2.96	2.96	2.31	1.98	1.19	1.98	0.99
414456E Business Analytics and Intelligence (EL-I)	**BE IT**	2.94	2.78	2.45	2.29	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94

2.6 - Student Performance and Learning Outcomes

414457C Software Testing and Quality Assurance (EL-II)	**BE IT**	1.88	2.53	2.61	1.88	2.53	2.33	1.81	1.92	-	0.98	1.59	2.49
414464B Elective-III Information Storage & Retrieval	**BE IT**	2.10	2.74	1.94	2.26	2.42	2.10	1.21	1.94	0.97	1.16	1.94	1.94
414464B Elective- III Information Storage & Retrieval Laboratory	**BE IT**	2.14	2.80	1.81	2.31	2.47	2.96	2.96	2.31	1.98	1.19	1.98	0.99
414465D Elective-IV Social Media Analytics	**BE IT**	2.47	2.64	2.57	2.37	2.14	2.97	2.97	2.80	2.31	2.37	0.99	2.14
Direct Attainment		**2.25**	**2.44**	**2.00**	**2.18**	**2.16**	**2.28**	**1.81**	**1.86**	**1.63**	**1.60**	**1.80**	**1.93**
Indirect Attainment		**2.32**	**2.28**	**2.24**	**2.25**	**2.18**	**2.18**	**2.33**	**2.50**	**2.40**	**2.30**	**2.40**	**2.40**
Direct Attainment 80%		0.18	0.20	0.16	0.17	0.17	0.18	0.14	0.15	0.13	0.13	0.14	0.15
Indirect Attainment 20%		0.05	0.05	0.04	0.05	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05
PO Attainment =80% of direct assessment + 20% of indirect assessment		0.23	0.24	0.20	0.22	0.22	0.23	0.19	0.20	0.18	0.17	0.19	0.20

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2.6 - Student Performance and Learning Outcomes

B. PSO Attainment

Academic Year 2019-20

Course	Class	PSO1	PSO2	PSO3
101011 Engineering Mechanics	FE IT	1.97	0.99	1.97
102003 Systems in Mechanical Engineering	FE IT	0.60	0.40	0.55
102012 Engineering Graphics	FE IT	1.97	1.48	1.97
103004 Basic Electrical Engineering	FE IT	2.79	2.13	2.63
104012 Basic Electronics Engineering	FE IT	0.23	0.23	0.23
107001 Engineering Mathematics I	FE IT	2.54	2.66	1.77
107002 Engineering Physics	FE IT	1.15	1.97	1.97
107008 Engineering Mathematics II	FE IT	2.78	2.95	1.96
107009 Engineering Chemistry	FE IT	2.19	2.36	2.13
110005 Programming and Problem Solving	FE IT	2.96	2.30	2.63
110013 Project Based Learning	FE IT	0.89	1.02	0.38
111007 Workshop Practices	FE IT	2.67	1.83	2.00
207003 Engineering Mathematics –III	SE IT	1.75	1.63	1.75
214441 Discrete Structures	SE IT	2.77	2.11	2.60
214442 Computer Organization & Architecture	SE IT	1.38	1.01	1.38
214443 Digital Electronics and Logic Design	SE IT	0.71	0.81	0.98
214444 Fundamentals of Data Structures	SE IT	2.22	2.22	1.89
214445 Problem Solving and Object Oriented programming	SE IT	2.49	2.32	2.65
214446 Digital Laboratory	SE IT	1.48	1.58	2.05
214447 Programming Laboratory	SE IT	2.65	2.65	2.32
214448 Object Oriented programming Lab	SE IT	2.49	2.32	2.65
214449 Communication Skills	SE IT	1.36	1.95	0.97
214450 Computer Graphics	SE IT	2.75	2.75	2.75
214451 Processor Architecture and Interfacing	SE IT	1.77	2.10	2.58
214452 Data Structure and File	SE IT	2.98	2.65	2.65
214453 Foundations of Communication and Computer Network	SE IT	2.79	1.86	2.17
214454 Processor Interfacing Laboratory	SE IT	1.77	2.10	2.58
214455 Data Structure & File Laboratory	SE IT	2.98	2.32	2.65
214456 Computer Graphics Laboratory	SE IT	2.75	2.75	2.75
314441 Theory of Computation	TE IT	0.87	0.67	0.85

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2.6 - Student Performance and Learning Outcomes

314442 Database Management Systems	TE IT	1.79	1.57	1.76
314443 Software Engineering & Project Management	TE IT	2.00	1.58	2.06
314444 Operating System	TE IT	2.95	2.95	1.97
314445 Human-Computer Interaction	TE IT	2.82	2.05	2.66
314446 Software Laboratory-I	TE IT	2.77	2.28	2.61
314447 Software Laboratory -II	TE IT	2.95	2.95	1.97
314448 Software Laboratory-III	TE IT	3.00	3.00	2.50
314450 Computer Network Technology	TE IT	2.75	2.75	2.75
314451 Systems Programming	TE IT	2.95	2.13	2.79
314452 Design and Analysis of Algorithms	TE IT	2.34	1.79	2.18
314453 Cloud Computing	TE IT	1.70	1.32	1.51
314454 Data Science & Big Data Analytics	TE IT	1.04	1.47	1.37
314455 Software laboratory-IV	TE IT	2.74	1.77	2.42
314456b Software laboratory-V	TE IT	2.74	2.26	2.58
314457 Software Laboratory-VI	TE IT	1.98	2.14	2.31
314458 Project Based Seminar	TE IT	2.94	2.13	2.62
414453 Information and Cyber Security	BE IT	2.12	2.12	2.77
414454 Machine Learning and Applications	BE IT	2.93	2.93	2.93
414455 Software Design and Modeling	BE IT	1.69	1.31	1.66
414458 Computer Laboratory VII	BE IT	2.93	2.93	2.93
414459 Computer Laboratory VIII	BE IT	2.76	2.11	2.60
414460 Project Phase - I	BE IT	2.77	2.00	2.46
414462 Distributed Computing System	BE IT	2.97	2.81	2.81
414463 Ubiquitous Computing	BE IT	2.97	2.81	2.48
414466 Computer Laboratory-IX	BE IT	2.97	2.81	2.81
414467 Computer Laboratory-X	BE IT	2.97	2.81	2.48
414468 Project Work	BE IT	2.80	2.31	2.64
414456E Business Analytics and Intelligence (EL-I)	BE IT	2.94	2.94	2.94
414457C Software Testing and Quality Assurance (EL-II)	BE IT	2.33	2.21	2.65
414464B Elective-III Information Storage & Retrieval	BE IT	2.74	2.10	2.58

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414464B Elective- III Information Storage & Retrieval Laboratory	**BE IT**	2.80	2.31	2.64
414465D Elective-IV Social Media Analytics	**BE IT**	2.80	2.31	2.80
Direct Attainment		**2.32**	**2.08**	**2.20**
Indirect Attainment		**2.44**	**2.40**	**2.37**
Direct Attainment 80%		0.19	0.17	0.18
Indirect Attainment 20%		0.05	0.05	0.05
PO Attainment =80% of direct assessment + 20% of indirect assessment		0.23	0.21	0.22

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Criteria Incharge

C.V.S. Ingale

Dr. Sangeeta Jadhav

HoD IT

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015. IT Dept.



ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411015

Department of Information Technology



155. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2018-19

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

*Attainment Level 1: **60%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 2: **70%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 3: **80%** students scoring more than University average percentage marks or set attainment level in the final examination.*

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2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment:

70% of University level + 30% of Internal level

Academic Year 2018-19

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
107001 Engineering Mathematics-I	FE IT	2.96	2.96	2.96	2.96	2.06	2.06	2.66
107002 Engineering Physics	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
110003 Systems in Mechanical Engineering	FE IT	2.95	2.95	2.95	2.95	0.00	0.00	1.97
103004 Basic Electronics Engineering	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
101005 Programming and Problem Solving / Engineering Mechanics	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
102006 Workshop	FE IT	0.9	0.9	0.9	0.9	0.9	0.9	0.90
111007 Audit Course 1	FE IT	1	1	1	1	1	1	1.00
107008 Engineering Mathematics-II	FE IT	2.94	2.94	2.94	2.94	2.04	2.04	2.64
107009 Engineering Chemistry	FE IT	2.96	2.96	2.06	2.96	2.06	2.96	2.66
110010 Fundamentals of Programming Languages II	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
101011 Problem Solving/Engineering Mechanics	FE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
102012 Engineering Graphics	FE IT	2.94	2.94	2.94	2.94	2.94	2.94	2.94
102013 Basic Mechanical Engineering	FE IT	0.7	0.7	0.7	0.7	0.68	0.7	0.70
102014 Engineering Graphics II	FE IT	0.83	0.83	0.83	0.83	0.83	0.828	0.83
214441 Discrete Structures	SE IT	2.12	2.12	2.12	2.12	2.12	2.12	2.12
214442 Computer Organization & Architecture	SE IT	0.50	0.50	0.50	1.30	1.30	1.30	0.90
214443 Digital Electronics and Logic Design	SE IT	2.90	2.90	2.90	2.90	2.90	2.90	2.90
214444 Fundamentals of Data Structures	SE IT	1.32	1.32	1.32	1.32	1.32	1.32	1.32
214445 Problem Solving and Object Oriented programming	SE IT	1.38	1.38	1.38	1.38	2.98	2.98	1.91
214446 Digital Laboratory	SE IT	2.90	2.90	2.90	2.90	2.90	2.90	2.90

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015.

2.6 - Student Performance and Learning Outcomes

214447 Programming Laboratory	SE IT	2.12	2.12	2.12	1.32	1.32	1.32	1.72
214448 Object Oriented programming Lab	SE IT	2.98	2.98	2.98	2.98	2.98	2.98	2.98
214449 Communication Skills	SE IT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
207003 Engineering Mathematics -III	SE IT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
214450 Computer Graphics	SE IT	1.34	1.34	1.34	1.34	1.34	1.34	1.34
214451 Processor Architecture and Interfacing	SE IT	0.50	0.50	0.50	0.50	0.50	0.50	0.50
214452 Data Structure and File	SE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97
214453 Foundations of Communication and Computer Network	SE IT	2.93	2.93	2.93	2.93	2.93	2.93	2.93
214454 Processor Interfacing Laboratory	SE IT	2.77	2.77	2.77	2.77	2.77	2.77	2.77
214455 Data Structure & File Laboratory	SE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97
214456 Computer Graphics Laboratory	SE IT	2.94	2.94	2.94	2.94	2.94	2.94	2.94
314441 Theory of Computation	TE IT	1.32	1.32	1.32	1.32	1.32	1.32	1.32
314442 Database Management Systems	TE IT	2.94	2.14	2.14	2.94	2.14	2.14	2.41
314443 Software Engineering & Project Management	TE IT	2.91	2.91	2.91	2.91	2.91	2.91	2.91
314444 Operating System	TE IT	2.94	2.94	2.94	2.94	2.94	2.94	2.94
314445 Human-Computer Interaction	TE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
314446 Software Laboratory-I	TE IT	2.94	2.94	2.94	2.94	2.94	2.94	2.94
314447 Software Laboratory -II	TE IT	2.94	2.94	2.94	2.94	2.94	2.94	2.94
314448 Software Laboratory-III	TE IT	2.92	2.92	2.92	2.92	2.92	2.92	2.92
314450 Computer Network Technology	TE IT	2.93	2.93	2.93	2.93	2.93	2.93	2.93
314451 Systems Programming	TE IT	2.16	2.16	2.16	2.96	2.96	2.96	2.56
314452 Design and Analysis of Algorithms	TE IT	2.95	2.95	2.95	2.95	2.95	2.95	2.95
314453 Cloud Computing	TE IT	1.33	1.33	1.33	1.33	1.33	1.33	1.33
314454 Data Science & Big Data Analytics	TE IT	0.55	0.55	0.55	2.95	2.95	2.95	1.75
314455 Software laboratory-IV	TE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97

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2.6 - Student Performance and Learning Outcomes

314456 Software laboratory-V	TE IT	2.90	2.90	2.90	2.90	2.90	2.90	2.90
314457 Software Laboratory-VI	TE IT	2.95	2.95	2.95	2.95	2.95	2.95	2.95
314458 Project Based Seminar	TE IT	2.40	2.40	2.40	2.40	2.40	2.40	2.40
414453 Information and Cyber Security	BE IT	2.93	2.93	2.93	2.93	2.93	2.93	2.93
414454 Machine Learning and Applications	BE IT	2.13	2.13	2.13	2.13	2.13	2.13	2.13
414455 Software Design and Modeling	BE IT	2.14	2.14	2.14	2.94	2.94	2.94	2.54
414458 Computer Laboratory VII	BE IT	2.93	2.93	0.00	0.00	0.00	0.00	0.98
414459 Computer Laboratory VIII	BE IT	2.94	2.94	2.94	2.94	2.94	2.94	2.94
414460 Project Phase - I	BE IT	2.77	2.77	2.77	2.77	2.77	2.77	2.77
414457B Soft Computing(EL-II)	BE IT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
414456E Business Analytics and Intelligence (EL-I)	BE IT	1.60	1.60	1.60	2.40	2.40	1.60	1.87
414457C Software Testing and Quality Assurance (EL-II)	BE IT	2.90	2.90	2.90	2.90	2.90	2.90	2.90
414462 Distributed Computing System	BE IT	2.92	2.92	2.92	2.92	2.92	2.92	2.92
414463 Ubiquitous Computing	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97
414466 COMPUTER LABORATORY-IX	BE IT	2.92	2.92	2.92	2.92	2.92	2.92	2.92
414467 COMPUTER LABORATORY-X	BE IT	2.97	2.97	2.97	2.97	2.97	2.97	2.97
414468 Project Work	BE IT	2.77	2.77	2.77	2.77	2.77	2.77	2.77
414465D Social media Analytics (EL-IV)	BE IT	0.56	0.56	0.56	2.96	2.96	2.96	1.76
414464B Information Storage and Retrieval(EL-III)	BE IT	1.36	1.36	1.36	2.96	2.96	2.96	2.16
414464B ISRL Lab	BE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015. IT DEPT.

2.6 - Student Performance and Learning Outcomes

2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs
Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving

2.6 - Student Performance and Learning Outcomes

	capability, innovative thinking, communication skills etc.
AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future.
Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015. IT DEPT.

2.6 - Student Performance and Learning Outcomes

A PO Attainment

Academic Year 2018-19

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
101005 Basic Civil and Environmental Engineering	FE IT	2.30	1.81	1.31	1.97	1.48	2.96	1.97	1.97	2.96	2.96	2.30	2.96
101011 Engineering Mechanics	FE IT	2.96	2.96	0.99	2.96	1.97	1.97	0.99	0.99	2.96	2.96	0.99	2.96
102006 Engineering Graphics I	FE IT	1.92	2.71	1.23	1.94	2.62	1.29	1.38	1.28	1.47	1.53	1.68	1.02
102013 Basic Mechanical Engineering	FE IT	3.00	2.66	2.49	2.32	0.99	1.49	1.49	0.99	1.98	1.48	0.99	1.65
102014 Engineering Graphics II	FE IT	1.99	2.32	1.82	1.99	2.66	1.16	0.50	1.16	1.16	0.50	0.66	0.99
103004 Basic Electrical Engineering	FE IT	2.96	2.46	2.13	2.46	2.30	2.30	1.48	1.97	1.31	1.31	0.99	1.97
104012 Basic Electronics Engineering	FE IT	2.61	2.94	0.98	2.94	1.63	1.96	1.63	0.98	2.94	2.94	0.98	2.61
107001 Engineering Mathematics I	FE IT	2.66	2.66	-	2.66	2.66	-	-	-	-	2.78	-	2.66
107002 Engineering Physics	FE IT	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
107008 Engineering Mathematics II	FE IT	2.64	2.64	-	2.64	2.64	-	-	-	-	2.76	-	2.64
107009 Engineering Chemistry	FE IT	1.97	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	1.97	2.96
110003 Fundamentals of Programming Languages I	FE IT	1.96	2.45	2.70	2.70	2.45	2.95	1.72	2.45	2.45	2.70	2.95	2.70
110010 Fundamentals of Programming Languages II	FE IT	2.96	2.63	2.22	1.48	1.97	1.97	0.99	0.99	0.99	0.99	0.99	0.99
111007 Workshop Practices	FE IT	2.33	2.50	2.17	1.83	1.83	1.83	2.00	0.67	1.83	1.50	0.33	0.67
207003 Engineering Mathematics -III	SE IT	2.39	2.39	-	2.39	2.39	-	-	-	-	2.28	-	2.39
214441 Discrete Structures	SE IT	2.12	2.12	2.12	2.12	1.95	1.41	-	1.18	1.70	1.59	-	0.71
214442 Computer Organization & Architecture	SE IT	0.37	0.60	0.54	0.31	0.31	0.50	0.62	0.51	0.26	0.27	-	0.56

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015. IT DEPT.

2.6 - Student Performance and Learning Outcomes

214443 Digital Electronics and Logic Design	SE IT	2.10	2.74	1.94	2.58	2.10	-	2.90	2.26	0.97	1.21	-	1.94
214444 Fundamentals of Data Structures	SE IT	1.10	1.25	1.10	1.10	1.03	0.88	0.97	0.96	0.44	0.77	1.15	0.74
214445 Problem Solving and Object Oriented programming	SE IT	1.92	1.84	1.35	1.52	1.84	1.60	1.20	1.67	1.28	1.32	1.92	1.61
214446 Digital Laboratory	SE IT	2.10	2.74	1.94	2.58	2.10	-	2.90	2.26	0.97	1.21	-	1.94
214447 Programming Laboratory	SE IT	1.37	1.61	1.37	1.37	1.25	1.06	1.13	1.18	0.44	0.97	1.41	0.91
214448 Object Oriented programming Lab	SE IT	2.98	2.82	2.15	2.32	2.82	2.49	1.82	2.65	1.99	2.39	2.98	2.32
214449 Communication Skills	SE IT	-	-	-	-	-	1.95	-	1.62	2.34	2.19	-	0.97
214450 Computer Graphics	SE IT	1.26	1.19	1.12	0.82	1.19	1.34	0.54	1.34	1.34	1.16	1.34	0.97
214451 Processor Architecture and Interfacing	SE IT	0.36	0.47	0.34	0.45	0.36	-	0.50	0.39	0.17	0.21	-	0.34
214452 Data Structure and File	SE IT	2.97	2.81	2.31	2.31	2.48	2.48	2.15	2.97	1.98	1.98	2.38	2.81
214453 Foundations of Communication and Computer Network	SE IT	2.45	2.28	1.47	2.28	1.63	2.93	1.30	2.28	1.14	1.37	1.96	2.61
214454 Processor Interfacing Laboratory	SE IT	1.54	2.46	1.85	2.46	2.00	-	2.77	2.16	0.92	1.16	-	1.85
214455 Data Structure & File Laboratory	SE IT	2.97	2.81	2.81	2.81	2.64	2.64	1.98	2.97	2.81	2.18	2.97	2.48
214456 Computer Graphics Laboratory	SE IT	2.78	2.61	2.45	1.80	2.61	2.94	1.18	2.94	2.94	1.18	2.94	2.12
314441 Theory of Computation	TE IT	1.32	1.32	1.32	1.32	1.25	0.95	0.55	0.88	0.44	0.53	0.88	0.88
314442 Database Management Systems	TE IT	1.72	2.08	1.79	2.08	1.96	2.14	2.14	2.28	2.12	1.78	2.14	2.24
314443 Software Engineering & Project Management	TE IT	-	-	-	-	-	1.94	-	1.62	2.33	2.18	-	0.97
314444 Operating System	TE IT	2.94	2.94	2.12	2.78	2.12	-	1.96	1.96	1.96	0.98	-	1.96
314445 Human-Computer Interaction	TE IT	1.79	2.60	2.60	2.27	2.60	2.44	1.79	2.11	-	1.46	1.95	2.60
314446 Software Laboratory-I	TE IT	2.45	2.61	2.28	2.61	2.45	2.94	2.94	2.77	1.96	2.15	2.94	2.28

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015. IT DEPT.

2.6 - Student Performance and Learning Outcomes

314447 Software Laboratory -II	**TE IT**	2.94	2.94	2.12	2.78	2.12	-	1.96	1.96	1.96	0.98	-	1.96
314448 Software Laboratory-III	**TE IT**	2.92	2.92	1.95	2.27	2.44	2.92	1.79	2.92	2.76	2.53	2.76	2.27
314450 Computer Network Technology	**TE IT**	1.96	2.77	0.98	0.98	1.30	-	0.98	0.98	0.98	0.98	-	1.96
314451 Systems Programming	**TE IT**	1.54	2.32	2.23	1.99	2.28	2.11	1.65	1.87	-	1.21	4.11	2.28
314452 Design and Analysis of Algorithms	**TE IT**	2.95	2.95	2.95	2.78	2.46	2.13	-	1.97	2.95	1.97	-	2.46
314453 Cloud Computing	**TE IT**	1.26	1.26	0.89	1.03	1.11	1.33	0.55	0.89	0.59	0.53	0.89	1.03
314454 Data Science & Big Data Analytics	**TE IT**	1.69	1.72	1.33	1.69	1.66	-	2.95	1.53	1.57	1.17	2.95	0.48
314455 Software laboratory-IV	**TE IT**	2.97	2.81	2.64	2.81	2.48	2.97	1.98	1.98	1.16	1.58	1.98	1.98
314456 Software laboratory-V	**TE IT**	2.90	2.90	2.90	2.90	2.32	1.94	1.61	1.61	-	0.97	-	1.94
314457 Software Laboratory-VI	**TE IT**	2.63	2.79	2.13	2.63	2.46	-	2.95	2.17	1.97	1.97	2.95	1.48
314458 Project Based Seminar	**TE IT**	1.07	1.87	2.27	2.13	2.00	2.13	2.13	1.47	1.73	2.40	2.00	2.00
414453 Information and Cyber Security	**BE IT**	1.47	2.28	1.63	1.96	2.45	2.93	0.98	2.45	0.98	1.17	1.96	1.76
414454 Machine Learning and Applications	**BE IT**	2.13	2.13	2.01	2.13	2.13	1.78	1.42	1.42	-	1.99	1.66	2.13
414455 Software Design and Modeling	**BE IT**	1.86	2.42	1.69	1.86	2.54	2.54	2.11	2.54	0.71	0.96	1.43	1.78
414458 Computer Laboratory VII	**BE IT**	2.93	2.93	2.93	2.93	2.93	2.93	1.95	1.95	-	2.44	1.95	-
414459 Computer Laboratory VIII	**BE IT**	2.29	2.78	1.96	2.29	2.45	2.94	1.23	1.96	1.47	1.18	1.96	1.96
414460 Project Phase - I	**BE IT**	1.85	2.62	1.85	2.31	2.62	2.16	1.29	1.85	2.31	1.48	1.23	2.00
414462 Distributed Computing System	**BE IT**	2.92	2.92	2.92	2.92	2.92	2.92	2.60	0.97	0.97	1.17	1.95	2.76
414463 Ubiquitous Computing	**BE IT**	2.97	2.97	2.97	2.97	2.97	2.97	2.64	0.99	0.99	1.19	1.98	2.81
414466 COMPUTER LABORATORY-IX	**BE IT**	2.92	2.92	2.92	2.92	2.92	2.92	2.60	0.97	0.97	1.17	1.95	2.76
414467 COMPUTER LABORATORY-X	**BE IT**	2.97	2.97	2.97	2.97	2.97	2.97	2.64	0.99	0.99	1.19	1.98	2.81

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2.6 - Student Performance and Learning Outcomes

414468 Project Work	**BE IT**	1.29	2.22	2.77	2.31	2.77	2.46	2.00	2.46	2.77	2.08	2.77	2.77
414456E Business Analytics and Intelligence (EL-I)	**BE IT**	1.98	2.81	2.81	1.98	2.77	2.31	1.98	2.15	-	0.99	1.65	2.64
414457B Soft Computing(EL-II)	**BE IT**	2.14	2.80	1.98	2.31	2.47	2.14	1.24	1.98	0.99	1.19	1.98	1.98
414457C Software Testing and Quality Assurance (EL-II)	**BE IT**	2.10	2.74	1.94	2.26	2.42	2.10	1.21	1.94	0.97	1.16	1.94	1.94
414464B Information Storage and Retrieval(EL-III)	**BE IT**	2.30	2.79	1.97	2.30	2.46	2.96	2.96	2.30	1.97	1.18	1.97	0.99
414464B ISRL Lab	**BE IT**	1.37	1.72	1.17	1.37	1.53	0.56	2.96	1.23	0.37	0.54	1.17	0.59
414465D Social media Analytics (EL-IV)	**BE IT**	1.60	2.08	1.27	1.68	1.84	1.36	2.96	1.59	0.90	0.76	1.44	0.72
Direct Attainment		**2.19**	**2.42**	**1.95**	**2.18**	**2.14**	**2.15**	**1.78**	**1.73**	**1.60**	**1.55**	**1.86**	**1.87**
Indirect Attainment		**2.38**	**2.37**	**2.39**	**2.37**	**2.47**	**2.47**	**2.51**	**2.54**	**2.57**	**2.39**	**2.52**	**2.56**
Direct Attainment 80%		**0.18**	**0.19**	**0.16**	**0.17**	**0.17**	**0.17**	**0.14**	**0.14**	**0.13**	**0.12**	**0.15**	**0.15**
Indirect Attainment 20%		**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**0.22**	**0.24**	**0.20**	**0.22**	**0.22**	**0.22**	**0.19**	**0.19**	**0.18**	**0.17**	**0.20**	**0.20**

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015. IT Dept.

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2.6 - Student Performance and Learning Outcomes

B. PSO Attainment

Academic Year 2018-2019

Course	Class	PSO1	PSO2	PSO3
101005 Basic Civil and Environmental Engineering	FE IT	2.46	0.99	1.97
101011 Engineering Mechanics	FE IT	1.97	0.99	1.97
102006 Engineering Graphics I	FE IT	3.00	2.19	1.32
102013 Basic Mechanical Engineering	FE IT	3.00	0.99	1.98
102014 Engineering Graphics II	FE IT	1.94	1.12	-
103004 Basic Electrical Engineering	FE IT	2.46	2.13	2.63
104012 Basic Electronics Engineering	FE IT	1.14	1.96	1.96
107001 Engineering Mathematics I	FE IT	2.49	2.66	1.77
107002 Engineering Physics	FE IT	1.15	1.97	1.97
107008 Engineering Mathematics II	FE IT	2.64	2.48	2.64
107009 Engineering Chemistry	FE IT	2.79	2.96	2.63
110003 Fundamentals of Programming Languages I	FE IT	1.15	1.48	1.31
110010 Fundamentals of Programming Languages II	FE IT	1.48	1.48	1.23
111007 Workshop Practices	FE IT	2.67	1.83	2.00
207003 Engineering Mathematics -III	FE IT	2.46	0.99	1.97
214441 Discrete Structures	FE IT	1.97	0.99	1.97
214442 Computer Organization & Architecture	SE IT	0.99	1.41	0.71
214443 Digital Electronics and Logic Design	SE IT	0.49	0.36	0.49
214444 Fundamentals of Data Structures	SE IT	1.77	2.10	2.58
214445 Problem Solving and Object Oriented programming	SE IT	1.18	1.18	1.03
214446 Digital Laboratory	SE IT	1.69	1.61	1.76
214447 Programming Laboratory	SE IT	1.77	2.10	2.58
214448 Object Oriented programming Lab	SE IT	1.49	1.49	1.25
214449 Communication Skills	SE IT	2.49	2.32	2.65
214450 Computer Graphics	SE IT	1.36	1.95	0.97
214451 Processor Architecture and Interfacing	SE IT	1.26	1.26	1.26
214452 Data Structure and File	SE IT	0.31	0.36	0.45
214453 Foundations of Communication and Computer Network	SE IT	2.97	2.64	2.64
214454 Processor Interfacing Laboratory	SE IT	2.93	1.96	2.28

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015 IT DEPT

2.6 - Student Performance and Learning Outcomes

214455 Data Structure & File Laboratory	SE IT	1.69	2.00	2.46
214456 Computer Graphics Laboratory	SE IT	2.97	2.31	2.64
314441 Theory of Computation	TE IT	1.25	0.95	1.18
314442 Database Management Systems	TE IT	2.24	1.84	2.28
314443 Software Engineering & Project Management	TE IT	1.36	1.94	0.97
314444 Operating System	TE IT	2.94	2.94	1.96
314445 Human-Computer Interaction	TE IT	2.92	2.11	2.76
314446 Software Laboratory-I	TE IT	2.77	2.28	2.77
314447 Software Laboratory -II	TE IT	2.94	2.94	1.96
314448 Software Laboratory-III	TE IT	2.92	2.92	2.44
314450 Computer Network Technology	TE IT	2.77	2.12	2.45
314451 Systems Programming	TE IT	2.56	1.87	2.44
314452 Design and Analysis of Algorithms	TE IT	2.78	2.13	2.62
314453 Cloud Computing	TE IT	1.26	0.96	1.11
314454 Data Science & Big Data Analytics	TE IT	1.04	1.47	1.36
314455 Software laboratory-IV	TE IT	2.81	2.15	2.48
314456 Software laboratory-V	TE IT	2.74	2.26	2.58
314457 Software Laboratory-VI	TE IT	1.97	2.13	2.30
314458 Project Based Seminar	TE IT	2.40	1.73	2.13
414453 Information and Cyber Security	BE IT	2.12	2.12	2.77
414454 Machine Learning and Applications	BE IT	2.13	2.13	2.13
414455 Software Design and Modeling	BE IT	2.42	1.86	2.30
414458 Computer Laboratory VII	BE IT	2.93	2.93	2.93
414459 Computer Laboratory VIII	BE IT	2.78	2.12	2.61
414460 Project Phase - I	BE IT	2.77	2.00	2.46
414462 Distributed Computing System	BE IT	2.92	2.76	2.76
414463 Ubiquitous Computing	BE IT	2.97	2.81	2.48
414466 COMPUTER LABORATORY-IX	BE IT	2.92	2.76	2.76

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015. IT DEPT.

2.6 - Student Performance and Learning Outcomes

414467 COMPUTER LABORATORY-X	BE IT	2.97	2.81	2.48
414468 Project Work	BE IT	2.77	2.77	2.77
414456E Business Analytics and Intelligence (EL-I)	BE IT	2.48	2.31	2.81
414457B Soft Computing(EL-II)	BE IT	2.80	2.14	2.64
414457C Software Testing and Quality Assurance (EL-II)	BE IT	2.74	2.10	2.58
414464B Information Storage and Retrieval(EL-III)	BE IT	2.79	2.30	2.63
414464B ISRL Lab	BE IT	1.72	1.50	1.69
414465D Social media Analytics (EL-IV)	BE IT	2.08	1.77	2.01
Direct Attainment		**2.23**	**1.99**	**2.11**
Indirect Attainment		**2.43**	**2.43**	**2.41**
Direct Attainment 80%		**0.18**	**0.16**	**0.17**
Indirect Attainment 20%		**0.05**	**0.05**	**0.05**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**0.23**	**0.21**	**0.22**

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Criteria Incharge
(V.S. Ingale)

Dr. Sangeeta Jadhav
HoD IT

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015. IT DEPT.



ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411015

Department of Computer Engineering



169. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2022-23

2.6 - Student Performance and Learning Outcomes

Attainment of course outcomes and program outcomes

1 Course Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

Attainment Level 1: 60% students scoring more than University average percentage marks or set attainment level in the final examination.

Attainment Level 2: 70% students scoring more than University average percentage marks or set attainment level in the final examination.

Attainment Level 3: 80% students scoring more than University overage percentage marl$ or set attainment level in the final examination.

ARMY INSTITUTE OF TECHNOLOGY * PUNE-15. * Dept. of Comp. Engg.

ARMY INSTITUTE OF TECHNOLOGY
Dighi Hills, Alandi Road, Pune 411 015
Department of Computer Engineering
2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment EXCLUDING first year:

70 % of university level + 30 % of Internal level

Academic Year 2022-23

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C210241: Discrete Mathematics (DM)	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	2	2.3	2.3	2.3	
C210242: Fundamentals of Data Structures (FDS) & C210246: Data Structures Laboratory	SE Comp-A	3	3	3	1.6	3	3	**2.77**
	SE Comp-B	2.7	3	2.7	2.7	2.7	2.7	**2.75**
C210243: Object Oriented Programming (OOP)	SE Comp-A	3	2.7	3	3	2.7	3	**2.9**
	SE Comp-B	3	3	3	3	3	3	**3**
C210244: Computer Graphics	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210245: Digital Electronics and Logic Design & C210248: Digital Electronics Laboratory	SE Comp-A	2.4	2.4	3	3	2.7	2.7	**2.7**
	SE Comp-B	3	3	3	3	3	3	**3**
C210247: OOP and Computer Graphics Laboratory	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210249: Business Communication Skills	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210250: Humanity and Social Science	SE Comp-A	2.7	2.7	2.7	2.7	2.7	2.4	**2.65**
	SE Comp-B	3	3	3	3	3	3	**3**
C207003: Engineering Mathematics III (EM III)	SE Comp-A	3	3	3	1.6	2.3	2.3	**2.53**
	SE Comp-B	3	3	3	3	3	3	**3**
C210252: Data Structures and Algorithms & C210256: Data Structures and Algorithms Laboratory	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210253: Software Engineering	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210254: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	1.6	2.3	1.6	2.3	2.3	2.3	**2.07**
	SE Comp-B	3	2.4	2.4	2.7	2.7	2.4	**2.6**

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C210255: Principles of Programming Languages (PPL)	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210258: Project Based Learning II	SE Comp A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210259: Code of Conduct	SE Comp A	2.7	3	3	3	3	3	**2.95**
	SE Comp B	3	3	3	3	3	3	**3**
C310241: Theory of Computations (TOC)	TE Comp-A	3	3	3	2.3	2.3	2.3	**2.65**
	TE Comp-B	3	3	3	2.3	2.3	2.3	**2.65**
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-A	2.1	2.4	3	2.1	2.1	2.1	**2.3**
	TE Comp-B	2.7	2.7	3	3	2.7	3	**2.85**
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	2.1	3	2.1	3	3	3	**2.7**
	TE Comp-B	3	3	3	3	2.7	2.7	**2.9**
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	3	3	2.2	3	3	2.1	**2.72**
	TE Comp-B	1.6	1.6	1.6	1.6	1.6	1.6	**1.6**
C310246: Skills Development Lab (SDL)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	2.4	2.4	2.7	2.7	2.4	**2.6**
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	3	3	3	2.7	3	3	**2.95**
	TE Comp-B	0.9	1.6	1.6	0.9	2.3	2.3	**1.6**
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	2.7	2.7	2.7	2.7	3	3	**2.8**
	TE Comp-B	3	3	3	3	3	3	**3**
C310253: Software Modeling and Design (SMD)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
310251: Data Science and Big Data Analytics	TE Comp-A	3	3	3	3	3	2.7	**3**
	TE Comp-B	2.7	3	3	3	3	3	**3**
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	2.7	2.7	3	2.7	2.1	3	**2.7**
	TE Comp-B	3	3	3	3	3	3	**3**
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	2	2	2	2	2	2	**2**
	BE Comp-A	3	3	3	3	3	3	**3**

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C410241:High Performance Computing (HPC)	BE Comp-B	3	3	3	3	3	3	**3**
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410241: Data & Analysis of Algorithms (DAA)	BE Comp-A	0	0	2.3	2.3	2.3	2.3	**1.53**
	BE Comp-B	3	3	3	3	3	3	**3**
C410244D: Data Mining and Warehousing (DMW)	BE Comp-A	2.7	3	2.7	3	3	3	**2.9**
	BE Comp-B							
C410244B Software Architecture and Design	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410245A: Distributed Systems	BE Comp-A	2.4	2.1	2.1	2.4	2.4	2.4	**2.3**
	BE Comp-B							
C410245B: Software Testing and Quality Assurance	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410247: Laboratory Practices-II (LP-II)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410248: Project Work Stage-I	BE Comp A&B	3	3	3	3	3	3	**3**
C410250: Machine Learning (ML)	BE Comp-A	3	3	2.3	2.3	2.3	2.3	**2.53**
	BE Comp-B	3	2.1	3	2.1	3	3	**2.7**
C410251: Information and Cyber Security (ICS)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410453B: Human Computer Interface (HCI)	BE Comp-A	1.6	3	0.9	1.6	1.6	1.6	**1.72**
	BE Comp-B	1.6	3	0.9	1.6	1.6	1.6	**1.72**
C410453C: Cloud Computing	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
410251Deep Learning	BE Comp-A							
	BE Comp-B	2	2	3	3	3	3	**3**
210252:Image Processing	BE Comp-A							
	BE Comp-B	3	3	3	3	3	3	**3**
410244:Object Oriented Modelling & Design	BE Comp-A							
	BE Comp-B	1.6	1.6	1.6	1.6	1.6	1.6	**1.6**
410254: Laboratory Practices-III (LP-III)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**

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410255: Laboratory Practices-IV	BE Comp A	3	3	3	3	3	3	**3**
	BE Comp B	3	3	3	3	3	3	**3**
410256: Project Work Stage-II	BE Comp A&B	3	3	3	3	3	3	**3**

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.2 Attainment of Program outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs

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2.6 - Student Performance and Learning Outcomes

Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving capability, innovative thinking, communication skills etc.
AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future.
Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

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Dighi Hills, Alandi Road, Pune 411 015
Department of Computer Engineering
2.6 - Student Performance and Learning Outcomes

A PO- ATTAINMENT
Academic Year 2022-23

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C210241: Discrete Mathematics (DM)	SE Comp-A	3	1.33										
	SE Comp-B	2.48	1.34										
C210242: Fundamentals of Data Structures (FDS) & C210246: Data Structures Laboratory	SE Comp-A	2.6	2.6	1.93	1.93	2.18	0	0	0	0	0	0	0
	SE Comp-B	2.75	2.6	1.38	1.37	2.75							
C210243: Object Oriented Programming (OOP)	SE Comp-A	2.33	2.17	1.17	1.83	2.33							1.83
	SE Comp-B	2	2.5	1.17	1.5	1							1.33
C210244: Computer Graphics	SE Comp-A	2.33	2.83	1	1	2							
	SE Comp-B	2.33	2.83	1	1	2							
C210245: Digital Electronics and Logic Design & C210248: Digital Electronics Laboratory	SE Comp-A	1.8	1.78	0.9		0.9				0.9			
	SE Comp-B	2.83	2.5	1	2.2	2			1	1			1.67
C210247: OOP and Computer Graphics Laboratory	SE Comp-A	2.33	2.5	1.17	1.33	2.2				2			1.67
	SE Comp-B	2.33	2.5	1.17	1.33	2.2				2			1.67
C210249: Business Communication Skills	SE Comp-A								3	3	1.83		2.25
	SE Comp-B								3	3	1.83		2.25
C210250: Humanity and Social Science	SE Comp-A							2.63	2.64	2.63	2.4		2.55
	SE Comp-B							3	3	3	3		3

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C207003: Engineering Mathematics III (EM III)	SE Comp-A	2.53	2.53		2.03	2.53					2.53		2.53
	SE Comp-B	3	3		2.5	3					3		3
C210252: Data Structures and Algorithms & C210256: Data Structures and Algorithms Laboratory	SE Comp-A	2.83	2.67	2	1.67	2.83	0	0	0	0	0	0	0
C210253: Software Engineering	SE Comp-A	1	3	2	2.2	3	2.5	3	1.17	3			2.75
	SE Comp-B	1	3	2	2.2	3	2.5	3	1.7	3			2.75
C210254: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	1.38	1.25	0.69	0.67	0.53							
	SE Comp-B	3	3	1.17	1.83	3			1				3
C210255: Principles of Programming Languages (PPL)	SE Comp-A	2	1	1	1					1	1		2
	SE Comp-B	2	1	1	1					1	1		2
C210258: Project Based Learning II	SE Comp A	2	2.67	3	2.17	3	2	3	1	3	3		2
	SE Comp-B	2	2.67	3	2.17	3	2	3	1	3	3		2
C210259: Code of Conduct	SE Comp A						2.25	2.65	2.95	1.97			
	SE Comp B						2.25	2.67	3	2			
C310241: Theory of Computations (TOC)	TE Comp-A	3	3	1	2.67	1	--	--	--	--	1	--	1.17
	TE Comp-B	3	3	1	2.67	1	--	--	--	--	1	--	1.17
C310242: Database Management Systems	TE Comp-A	2.3	2.18	1.78	2	1.73	-	-	1.13	1.47	2.2	-	1.9
	TE Comp-B	2.85	2.85	2.52	1.7	2.85			0.95				2.8

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(DBMS) (DBMS) & 310247: DBMS LAB													
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	1.8	2.42	1.18	1.68	2.7			0.9	2.7	2.7	2.7	1.4
	TE Comp-B	2.9	2.9	1.13	1.77	2.9			0.97			1.93	2.9
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	3	3	1.17	1.83	3			1				3
	TE Comp-B	3	3	1.17	1.83	3			1				3
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	2.75	3	1.35	2	3			1				3
	TE Comp-B	1.42	1.6	0.62	1.07	1.6			0.53		0.53		1.07
C310246: Skills Development Lab (SDL)	TE Comp-A	2.17	3	1.33	1.83	3	3	3	1	3	1	1	2.5
	TE Comp-B	2.17	3	1.33	1.83	3	3	3	1	3	1	1	2.5
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A	3	3	2	1								
	TE Comp-B	2.6	2.6	1	1.6	2.6			0.87				2.7
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	2.78	2.95	0.98	2.62	2.78			0.98		1		1.67
	TE Comp-B	2.83	3	1	2.67	3		1	1		1		1.67
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	2.67	2	1.67	2.33	2.2	2.75		1	1.6	1	1.4	1.5
	TE Comp-B	2.67	2	1.67	2.33	2.2	2.75		1	1.6	1	1.4	1.5

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C310253: Software Modeling and Design (SMD)	TE Comp-A	2	2.17	2.33	1.67	2.67			1				3
	TE Comp-B	1.9	2.73	2.85	1.78	2.85			0.95				0.7
310251: Data Science and Big Data Analytics	TE Comp-A	2.95	2.95	2.95	2.95	2.95	-	-	1.82	-	2.95	-	2.95
	TE Comp-B	3	3	2.67	1.83	3	-	-	1	-	-	-	3
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	2.7	2.7	1.05	2.7	2.7			0.9				1.77
	TE Comp-B	3	3	1.17	1.83	3			1				3
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	3	1.17	3	3			1	1	3		2
	TE Comp-B	2	2		2	0.67	1.5			2	2		
C410241:High Performance Computing (HPC)	BE Comp-A	2.83	2.83	1	2.33	2.67			1		1	1	1.33
	BE Comp-B	2.83	2.83	1	2.33	2.67			1		1	1	1.33
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	3	3	1.17	2.33	2.33							1.67
	BE Comp-B	3	3	1.17	2.33	2.33							1.67
C410241: Data & Analysis of Algorithms (DAA)	BE Comp-A	1.53	2.3	0.77	0.77	-	-	-	-	-	-	-	-
	BE Comp-B	1.17	2	1.67	1.33	2	2		1	1			1
C410244D: Data Mining and Warehousing (DMW)	BE Comp-A	2.9	2.9	1.13	1.78	2.9							2.8
	BE Comp-B												
	BE Comp-A	2	3	3	1.5	2		1			1	1	3

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C410244B Software Architecture and Design	BE Comp-B	2	3	3	1.5	2		1			1	1	3
C410245A: Distributed Systems	BE Comp-A	2.03	1	1.2	1.13	0.75	1.6				0.73		0.77
	BE Comp-B												
C410245B: Software Testing and Quality Assurance	BE Comp-A	2.33	2.33	2	2	2.5	-	-	-	2	-	2	2.5
	BE Comp-B	2.33	2.33	2	2	2.5				2		2	2.5
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	2.67	3	1.17	2.5	1.17							
	BE Comp-B	2.33	2.83	1	2.67	2.83			1	1	1	1	1.33
C410247: Laboratory Practices-II (LP-II)	BE Comp-A	2.83	3	3	2.67	3			1	3	3	2.6	2.67
	BE Comp-B	2.83	3	3	2.67	3			1	3	3	2.6	2.67
C410248: Project Work Stage-I	BE Comp A&B	3	3	1.67	3	2	2	3	2.5	3	1	2.5	2
C410250: Machine Learning (ML)	BE Comp-A	3	3	2	3	3	2	-	-	-	-	-	-
	BE Comp-B	2.7	2.7	1.18	2.7	2.7			1.07				3
C410251: Information and Cyber Security (ICS)	BE Comp-A	2.67	1.33	1	2	2.5			1				1.33
	BE Comp-B	2.67	1.33	1	2	2.5			1				1.33
C410252D: Soft Computing and	BE Comp-A	3	1.5	1	1.83	3				3	1		1

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Optimization Algorithms (SCOA)	BE Comp-B												
C410453B: Human Computer Interface (HCI)	BE Comp-A	2	1.56	0.82	0.71	1.07	0.93	1.07	0.94	0.77	0.8	0.63	1.07
	BE Comp-B	2	1.56	0.82	0.71	1.07	0.93	1.07	0.94	0.77	0.8	0.63	1.07
C410453C: Cloud Computing	BE Comp-A	1	2	1.5	1	1.5							1
	BE Comp-B	1	2	1.5	1	1.5							1
410251Deep Learning	BE Comp-A												
	BE Comp-B	3	2	2	2	2		1				2	3
210252:Image Processing	BE Comp-A												
	BE Comp-B	2	3	3	1.5	2	0	1	0	0	1	1	3
410244:Object Oriented Modelling & Design	BE Comp-A												
	BE Comp-B	2.83	2.83	1	2.33	2.67	2	1	1	1	1	1	1.67
410254: Laboratory Practices-III (LP-III)	BE Comp-A	2.83	3	2	2.5	3	-	-	-	-	-	-	-
	BE Comp-B	2.67	1.33	1	2	2.5			1				1.33
410255: Laboratory Practices-IV	BE Comp A	2.33	2.2	2.17	1.8	1							
	BE Comp B	2.33	2.2	2.17	1.8	1							
410256: Project Work Stage-II	BE Comp A&B	3	3	1.67	3	2	2	3	2.5	3	1	2.5	2

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Direct Attainment	**2.46**	**2.5**	**1.58**	**1.99**	**2.22**	**2**	**1.82**	**1.41**	**2.03**	**1.72**	**1.29**	**2.02**
Indirect Attainment	**2.69**	**2.67**	**2.04**	**2.47**	**2.64**	**2.41**	**2.41**	**2.27**	**2.27**	**2.08**	**2.41**	**2.58**
Direct Attainment 80%	**1.97**	**2**	**1.26**	**1.59**	**1.78**	**1.6**	**1.46**	**1.13**	**1.62**	**1.38**	**1.03**	**1.62**
Indirect Attainment 20%	**0.54**	**0.53**	**0.41**	**0.49**	**0.53**	**0.48**	**0.48**	**0.45**	**0.45**	**0.42**	**0.48**	**0.52**
PO Attainment =80% of direct assessment + 20% of indirect assessment	**2.51**	**2.53**	**1.67**	**2.08**	**2.31**	**2.08**	**1.94**	**1.58**	**2.07**	**1.8**	**1.51**	**2.14**

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B. PSO Attainment

Academic Year 2022-23

Course	Class	PSO1	PSO2	PSO3
C210241: Discrete Mathematics (DM)	SE Comp-A			-
	SE Comp-B	-	-	-
C210242: Fundamentals of Data Structures (FDS) & C210246: Data Structures Laboratory	SE Comp-A	1.83		
	SE Comp-B	1.83		
C210243: Object Oriented Programming (OOP)	SE Comp-A	2.73	0.9	
	SE Comp-B	3		
C210244: Computer Graphics	SE Comp-A	3		
	SE Comp-B	3		
C210245: Digital Electronics and Logic Design & C210248: Digital Electronics Laboratory	SE Comp-A	0.9		
	SE Comp-B	2.2		
C210247: OOP and Computer Graphics Laboratory	SE Comp-A	2.5		
	SE Comp-B	2.5		
C210249: Business Communication Skills	SE Comp-A			
	SE Comp-B			
C210250: Humanity and Social Science	SE Comp-A		2.4	
	SE Comp-B		3	
C207003: Engineering Mathematics III (EM III)	SE Comp-A	2.53	0.89	
	SE Comp-B	3	1	
C210252: Data Structures and Algorithms & C210256: Data Structures and Algorithms Laboratory	SE Comp-A	2.33	0	0
	SE Comp-B	2		
C210253: Software Engineering	SE Comp-A	1.75		
	SE Comp-B	1.75		
C210254: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	2.02	0.67	-
	SE Comp-B	3	1	
C210255: Principles of Programming Languages (PPL)	SE Comp-A	2	1	
	SE Comp-B	2	1	
C210258: Project Based Learning II	SE Comp A	3	1	2
	SE Comp-B	3	1	2
C210259: Code of Conduct	SE Comp A			

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	SE Comp B			
C310241: Theory of Computations (TOC)	TE Comp-A	1		
	TE Comp-B	1		
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-A	2.3	0.7	-
	TE Comp-B	2.85	0.9	
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	1.87	1	
	TE Comp-B	2.9	0.9	
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	1	1	
	TE Comp-B	1	1	
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	2.7		
	TE Comp-B	1.6	-	-
C310246: Skills Development Lab (SDL)	TE Comp-A	1	1.2	3
	TE Comp-B	1	1.2	3
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A			
	TE Comp-B	2.6	0.9	
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	2.45		2.9
	TE Comp-B	2.67		3
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	3	3	
	TE Comp-B	3	3	
C310253: Software Modeling and Design (SMD)	TE Comp-A	3	1	
	TE Comp-B	2.52	1	
310251: Data Science and Big Data Analytics	TE Comp-A	2.95	0.9	1.97
	TE Comp-B	3	1	-
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	2.7	0.7	
	TE Comp-B	3	1	
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	1	
	TE Comp-B	2	1.33	2
C410241:High Performance Computing (HPC)	BE Comp-A	3	2	1.4
	BE Comp-B	3	2	1.4
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	2.5	1	2
	BE Comp-B	2.5	1	2
C410241: Data & Analysis of Algorithms (DAA)	BE Comp-A			
	BE Comp-B	2	2.83	3
C410244D: Data Mining and Warehousing (DMW)	BE Comp-B	2.9	1	2.9

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C410244B Software Architecture and Design	BE Comp A&B	3	2	
C410245A: Distributed Systems	BE Comp A&B	1.52	0.9	
C410245B: Software Testing and Quality Assurance	BE Comp-A	1.67	-	1.5
	BE Comp-B	1.67		1.5
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	1.2		2.25
	BE Comp-B	2.83	2	1.4
C410247: Laboratory Practices-II (LP-II)	BE Comp-A	2.17		2.67
	BE Comp-B	2.17		2.67
C410248: Project Work Stage-I	BE Comp A&B	2.5	2	2.6
C410250: Machine Learning (ML)	BE Comp-A	2.67	-	3
	BE Comp-B	2.02	1	2.7
C410251: Information and Cyber Security (ICS)	BE Comp-A	2		2
	BE Comp-B	2		2
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	2		1.17
C410453B: Human Computer Interface (HCI)	BE Comp-A	1.3		0.59
	BE Comp-B	1.3		0.59
C410453C: Cloud Computing	BE Comp A&B	3	3	1
410251Deep Learning	BE Comp-A			
	BE Comp-B	3	3	2
210252:Image Processing	BE Comp-A			
	BE Comp-B	3	2	0
410244:Object Oriented Modelling & Design	BE Comp-A			
	BE Comp-B	3	2	1.4
410254: Laboratory Practices-III (LP-III)	BE Comp-A	3	-	2.75
	BE Comp-B	2		2
410255: Laboratory Practices-IV	BE Comp A	2	3	1
	BE Comp B	2	3	1
410256: Project Work Stage-II	BE Comp A&B	2.5	2	2.6
Direct Attainment		**2.26**	**1.56**	**1.98**
Indirect Attainment		**2.62**	**2.33**	**2.41**
Direct Attainment 80%		**1.81**	**1.25**	**1.58**
Indirect Attainment 20%		**0.52**	**0.47**	**0.48**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**2.33**	**1.72**	**2.06**

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ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411015

Department of Computer Engineering



187. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2021-22

2.6 - Student Performance and Learning Outcomes

2 Attainment of Course Outcomes and Program Outcomes

.1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

*Attainment Level 1: **60%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 2: **70%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 3: **80%** students scoring more than University average percentage marks or set attainment level in the final examination.*

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2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment EXCLUDING first year:

70% of university level + 30% of Internal level

Academic Year 2021-22

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
C210241: Discrete Mathematics (DM)	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B							
C210242: Fundamentals of Data Structures (FDS) & C210246: Data Structures Laboratory	SE Comp-A	2.7	3	2.7	2.7	2.7	2.7	**2.75**
	SE Comp-B	2.7	3	2.7	2.7	2.7	2.7	**2.75**
C210243: Object Oriented Programming (OOP)	SE Comp-A	3	2.7	3	3	2.7	3	**2.9**
	SE Comp-B	3	3	3	3	3	3	**3**
C210244: Computer Graphics	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210245: Digital Electronics and Logic Design & C210248: Digital Electronics Laboratory	SE Comp-A	2.4	2.4	3	3	2.7	2.7	**2.7**
	SE Comp-B	3	3	3	3	3	3	**3**
C210247: OOP and Computer Graphics Laboratory	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210249: Business Communication Skills	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210250: Humanity and Social Science	SE Comp-A	2.7	2.7	2.7	2.7	2.7	2.4	**2.65**
	SE Comp-B	3	3	3	3	3	3	**3**
C207003: Engineering Mathematics III (EM III)	SE Comp-A	3	3	3	1.6	2.3	2.3	**2.53**
	SE Comp-B	3	3	3	3	3	3	**3**
C210252: Data Structures and Algorithms & C210256: Data Structures and Algorithms Laboratory	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210253: Software Engineering	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210254: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	2.7	2.7	2.7	3	3	3	**2.85**
	SE Comp-B	3	2.4	2.4	2.7	2.7	2.4	**2.6**
C210255: Principles of Programming Languages (PPL)	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
	SE Comp A	3	3	3	3	3	3	**3**

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2.6 - Student Performance and Learning Outcomes

C210258: Project Based Learning II	SE Comp B	3	3	3	3	3	3	**3**
C210259: Code of Conduct	SE Comp A	2.7	3	3	3	3	3	**2.95**
	SE Comp B	3	3	3	3			**3**
C310241: Theory of Computations (TOC)	TE Comp-A	3	3	3	2.7	2.7	2.7	**2.85**
	TE Comp-B	3	3	3	3	3	3	**3**
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	2.7	2.7	3	3	2.7	3	**2.85**
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	2.1	3	2.1	3	3	3	**2.7**
	TE Comp-B	3	3	3	3	2.7	2.7	**2.9**
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	3	2.4	2.4	2.7	2.7	2.4	**2.6**
	TE Comp-B	3	2.4	2.4	2.7	2.7	2.4	**2.6**
C310246: Skills Development Lab (SDL)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	2.4	2.4	2.7	2.7	2.4	**2.6**
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	3	3	3	2.7	3	3	**2.95**
	TE Comp-B	3	3	3	3	2.4	2.7	**2.85**
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	2.7	2.7	2.7	2.7	3	3	**2.8**
	TE Comp-B	3	3	3	3	3	3	**3**
C310253: Software Modeling and Design (SMD)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	2.7	2.7	3	2.7	2.1	3	**2.7**
	TE Comp-B	3	3	3	3	3	3	**3**
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C410241:High Performance Computing (HPC)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410243: Data Analytics (DA)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410244D: Data Mining and Warehousing (DMW)	BE Comp-B	2.7	3	2.7	3	3	3	**2.9**

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2.6 - Student Performance and Learning Outcomes

C410244B Software Architecture and Design	BE Comp A&B	3	3	3	3	3	3	**3**
C410245A: Distributed Systems	BE Comp A&B	2.4	2.1	2.1	2.4	2.4	2.4	**2.3**
C410245B: Software Testing and Quality Assurance	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410247: Laboratory Practices-II (LP-II)	BE Comp A&B	3	3	3	3	3	3	**3**
C410248: Project Work Stage-I	BE Comp A&B	3	3	3	3	3	3	**3**
C410250: Machine Learning (ML)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	2.1	3	2.1	3	3	**2.7**
C410251: Information and Cyber Security (ICS)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410453B: Human Computer Interface (HCI)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410453C: Cloud Computing	BE Comp A&B	3	3	3	3	3	3	**3**
410254: Laboratory Practices-III (LP-III)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
410255: Laboratory Practices-IV	BE Comp A	3	3	3	3	3	3	**3**
	BE Comp B	3	3	3	3	3	3	**3**
410256: Project Work Stage-II	BE Comp A&B	3	3	3	3	3	3	**3**

ARMY INSTITUTE OF TECHNOLOGY Dept. of Comp. Engg. PUNE-15.

2.6 - Student Performance and Learning Outcomes

2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs
Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving capability, innovative thinking, communication skills etc.

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2.6 - Student Performance and Learning Outcomes

AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future.
Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

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2.6 - Student Performance and Learning Outcomes

A. PO Attainment

Academic Year 2021-22

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C210241: Discrete Mathematics (DM)	SE Comp-A	3	1.33										
	SE Comp-B												
C210242: Fundamentals of Data Structures (FDS) & C210246: Data Structures Laboratory	SE Comp-A	2.75	2.6	1.38	1.37	2.75							
	SE Comp-B	2.75	2.6	1.38	1.37	2.75							
C210243: Object Oriented Programming (OOP)	SE Comp-A	2.33	2.17	1.17	1.83	2.33							1.83
	SE Comp-B	2	2.5	1.17	1.5	1							1.33
C210244: Computer Graphics	SE Comp-A	2.33	2.83	1	1	2							
	SE Comp-B	2.33	2.83	1	1	2							
C210245: Digital Electronics and Logic Design & C210248: Digital Electronics Laboratory	SE Comp-A	1.8	1.78	0.9		0.9				0.9			
	SE Comp-B	2.83	2.5	1	2.2	2			1	1			1.67
C210247: OOP and Computer Graphics Laboratory	SE Comp-A	2.33	2.5	1.17	1.33	2.2				2			1.67
	SE Comp-B	2.33	2.5	1.17	1.33	2.2				2			1.67
C210249: Business Communication Skills	SE Comp-A								3	3	1.83		2.25
	SE Comp-B								3	3	1.83		2.25
C210250: Humanity and Social Science	SE Comp-A							2.63	2.64	2.63	2.4		2.55
	SE Comp-B							3	3	3	3		3
C207003: Engineering Mathematics III (EM III)	SE Comp-A	2.53	2.53		2.03	2.53					2.53		2.53
	SE Comp-B	3	3		2.5	3					3		3
C210252: Data Structures and Algorithms & C210256: Data	SE Comp-A	3	3	1.5	1.5								

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2.6 - Student Performance and Learning Outcomes

Structures and Algorithms Laboratory													
C210253: Software Engineering	SE Comp-A	1	3	2	2.2	3	2.5	3	1.17	3			2.75
	SE Comp-B	1	3	2	2.2	3	2.5	3	1.7	3			2.75
C210254: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	1.9	1.73	0.95	0.94	0.9							
	SE Comp-B	3	3	1.17	1.83	3			1				3
C210255: Principles of Programming Languages (PPL)	SE Comp-A	2	1	1	1					1	1		2
	SE Comp-B	2	1	1	1					1	1		2
C210258: Project Based Learning II	SE Comp A	2	2.67	3	2.17	3	2	3	1	3	3		2
	SE Comp-B	2	2.67	3	2.17	3	2	3	1	3	3		2
C210259: Code of Conduct	SE Comp A						2.25	2.65	2.95	1.97			
	SE Comp B							2.25	2.25				
C310241: Theory of Computations (TOC)	TE Comp-A	2.85	2.85	0.95	2.53	0.95					0.95		1.1
	TE Comp-B	3	3	1	2.67	1					1		1.17
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-A	2	3	1.83	2.5	2			1				2.25
	TE Comp-B	2.85	2.85	2.52	1.7	2.85			0.95				2.8
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	1.8	2.42	1.18	1.68	2.7			0.9	2.7	2.7	2.7	1.4
	TE Comp-B	2.9	2.9	1.13	1.77	2.9			0.97			1.93	2.9
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	3	3	1.17	1.83	3			1				3
	TE Comp-B	3	3	1.17	1.83	3			1				3
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	2.6	2.6	1	1.6	2.6			0.87				2.7
	TE Comp-B	2.6	2.6	1	1.6	2.6			0.87				2.7
C310246: Skills Development Lab (SDL)	TE Comp-A	2.17	3	1.33	1.83	3	3	3	1	3	1	1	2.5
	TE Comp-B	2.17	3	1.33	1.83	3	3	3	1	3	1	1	2.5
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A	3	3	2	1								
	TE Comp-B	2.6	2.6	1	1.6	2.6			0.87				2.7

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2.6 - Student Performance and Learning Outcomes

C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	2.78	2.95	0.98	2.62	2.78			0.98		1		1.67
	TE Comp-B	2.83	3	1	2.67	2.83			1		1		1.67
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	2.67	2	1.67	2.33	2.2	2.75		1	1.6	1	1.4	1.5
	TE Comp-B	2.67	2	1.67	2.33	2.2	2.75		1	1.6	1	1.4	1.5
C310253: Software Modeling and Design (SMD)	TE Comp-A	2	2.17	2.33	1.67	2.67			1				3
	TE Comp-B	1.9	2.73	2.85	1.78	2.85			0.95				0.7
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	2.7	2.7	1.05	2.7	2.7			0.9				1.77
	TE Comp-B	3	3	1.17	1.83	3			1				3
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	3	1.17	3	3			1	1	3		2
	TE Comp-B	3	3		3	1	2.25			3	3		
C410241:High Performance Computing (HPC)	BE Comp-A	2.83	2.83	1	2.33	2.67			1		1	1	1.33
	BE Comp-B	2.83	2.83	1	2.33	2.67			1		1	1	1.33
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	3	3	1.17	2.33	2.33							1.67
	BE Comp-B	3	3	1.17	2.33	2.33							1.67
C410243: Data Analytics (DA)	BE Comp-A	2.83	3	1.5	3	2							
	BE Comp-B	1.17	2	1.67	1.33	2	2		1	1			1
C410244D: Data Mining and Warehousing (DMW)	BE Comp-A	2.9	2.9	1.13	1.78	2.9							2.8
	BE Comp-B												
C410244B Software Architecture and Design	BE Comp-A	2	3	3	1.5	2		1			1	1	3
	BE Comp-B	2	3	3	1.5	2		1			1	1	3
C410245A: Distributed Systems	BE Comp-A	2.03	1	1.2	1.13	0.75	1.6				0.73		0.77
	BE Comp-B												
C410245B: Software Testing and Quality Assurance	BE Comp-A	2.33	2.33	2	2	2.5				2		2	2.5
	BE Comp-B	2.33	2.33	2	2	2.5				2		2	2.5

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2.6 - Student Performance and Learning Outcomes

C410246: Laboratory Practices-I (LP-I)	BE Comp-A	2.67	3	1.17	2.5	1.17								
	BE Comp-B	2.33	2.83	1	2.67	2.83			1	1	1	1	1.33	
C410247: Laboratory Practices-II (LP-II)	BE Comp-A	2.83	3	3	2.67	3			1	3	3	2.6	2.67	
	BE Comp-B	2.83	3	3	2.67	3			1	3	3	2.6	2.67	
C410248: Project Work Stage-I	BE Comp A&B	3	3	1.67	3	2	2	3	2.5	3	1	2.5	2	
C410250: Machine Learning (ML)	BE Comp-A	3	3	1.17	3	1.8								
	BE Comp-B	2.7	2.7	1.18	2.7	2.7			1.07				3	
C410251: Information and Cyber Security (ICS)	BE Comp-A	2.67	1.33	1	2	2.5			1				1.33	
	BE Comp-B	2.67	1.33	1	2	2.5			1				1.33	
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	3	1.5	1	1.83	3				3	1		1	
	BE Comp-B													
C410453B: Human Computer Interface (HCI)	BE Comp-A	2	2	2.5	1.75	2.25			1	2		2	2.5	
	BE Comp-B	2	1.33	1.83	1	3								
C410453C: Cloud Computing	BE Comp-A	2	3	3	2	2.5		1			1	1	3	
	BE Comp-B	2	3	3	2	2.5		1			1	1	3	
410254: Laboratory Practices-III (LP-III)	BE Comp-A	2.67	3	1.33	2.6	2								
	BE Comp-B	2.67	1.33	1	2	2.5			1				1.33	
410255: Laboratory Practices-IV	BE Comp A	2.33	2.2	2.17	1.8	1								
	BE Comp B	2.33	2.2	2.17	1.8	1								
410256: Project Work Stage-II	BE Comp A&B	3	3	1.67	3	2	2	3	2.5	3	1	2.5	2	
Direct Attainment		**2.52**	**2.58**	**1.57**	**2.01**	**2.38**	**2.51**	**2.57**	**1.34**	**2.34**	**1.7**	**1.72**	**2.17**	
Indirect Attainment		**2.69**	**2.67**	**2.04**	**2.47**	**2.64**	**2.41**	**2.41**	**2.27**	**2.27**	**2.08**	**2.41**	**2.58**	
Direct Attainment 80%		**2.02**	**2.06**	**1.26**	**1.61**	**1.9**	**2.01**	**2.06**	**1.07**	**1.87**	**1.36**	**1.38**	**1.74**	
Indirect Attainment 20%		**0.54**	**0.53**	**0.41**	**0.49**	**0.53**	**0.48**	**0.48**	**0.45**	**0.45**	**0.42**	**0.48**	**0.52**	
PO Attainment =80% of direct assessment + 20% of indirect assessment		**2.56**	**2.59**	**1.67**	**2.1**	**2.43**	**2.49**	**2.54**	**1.52**	**2.32**	**1.78**	**1.86**	**2.26**	

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B. PSO Attainment

Academic Year 2021-22

Course	Class	PSO1	PSO2	PSO3
C210241: Discrete Mathematics (DM)	SE Comp-A			-
	SE Comp-B			
C210242: Fundamentals of Data Structures (FDS) & C210246: Data Structures Laboratory	SE Comp-A	1.83		
	SE Comp-B	1.83		
C210243: Object Oriented Programming (OOP)	SE Comp-A	2.73	0.9	
	SE Comp-B	3		
C210244: Computer Graphics	SE Comp-A	3		
	SE Comp-B	3		
C210245: Digital Electronics and Logic Design & C210248: Digital Electronics Laboratory	SE Comp-A	0.9		
	SE Comp-B	2.2		
C210247: OOP and Computer Graphics Laboratory	SE Comp-A	2.5		
	SE Comp-B	2.5		
C210249: Business Communication Skills	SE Comp-A			
	SE Comp-B			
C210250: Humanity and Social Science	SE Comp-A		2.4	
	SE Comp-B		3	
C207003: Engineering Mathematics III (EM III)	SE Comp-A	2.53	0.89	
	SE Comp-B	3	1	
C210252: Data Structures and Algorithms & C210256: Data Structures and Algorithms Laboratory	SE Comp-A	2		
	SE Comp-B	2		
C210253: Software Engineering	SE Comp-A	1.75		
	SE Comp-B	1.75		
C210254: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	2.7	0.9	
	SE Comp-B	3	1	
C210255: Principles of Programming Languages (PPL)	SE Comp-A	2	1	
	SE Comp-B	2	1	
C210258: Project Based Learning II	SE Comp A	3	1	2
	SE Comp-B	3	1	2

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C210259: Code of Conduct	SE Comp A			
	SE Comp B			
C310241: Theory of Computations (TOC)	TE Comp-A	0.95		
	TE Comp-B	1		
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-A	3	1.25	2
	TE Comp-B	2.85	0.9	
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	1.87	1	
	TE Comp-B	2.9	0.9	
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	1	1	
	TE Comp-B	1	1	
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	2.6	0.9	
	TE Comp-B	2.6	0.9	
C310246: Skills Development Lab (SDL)	TE Comp-A	1	1.2	3
	TE Comp-B	1	1.2	3
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A			
	TE Comp-B	2.6	0.9	
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	2.45		2.9
	TE Comp-B	2.5		3
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	3	3	
	TE Comp-B	3	3	
C310253: Software Modeling and Design (SMD)	TE Comp-A	3	1	
	TE Comp-B	2.52	1	
310251: Data Science and Big Data Analytics	TE Comp-A	2.15	0.53	1.44
	TE Comp-B			
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	2.7	0.7	
	TE Comp-B	3	1	
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	1	
	TE Comp-B	3	2	3
C410241:High Performance Computing (HPC)	BE Comp-A	3	2	1.4
	BE Comp-B	3	2	1.4
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	2.5	1	2
	BE Comp-B	2.5	1	2
C410243: Data Analytics (DA)	BE Comp-A	2		1.5

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	BE Comp-B	2	2.83	3
C410244D: Data Mining and Warehousing (DMW)	BE Comp-B	2.9	1	2.9
C410244B Software Architecture and Design	BE Comp A&B	3	2	
C410245A: Distributed Systems	BE Comp A&B	1.52	0.9	
C410245B: Software Testing and Quality Assurance	BE Comp-A	1.67		1.5
	BE Comp-B	1.67		1.5
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	1.2		2.25
	BE Comp-B	2.83	2	1.4
C410247: Laboratory Practices-II (LP-II)	BE Comp-A	2.17		2.67
	BE Comp-B	2.17		2.67
C410248: Project Work Stage-I	BE Comp A&B	2.5	2	2.6
C410250: Machine Learning (ML)	BE Comp-A	2.5		2
	BE Comp-B	2.02	1	2.7
C410251: Information and Cyber Security (ICS)	BE Comp-A	2		2
	BE Comp-B	2		2
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	2		1.17
C410453B: Human Computer Interface (HCI)	BE Comp-A	2		1
	BE Comp-B	2		
C410453C: Cloud Computing	BE Comp A&B	3	3	1
410254: Laboratory Practices-III (LP-III)	BE Comp-A	2.67		2
	BE Comp-B	2		2
410255: Laboratory Practices-IV	BE Comp A	2	3	1
	BE Comp B	2	3	1
410256: Project Work Stage-II	BE Comp A&B	2.5	2	2.6
Direct Attainment		**2.33**	**1.49**	**2.11**
Indirect Attainment		**2.62**	**2.33**	**2.41**
Direct Attainment 80%		**1.86**	**1.19**	**1.69**
Indirect Attainment 20%		**0.52**	**0.47**	**0.48**

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PO Attainment =80% of direct assessment + 20% of indirect assessment	**2.38**	**1.66**	**2.17**

Prof (Dr) SR Dhore
HoD Computer Engineering

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ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411015

Department of Computer Engineering



202. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2020-21

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

*Attainment Level 1: **60%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 2: **70%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 3: **80%** students scoring more than University average percentage marks or set attainment level in the final examination.*

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2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment:

70% of University level + 30% of Internal level

Academic Year 2020-21

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
107001 Engineering Mathematics I	FE Comp-A	2.95	2.95	2.95	2.95	0.25	0.25	**2.05**
	FE Comp-B	2.95	2.95	2.95	2.95	0.25	0.25	**2.05**
107002 Engineering Physics	FE Comp-A	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
	FE Comp-B	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
103004 Basic Electrical Engineering	FE Comp-A	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
	FE Comp-B	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
102003 Systems in Mechanical Engineering	FE Comp-A	0.982	0.982	1	1	1	1	**0.99**
	FE Comp-B	0.98	0.98	0.98	0.98	0.98	0.98	**0.98**
110013 Project Based Learning	FE Comp-A	2.96	2.96	2.96				**2.96**
	FE Comp-B	2.96	2.96	2.96				**2.96**
111007 Workshop Practices	FE Comp-A	1	1	1	1	1	1	**1**
	FE Comp-B	0.98	0.98	0.98	0.98	0.98	0.98	**0.98**
107008 Engineering Mathematics II	FE Comp-A	2.94	2.94	2.94	2.94	2.94	2.94	**2.94**
	FE Comp-B	2.05	2.05	2.95	2.95	2.95	2.95	**2.65**
107009 Engineering Chemistry	FE Comp-A	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
	FE Comp-B	2.98	2.98	2.98	2.98	2.98	2.98	**2.98**
110005 Programming and Problem Solving	FE Comp-A	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
	FE Comp-B	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
101011 Engineering Mechanics	FE Comp-A	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
	FE Comp-B	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
104010 Basic Electronics Engineering	FE Comp-A	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**
	FE Comp-B	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
102012 Engineering Graphics	FE Comp-A	0.947	1	1	1	1	1	**0.99**
	FE Comp-B	0.93	0.93	0.93	0.93	0.93	0.93	**0.93**
C210241: Discrete Mathematics (DM)	SE Comp-A	3	3	3	3	3	3	**3**
C210242: Fundamentals of Data Structures (FDS) & C210246: Data Structures Laboratory	SE Comp-A	2.7	3	2.7	2.7	2.7	2.7	**2.75**
C210243: Object Oriented Programming (OOP)	SE Comp-A	3	2.7	3	3	2.7	3	**2.9**
	SE Comp-B	3	3	3	3	3	3	**3**
C210244: Computer Graphics	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-A	2.4	2.4	3	3	2.7	2.7	**2.7**

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2.6 - Student Performance and Learning Outcomes

C210245: Digital Electronics and Logic Design & C210248: Digital Electronics Laboratory	SE Comp-B	3	3	3	3	3	3	**3**
C210247: OOP and Computer Graphics Laboratory	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210249: Business Communication Skills	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210250: Humanity and Social Science	SE Comp-A	2.7	2.7	2.7	2.7	2.7	2.4	**2.65**
	SE Comp-B	3	3	3	3	3	3	**3**
C207003: Engineering Mathematics III (EM III)	SE Comp-A	3	3	3	1.6	2.3	2.3	**2.53**
	SE Comp-B	3	3	3	3	3	3	**3**
C210252: Data Structures and Algorithms & C210256: Data Structures and Algorithms Laboratory	SE Comp-A	3	3	3	3	3	3	**3**
C210253: Software Engineering	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210254: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	2.7	2.7	2.7	3	3	3	**2.85**
	SE Comp-B	3	2.4	2.4	2.7	2.7	2.4	**2.6**
C210255: Principles of Programming Languages (PPL)	SE Comp-A	3	3	3	3	3	3	**3**
C210258: Project Based Learning II	SE Comp A	3	3	3	3	3	3	**3**
C210259: Code of Conduct	SE Comp A	2.7	3	3	3	3	3	**2.95**
C210259: Code of Conduct	SE Comp B	3	3	3	3			**3**
C310241: Theory of Computations (TOC)	TE Comp-A	3	3	3	2.7	2.7	2.7	**2.85**
	TE Comp-B	3	3	3	3	3	3	**3**
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	2.7	2.7	3	3	2.7	3	**2.85**
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	2.1	3	2.1	3	3	3	**2.7**
	TE Comp-B	3	3	3	3	2.7	2.7	**2.9**
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	3	2.4	2.4	2.7	2.7	2.4	**2.6**
	TE Comp-B	3	2.4	2.4	2.7	2.7	2.4	**2.6**
C310246: Skills Development Lab (SDL)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	2.4	2.4	2.7	2.7	2.4	**2.6**

2.6 - Student Performance and Learning Outcomes

C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	3	3	3	2.7	3	3	**2.95**
	TE Comp-B	3	3	3	3	2.4	2.7	**2.85**
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	2.7	2.7	2.7	2.7	3	3	**2.8**
	TE Comp-B	3	3	3	3	3	3	**3**
C310253: Software Modeling and Design (SMD)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	2.7	2.7	3	2.7	2.1	3	**2.7**
	TE Comp-B	3	3	3	3	3	3	**3**
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C410241:High Performance Computing (HPC)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410243: Data Analytics (DA)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410244D: Data Mining and Warehousing (DMW)	BE Comp-B	2.7	3	2.7	3	3	3	**2.9**
C410244B Software Architecture and Design	BE Comp A&B	3	3	3	3	3	3	**3**
C410245A: Distributed Systems	BE Comp A&B	2.4	2.1	2.1	2.4	2.4	2.4	**2.3**
C410245B: Software Testing and Quality Assurance	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410247: Laboratory Practices-II (LP-II)	BE Comp A&B	3	3	3	3	3	3	**3**
C410248: Project Work Stage-I	BE Comp A&B	3	3	3	3	3	3	**3**
C410250: Machine Learning (ML)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	2.1	3	2.1	3	3	**2.7**
C410251: Information and Cyber Security (ICS)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-A	3	3	3	3	3	3	**3**

2.6 - Student Performance and Learning Outcomes

C410453B: Human Computer Interface (HCI)	BE Comp-B	3	3	3	3	3	3	**3**
C410453C: Cloud Computing	BE Comp A&B	3	3	3	3	3	3	**3**
410254: Laboratory Practices-III (LP-III)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
410255: Laboratory Practices-IV	BE Comp A	3	3	3	3	3	3	**3**
	BE Comp B	3	3	3	3	3	3	**3**
410256: Project Work Stage-II	BE Comp A&B	3	3	3	3	3	3	**3**



2.6 - Student Performance and Learning Outcomes

2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs
Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving capability, innovative thinking, communication skills etc.

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2.6 - Student Performance and Learning Outcomes

AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future.
Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

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2.6 - Student Performance and Learning Outcomes

A PO Attainment

Academic Year 2020-21

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	FE Comp-A	2.05	2.05		2.05	2.05					2.41		2.05
	FE Comp-B	2.05	2.05		2.05	2.05					2.41		2.05
107002 Engineering Physics	FE Comp-A	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
	FE Comp-B	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
103004 Basic Electrical Engineering	FE Comp-A	2.63	2.63	1.97	2.3	2.3	2.13	1.23	2.3	1.31	1.77	1.48	2.13
	FE Comp-B	2.96	2.79	1.97	2.3	2.46	2.13	1.23	1.97	0.99	1.18	0.99	1.97
102003 Systems in Mechanical Engineering	FE Comp-A	2.33	2	1.33	1	1	0.83	1	1.67	1.33	0.83	1	0.33
	FE Comp-B	0.78	0.66	0.44	0.33	0.33	0.28	0.33	0.55	0.44	0.28	0.33	0.11
110013 Project Based Learning	FE Comp-A	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
	FE Comp-B	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
111007 Workshop Practices	FE Comp-A	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.5	0.33	0.33
	FE Comp-B	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.5	0.33	0.33
107008 Engineering Mathematics II	FE Comp-A	2.94	2.94		2.94	2.94					2.94		2.94
	FE Comp-B	2.65	2.65		2.65	2.65					2.59		2.65
107009 Engineering Chemistry	FE Comp-A	1.97	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	1.97	2.96
	FE Comp-B	1.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.98	1.98	2.98
110005 Programming and Problem Solving	FE Comp-A	2.96	2.79	1.97	2.3	2.46	2.13	1.23	1.97	0.99	1.18	0.99	1.97
	FE Comp-B	2.96	2.79	1.97	2.3	2.46	2.13	1.23	1.97	0.99	1.18	0.99	1.97
101011 Engineering Mechanics	FE Comp-A	2.96	2.96	0.99	2.96	1.97	1.97	0.99	0.99	2.96	2.96	0.99	2.96
	FE Comp-B	2.96	2.96	0.99	2.96	1.97	1.97	0.99	0.99	2.96	2.96	0.99	2.96
104010 Basic Electronics Engineering	FE Comp-A	2.95	2.79	1.97	2.3	2.46	2.13	1.23	1.97	0.98	1.18	0.98	1.97
	FE Comp-B	2.96	2.79	1.97	2.3	2.46	2.13	1.23	1.97	0.99	1.18	0.99	1.97
102012 Engineering Graphics	FE Comp-A	1.5	2.5	1.67	1.67	0.5	0.5	1.17	0.83	1	1	0.33	1
	FE Comp-B	0.61	0.5	0.44	0.33	0.33	0.28	0.33	0.55	0.44	0.17	0.33	0.11
C210241: Discrete Mathematics (DM)	SE Comp-A	3	1.33										

2.6 - Student Performance and Learning Outcomes

C210242: Fundamentals of Data Structures (FDS) & C210246: Data Structures Laboratory	SE Comp-A	2.75	2.6	1.38	1.37	2.75							
C210243: Object Oriented Programming (OOP)	SE Comp-A	2.33	2.17	1.17	1.83	2.33							1.83
	SE Comp-B	2	2.5	1.17	1.5	1							1.33
C210244: Computer Graphics	SE Comp-A	2.33	2.83	1	1	2							
C210245: Digital Electronics and Logic Design & C210248: Digital Electronics Laboratory	SE Comp-A	1.8	1.78	0.9		0.9				0.9			
	SE Comp-B	2.83	2.5	1	2.2	2			1	1			1.67
C210247: OOP and Computer Graphics Laboratory	SE Comp-A	2.33	2.5	1.17	1.33	2.2				2			1.67
	SE Comp-B	2.33	2.5	1.17	1.33	2.2				2			1.67
C210249: Business Communication Skills	SE Comp-A								3	3	1.83		2.25
	SE Comp-B								3	3	1.83		2.25
C210250: Humanity and Social Science	SE Comp-A							2.63	2.64	2.63	2.4		2.55
	SE Comp-B							3	3	3	3		3
C207003: Engineering Mathematics III (EM III)	SE Comp-A	2.53	2.53		2.03	2.53					2.53		2.53
	SE Comp-B	3	3		2.5	3					3		3
C210252: Data Structures and Algorithms & C210256: Data Structures and Algorithms Laboratory	SE Comp-A	3	3	1.5	1.5								
C210253: Software Engineering	SE Comp-A	1	3	2	2.2	3	2.5	3	1.17	3			2.75
	SE Comp-B	1	3	2	2.2	3	2.5	3	1.7	3			2.75
C210254: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	1.9	1.73	0.95	0.94	0.9							
	SE Comp-B	3	3	1.17	1.83	3			1				3
C210255: Principles of Programming Languages (PPL)	SE Comp-A	2	1	1	1					1	1		2
C210258: Project Based Learning II	SE Comp A	2	2.67	3	2.17	3	2	3	1	3	3		2
C210259: Code of Conduct	SE Comp A						2.25	2.65	2.95	1.97			
C210259: Code of Conduct	SE Comp B							2.25	2.25				
	TE Comp-A	2.85	2.85	0.95	2.53	0.95					0.95		1.1

2.6 - Student Performance and Learning Outcomes

C310241: Theory of Computations (TOC)	TE Comp-B	3	3	1	2.67	1					1		1.17
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-A	2	3	1.83	2.5	2			1				2.25
	TE Comp-B	2.85	2.85	2.52	1.7	2.85			0.95				2.8
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	1.8	2.42	1.18	1.68	2.7			0.9	2.7	2.7	2.7	1.4
	TE Comp-B	2.9	2.9	1.13	1.77	2.9			0.97			1.93	2.9
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	3	3	1.17	1.83	3			1				3
	TE Comp-B	3	3	1.17	1.83	3			1				3
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	2.6	2.6	1	1.6	2.6			0.87				2.7
	TE Comp-B	2.6	2.6	1	1.6	2.6			0.87				2.7
C310246: Skills Development Lab (SDL)	TE Comp-A	2.17	3	1.33	1.83	3	3	3	1	3	1	1	2.5
	TE Comp-B	2.17	3	1.33	1.83	3	3	3	1	3	1	1	2.5
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A	3	3	2	1								
	TE Comp-B	2.6	2.6	1	1.6	2.6			0.87				2.7
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	2.78	2.95	0.98	2.62	2.78			0.98		1		1.67
	TE Comp-B	2.83	3	1	2.67	2.83			1		1		1.67
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	2.67	2	1.67	2.33	2.2	2.75		1	1.6	1	1.4	1.5
	TE Comp-B	2.67	2	1.67	2.33	2.2	2.75		1	1.6	1	1.4	1.5
C310253: Software Modeling and Design (SMD)	TE Comp-A	2	2.17	2.33	1.67	2.67			1				3
	TE Comp-B	1.9	2.73	2.85	1.78	2.85			0.95				0.7
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	2.7	2.7	1.05	2.7	2.7			0.9				1.77
	TE Comp-B	3	3	1.17	1.83	3			1				3
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	3	1.17	3	3			1	1	3		2
	TE Comp-B	3	3		3	1	2.25			3	3		
C410241:High Performance Computing (HPC)	BE Comp-A	2.83	2.83	1	2.33	2.67			1		1	1	1.33
	BE Comp-B	2.83	2.83	1	2.33	2.67			1		1	1	1.33
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	3	3	1.17	2.33	2.33							1.67
	BE Comp-B	3	3	1.17	2.33	2.33							1.67
C410243: Data Analytics (DA)	BE Comp-A	2.83	3	1.5	3	2							

2.6 - Student Performance and Learning Outcomes

	BE Comp-B	1.17	2	1.67	1.33	2	2		1	1			1
C410244D: Data Mining and Warehousing (DMW)	BE Comp-B	2.9	2.9	1.13	1.78	2.9							2.8
C410244B Software Architecture and Design	BE Comp A&B	2	3	3	1.5	2		1			1	1	3
C410245A: Distributed Systems	BE Comp A&B	2.03	1	1.2	1.13	0.75	1.6				0.73		0.77
C410245B: Software Testing and Quality Assurance	BE Comp-A	2.33	2.33	2	2	2.5				2		2	2.5
	BE Comp-B	2.33	2.33	2	2	2.5				2		2	2.5
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	2.67	3	1.17	2.5	1.17							
	BE Comp-B	2.33	2.83	1	2.67	2.83			1	1	1	1	1.33
C410247: Laboratory Practices-II (LP-II)	BE Comp-A	2.83	3	3	2.67	3			1	3	3	2.6	2.67
	BE Comp-B	2.83	3	3	2.67	3			1	3	3	2.6	2.67
C410248: Project Work Stage-I	BE Comp A&B	3	3	1.67	3	2	2	3	2.5	3	1	2.5	2
C410250: Machine Learning (ML)	BE Comp-A	3	3	1.17	3	1.8							
	BE Comp-B	2.7	2.7	1.18	2.7	2.7			1.07				3
C410251: Information and Cyber Security (ICS)	BE Comp-A	2.67	1.33	1	2	2.5			1				1.33
	BE Comp-B	2.67	1.33	1	2	2.5			1				1.33
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	3	1.5	1	1.83	3				3	1		1
C410453B: Human Computer Interface (HCI)	BE Comp-A	2	2	2.5	1.75	2.25			1	2		2	2.5
	BE Comp-B	2	1.33	1.83	1	3							
C410453C: Cloud Computing	BE Comp A&B	2	3	3	2	2.5		1			1	1	3
410254: Laboratory Practices-III (LP-III)	BE Comp-A	2.67	3	1.33	2.6	2							
	BE Comp-B	2.67	1.33	1	2	2.5			1				1.33
410255: Laboratory Practices-IV	BE Comp A	2.33	2.2	2.17	1.8	1							
	BE Comp B	2.33	2.2	2.17	1.8	1							
410256: Project Work Stage-II	BE Comp A&B	3	3	1.67	3	2	2	3	2.5	3	1	2.5	2
Direct Attainment		**2.52**	**2.56**	**1.55**	**2.09**	**2.24**	**2.08**	**1.92**	**1.42**	**2.14**	**1.77**	**1.34**	**2.05**

2.6 - Student Performance and Learning Outcomes

Indirect Attainment	**2.69**	**2.67**	**2.04**	**2.47**	**2.64**	**2.41**	**2.41**	**2.27**	**2.27**	**2.08**	**2.41**	**2.58**
Direct Attainment 80%	**2.02**	**2.05**	**1.24**	**1.67**	**1.79**	**1.66**	**1.54**	**1.14**	**1.71**	**1.42**	**1.07**	**1.64**
Indirect Attainment 20%	**0.54**	**0.53**	**0.41**	**0.49**	**0.53**	**0.48**	**0.48**	**0.45**	**0.45**	**0.42**	**0.48**	**0.52**
PO Attainment =80% of direct assessment + 20% of indirect assessment	**2.56**	**2.58**	**1.65**	**2.16**	**2.32**	**2.14**	**2.02**	**1.59**	**2.16**	**1.84**	**1.55**	**2.16**



2.6 - Student Performance and Learning Outcomes

B PSO Attainment

Academic Year 2020-21

Course	Class	PSO1	PSO2	PSO3
107001 Engineering Mathematics I	FE Comp-A	1.96	0.98	0.98
	FE Comp-B	1.37	0.68	0.68
107002 Engineering Physics	FE Comp-A	1.15	1.97	1.97
	FE Comp-B	1.15	1.97	1.97
103004 Basic Electrical Engineering	FE Comp-A	2.46	2.13	2.63
	FE Comp-B	2.79	2.13	2.63
102003 Systems in Mechanical Engineering	FE Comp-A	2	1.33	1.83
	FE Comp-B	0.66	0.44	0.61
110013 Project Based Learning	FE Comp-A	1.97	1.48	1.97
	FE Comp-B	1.97	1.48	1.97
111007 Workshop Practices	FE Comp-A	2.67	1.83	2
	FE Comp-B	2.67	1.83	2
107008 Engineering Mathematics II	FE Comp-A	1.96	0.98	0.98
	FE Comp-B	1.76	0.88	0.88
107009 Engineering Chemistry	FE Comp-A	2.79	2.96	2.63
	FE Comp-B	2.81	2.98	2.65
110005 Programming and Problem Solving	FE Comp-A	2.79	2.13	2.63
	FE Comp-B	2.79	2.13	2.63
101011 Engineering Mechanics	FE Comp-A	1.97	0.99	1.97
	FE Comp-B	1.97	0.99	1.97
104010 Basic Electronics Engineering	FE Comp-A	2.79	2.13	2.62
	FE Comp-B	2.79	2.13	2.63
102012 Engineering Graphics	FE Comp-A	1.17	1.33	0.5
	FE Comp-B	0.74	0.44	0.61
C210241: Discrete Mathematics (DM)	SE Comp-A			-
C210242: Fundamentals of Data Structures (FDS) & C210246: Data Structures Laboratory	SE Comp-A	1.83		
C210243: Object Oriented Programming (OOP)	SE Comp-A	2.73	0.9	
	SE Comp-B	3		
C210244: Computer Graphics	SE Comp-A	3		
	SE Comp-A	0.9		

ARMY INSTITUTE OF TECHNOLOGY Dept. of Comp. Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

C210245: Digital Electronics and Logic Design & C210248: Digital Electronics Laboratory	SE Comp-B	2.2		
C210247: OOP and Computer Graphics Laboratory	SE Comp-A	2.5		
	SE Comp-B	2.5		
C210249: Business Communication Skills	SE Comp-A			
	SE Comp-B			
C210250: Humanity and Social Science	SE Comp-A		2.4	
	SE Comp-B		3	
C207003: Engineering Mathematics III (EM III)	SE Comp-A	2.53	0.89	
	SE Comp-B	3	1	
C210252: Data Structures and Algorithms & C210256: Data Structures and Algorithms Laboratory	SE Comp-A	2		
C210253: Software Engineering	SE Comp-A	1.75		
	SE Comp-B	1.75		
C210254: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	2.7	0.9	
	SE Comp-B	3	1	
C210255: Principles of Programming Languages (PPL)	SE Comp-A	2	1	
C210258: Project Based Learning II	SE Comp A	3	1	2
C210259: Code of Conduct	SE Comp A			
C210259: Code of Conduct	SE Comp B			
C310241: Theory of Computations (TOC)	TE Comp-A	0.95		
	TE Comp-B	1		
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-A	3	1.25	2
	TE Comp-B	2.85	0.9	
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	1.87	1	
	TE Comp-B	2.9	0.9	
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	1	1	
	TE Comp-B	1	1	
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	2.6	0.9	
	TE Comp-B	2.6	0.9	
C310246: Skills Development Lab (SDL)	TE Comp-A	1	1.2	3
	TE Comp-B	1	1.2	3
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A			
	TE Comp-B	2.6	0.9	

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C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	2.45		2.9
	TE Comp-B	2.5		3
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	3	3	
	TE Comp-B	3	3	
C310253: Software Modeling and Design (SMD)	TE Comp-A	3	1	
	TE Comp-B	2.52	1	
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	2.7	0.7	
	TE Comp-B	3	1	
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	1	
	TE Comp-B	3	2	3
C410241:High Performance Computing (HPC)	BE Comp-A	3	2	1.4
	BE Comp-B	3	2	1.4
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	2.5	1	2
	BE Comp-B	2.5	1	2
C410243: Data Analytics (DA)	BE Comp-A	2		1.5
	BE Comp-B	2	2.83	3
C410244D: Data Mining and Warehousing (DMW)	BE Comp-B	2.9	1	2.9
C410244B Software Architecture and Design	BE Comp A&B	3	2	
C410245A: Distributed Systems	BE Comp A&B	1.52	0.9	
C410245B: Software Testing and Quality Assurance	BE Comp-A	1.67		1.5
	BE Comp-B	1.67		1.5
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	1.2		2.25
	BE Comp-B	2.83	2	1.4
C410247: Laboratory Practices-II (LP-II)	BE Comp-A	2.17		2.67
	BE Comp-B	2.17		2.67
C410248: Project Work Stage-I	BE Comp A&B	2.5	2	2.6
C410250: Machine Learning (ML)	BE Comp-A	2.5		2
	BE Comp-B	2.02	1	2.7
C410251: Information and Cyber Security (ICS)	BE Comp-A	2		2
	BE Comp-B	2		2
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	2		1.17
C410453B: Human Computer Interface (HCI)	BE Comp-A	2		1
	BE Comp-B	2		

2.6 - Student Performance and Learning Outcomes

C410453C: Cloud Computing	BE Comp A&B	3	3	1
410254: Laboratory Practices-III (LP-III)	BE Comp-A	2.67		2
	BE Comp-B	2		2
410255: Laboratory Practices-IV	BE Comp A	2	3	1
	BE Comp B	2	3	1
410256: Project Work Stage-II	BE Comp A&B	2.5	2	2.6
Direct Attainment		**2.25**	**1.56**	**2**
Indirect Attainment		**2.62**	**2.33**	**2.41**
Direct Attainment 80%		**1.8**	**1.25**	**1.6**
Indirect Attainment 20%		**0.52**	**0.47**	**0.48**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**2.32**	**1.72**	**2.08**

Mrs Nikita Singhal

Criteria Incharge

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Department of Computer Engineering

219. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2019-20

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes (2018-19)

.1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

*Attainment Level 1: **60%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 2: **70%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 3: **80%** students scoring more than University average percentage marks or set attainment level in the final examination.*

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2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment:

70% of University level + 30% of internal level

Academic Year 2018-19

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Course Outcome Attainment (Average)
C107001: Engineering Mathematics I (EM I)	FE-A	3	3	3	3	3	3	**3**
	FE-B	3	3	3	3	3	3	**3**
C107002: Engineering. Physics	FE-A	3	3	3	3	3	3	**3**
	FE-B	3	3	3	3	3	3	**3**
C102006: Engineering Graphics I (EGR I)	FE-A	0.7	0.39	0.39	0.39	0.31	0.35	**0.42**
	FE-B	-	-	-	-	-	-	**-**
C103004: Basic Electrical Engineering (BEE)	FE-A	3	3	3	3	2.3	2.3	**2.77**
	FE-B	3	3	3	3	1.6	1.6	**2.53**
C101005: Basic Civil Engineering & Environment (BCEE)	FE-A	3	3	3	3	3	3	**3**
	FE-B	3	3	3	3	2.3	2.3	**2.77**
C110003: Fundamental of Programming Languages-I (FPL I)	FE-A	2.3	1.4	1.4	1.4	-	-	**1.63**
	FE-B	2.3	2.3	2.3	2.3	-	-	**2.3**
C111007: Workshop Practices (WP)	FE-A	3	3	3	3	3	3	**3**
	FE-B	3	3	3	3	3	3	**3**
C107008: Engineering Mathematics II (EM-II)	FE-A	3	3	3	3	3	3	**3**
	FE-B	2.3	2.3	2.3	2.3	3	3	**2.53**
C107009: Engineering Chemistry	FE-A	1.6	1.6	1.6	1.6	1.6	1.6	**1.6**
	FE-B	1.6	1.6	1.6	1.6	1.6	1.6	**1.6**
C102013: Basic Mechanical Engineering (BME)	FE-A	0.9	0.55	0.4	0.6	0.25	0.9	0.55
	FE-B	2.3	1.4	2.3	2.3	0.7	0.7	**1.62**
C101011: Engineering Mechanics (EM)	FE-A	3	3	3	3	2.3	2.3	**2.77**
	FE-B	3	3	3	3	1.6	1.6	**2.53**
C104012: Basic Electronics Engineering	FE-A	3	3	3	3	1.6	1.6	**2.53**
	FE-B	3	3	3	3	3	3	**3**
C110010: Fundamental of Programming Languages-II (FPL II)	FE-A	2.3	1.4	2.3	2.3	-	-	**2.08**
	FE-B	2.3	1.4	2.3	2.3	-	-	**2.08**
C210241: Discrete Mathematics (DM)	SE-A	3	2.7	2.7	2.7	2.1	2.4	**2.6**
	SE-B	3	2.1	2.1	2.4	2.4	2.1	**2.35**

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C210242: Digital Electronics & Logic Design (DELD) & C210246: DELD LAB	SE-A	3	3	3	3	3	3	**3**
	SE-B	3	3	2.3	3	2.3	3	**2.77**
C210243: Data Structures & Algorithms (DSA) & C210247: DSA LAB	SE-A	3	3	3	3	3	2.3	**2.88**
	SE-B	3	3	3	3	3	3	**3**
C210244: Computer Organization & Architecture (COA)	SE-A	2	2	2	2	2	2	**2**
	SE-B	2.62	3	2.9	3	2.72	2.12	**2.73**
C210245: Object Oriented Programming (OOP) & C210248: OOP LAB	SE-A	3	3	3	2.3	3	2.3	**2.77**
	SE-B	3	3	3	2.3	2.3	2.3	**2.65**
C210249: Soft Skills (SS)	SE A & B	3	3	3	3	3	3	**3**
C210250: Audit Course-I (AC I)	SE A & B	3	3	3	3	3	3	**3**
C207003: Engineering Mathematics III (EM III)	SE-A	3	3	3	3	3	3	**3**
	SE-B	3	3	3	3	3	3	**3**
C210251: Computer Graphics (CG) & C210255: CG LAB	SE-A	3	3	3	3	3	3	**3**
	SE-B	3	3	3	2.3	3	2.3	**2.77**
C210252: Advanced Data Structures (ADS) & C210256: ADS LAB	SE-A	2.3	2.3	2.3	2.3	2.3	2.3	**2.3**
	SE-B	3	3	3	2.4	3	3	**2.9**
C210253: Microprocessor (MP) & C210257: MP LAB	SE-A	1.6	0.9	2.3	1.6	3	2.4	**1.97**
	SE-B	0.9	0.9	0.9	0.9	2.3	2.3	**1.37**
C210254: Principles of Programming Languages (PPL)	SE A & B	2.3	2	2.3	1.8	1.8	1.8	**2**
C210258: Audit Course-II (AC II)	SE A & B	3	3	3	3	3	3	**3**
C310241: Theory of Computations (TOC)	TE-A	1.6	1.6	0.9	1.6	0.9	0.9	**1.25**
	TE-B	3	2.3	1.6	2.3	1.6	1.6	**2.07**
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE-A	3	3	3	3	3	3	**3**
	TE-B	3	3	3	3	3	3	**3**
C310243: Software Engineering & Project Management (SEPM)	TE A & B	2.3	2.3	2.3	2.3	2.3	2.3	**2.3**
C310244: Information Systems & Engineering Economics (ISEE)	TE A & B	2	3	2	2	3	3	**2.5**
C310245: Computer Networks & C310248: CN LAB	TE-A	3	3	3	2.3	3	3	**2.88**
	TE-B	3	3	3	3	3	3	**3**
C310246: Skills Development Lab (SDL)	TE-A	3	3	3	3	3	3	**3**

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C310249: Audit Course-III (AC-III)	TE-B	3	3	3	3	3	3	**3**
C310250: Design & Analysis of Algorithms (DAA)	TE-A	2	2	2	1	1	1	**1.5**
	TE-B	3	3	3	3	3	3	**3**
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE-A	3	3	3	3	3	3	**3**
	TE-B	3	3	3	2.3	2.3	1.6	**2.53**
C310252: Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE-A	2.7	3	3	3	3	3	**2.95**
	TE-B	1.6	1.6	2.3	1.6	1.6	1.6	**1.72**
C310253: Software Modeling and Design (SMD)	TE-A	3	3	3	2	3	3	**2.83**
	TE-B	1.6	1.6	1.6	0.9	0.9	0.9	**1.25**
C310254: Web Technology (WT) & C310256: WT LAB	TE-A	3	3	3	3	3	3	**3**
	TE-B	3	3	3	3	3	3	**3**
C310255: Seminar and Technical Communication (STC)	TE-A	3	3	3	3	3	3	**3**
	TE-B	3	3	3	3	3	3	**3**
C310259: Audit Course-IV (AC-IV)	TE A & B	3	3	3	3	3	3	**3**
C410241: High Performance Computing (HPC)	BE	3	3	3	1.6	1.6	3	**2.53**
C410242: Artificial Intelligence & Robotics (AIR)	BE	2.7	2.7	2.7	2	2	2	**2.35**
C410243: Data Analytics (DA)	BE	3	3	3	3	3	3	**3**
C410244D: Data Mining and Warehousing (DMW)	BE	3	3	3	3	3	3	**3**
C410245B: Software Testing & Quality Assurance (STQA)	BE	3	2.9	3	2.8	2.9	2.9	**2.92**
C410246: Laboratory Practices-I (LP-I)	BE	3	3	3	3	3	3	**3**
C410247: Laboratory Practices-II (LP-II)	BE	3	3	3	3	3	3	**3**
C410248: Project Work Stage-I	BE	3	3	3	3	3	3	**3**
C410249: Audit Course-V	BE	3	3	3	3	3	3	**3**
C410250: Machine Learning (ML)	BE	3	3	3	3	3	3	**3**
C410251: Information & Cyber Security (ICS)	BE	3	2.4	3	2.1	3	3	**2.75**
C410252B: Compilers	BE	2	2	2	1.3	1.3	1.3	**1.65**
C410253B: Human Computer Interface (HCI)	BE	2.7	2.7	3	3	3	3	**2.9**

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C410254: Laboratory Practices-III (LP-III)	BE	3	3	3	3	3	3	**3**
C410255: Laboratory Practices-IV (LP-IV)	BE	3	3	3	3	3	3	**3**
C410256: Project Work Stage-II	BE	3	3	3	3	3	3	**3**
C410249: Audit Course-V	BE	3	3	3	3	3	3	**3**

.2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This

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	statement is considered to indirectly assess the POs
Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving capability, innovative thinking, communication skills etc.
AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future.
Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

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. PO Attainment

Academic Year 2018-19

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C107001: Engineering Mathematics I (EM I)	FE-A	3	-	-	1	-	1	1	-	-	-	-	3
	FE-B	3	-	-	1	-	1	1	-	-	-	-	3
C107002: Engineering. Physics	FE-A	2.83	2.83	3	2.33	2	2	2.2	1.5	1.5	-	1	2.33
	FE-B	2.83	2.83	3	2.33	2	2	2.2	1.5	1.5	-	1	2.33
C102006: Engineering Graphics I (EGR I)	FE-A	0.7	0.7	0.7	0.7	0.7	0.58	0.27	0.16	0.27	0.27	0.31	0.7
	FE-B	0	0	0	0	0	0	0	0	0	0	0	0
C103004: Basic Electrical Engineering (BEE)	FE-A	2.77	2.77	0.92	1.84	0.92	0.92	0.92	0.92	0.92	0.92	0.92	1.84
	FE-B	2.53	2.53	0.84	1.69	0.84	0.84	0.84	0.84	0.84	0.84	0.84	1.69
C101005: Basic Civil Engineering & Environment (BCEE)	FE-A	2.5	2.67	2.5	2	3	2	2	2.33	2	3	2	3
	FE-B	2.5	2.67	2.5	2	3	2	2	2.33	2	3	2	3
C110003: Fundamental of Programming Languages-I (FPL I)	FE-A	1.24	1.39	1.08	0.47	1.23	1.53	-	-	-	0.47	-	0.77
	FE-B	1.92	2.04	1.92	1.15	1.92	-	1.53	1.92	-	-	2.3	-
C111007: Workshop Practices (WP)	FE-A	1	2	1	1	1	3	3	3	3	3	2	3
	FE-B	1	2	1	1	1	3	3	3	3	3	2	3
C107008: Engineering Mathematics II (EM-II)	FE-A	3	-	-	1	-	1	1	-	-	-	-	3
	FE-B	2.53	-	-	0.85	-	0.85	0.85	-	-	-	-	2.53
C107009: Engineering Chemistry	FE-A	1.6	1.6	1.51	1.07	1.07	1.51	1.51	0.53	0.64	0.53	0.53	1.6
	FE-B	1.6	1.6	1.51	1.07	1.07	1.51	1.51	0.53	0.64	0.53	0.53	1.6
C102013: Basic Mechanical Engineering (BME)	FE-A	0.9	0.9	0.6	0.7	0.7	0.9	0.55	0.3	0.6	0.2	0.3	0.9
	FE-B	1.08	0.54	0.54	0.54	0.54	-	0.54	0.54	0.54	0.54	0.54	0.54
C101011: Engineering Mechanics (EM)	FE-A	2	1	1	1	1	-	1	1	1	-	1	-
	FE-B	1.69	0.84	0.84	0.84	0.84	-	0.84	0.84	0.84	0.84	0.84	0.84

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C104012: Basic Electronics Engineering	FE-A	2.17	1.67	-	2.5	-	-	-	-	2	-	-	-
	FE-B	2.17	1.67	-	2.5	-	-	-	-	2	-	-	-
C110010: Fundamental of Programming Languages-II (FPL II)	FE-A	2.08	2.08	0.77	0.77	1.53	-	1.53	-	-	1.08	-	-
	FE-B	2.08	2.08	0.77	0.77	1.53	-	1.53	-	-	1.08	-	-
C210241: Discrete Mathematics (DM)	SE-A	2.78	2.08	0.9	2.55	0.9	-	0.9	0.93	-	-	0.9	1.85
	SE-B	2.4	1.78	0.75	2.23	0.7	-	0.7	0.83	-	-	0.7	1.58
C210242: Digital Electronics & Logic Design (DELD) & C210246: DELD LAB	SE-A	2.5	2.75	3	3	2.67	3	2.5	2	2		3	3
	SE-B	2.02	2.21	2.5	1.77	2.38	2.3	2	1.94	3	2.3	1.89	2
C210243: Data Structures & Algorithms (DSA) & C210247: DSA LAB	SE-A	2.76	2.5	2.33	2	1.77	-	-	1.53	1.77	-	2	1.77
	SE-B	1.75	1.33	1	1	2	-	-	-	-	2.67	1	3
C210244: Computer Organization & Architecture (COA)	SE-A	3	2.83	3	2.67	2.2							2
	SE-B	1.63	1.63	1.63	1.45	2.3							1.63
C210245: Object Oriented Programming (OOP) & C210248: OOP LAB	SE-A	2.77	2.05	1.53	1.39	2.18	-	-	-	3	1.55	1.69	0.77
	SE-B	2.65	1.93	1.53	1.39	2.06	-	-	-	3	1.46	1.58	0.77
C210249: Soft Skills (SS)	SE A & B	1	1		2				2.8	2.8	2.67		1.25
C210250: Audit Course-I (AC I)	SE A & B		2	2			3	2	2	3	3	3	3
C207003: Engineering Mathematics III (EM III)	SE-A	3	1.17		1								3
	SE-B	3	1.17		1								3
C210251: Computer Graphics (CG) & C210255: CG LAB	SE-A	2.67	2.83	2		2	2		2	2	1.83	2	1.5
	SE-B	2.43	2.6	1.77	-	1.71	2	-	1.84	1.84	1.68	1.53	1.34
C210252: Advanced Data Structures (ADS) & C210256: ADS LAB	SE-A	2.17	2.04	1.79	1.53	1.53	-	-	1.53	1.53	-	1.53	1.53
	SE-B	2.47	2.4	1.47	2.16	2.4	1	1.5	2	1	1.23	1.25	2.73
C210253: Microprocessor (MP) & C210257: MP LAB	SE-A	1.8	1.15	0.92	1.49	1.53	1.07	0.6	-	-	0.3	1	-
	SE-B	0.7	0.55	0.9	0.9	0.3	0.6	0.8	-	-	-	0.6	-

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C210254: Principles of Programming Languages (PPL)	SE A & B	1.92	1.79	1.53	1.79	1.79	-	-	-	-	-	1.02	2.33
C210258: Audit Course-II (AC II)	SE A & B		3	3		1	2	2	3	3	3	3	3
C310241: Theory of Computations (TOC)	TE-A	1.37	1.37	0.9	0.72	1.25	0.75	-	0.6	0.9	1.6	1.07	0.99
	TE-B	2.3	2.3	1.6	1.3	1.95	1.34	-	1.07	1.6	2.3	1.53	1.57
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE-A	2.17	2.5	2	1.17	2			2	2.5	2	1.67	2
	TE-B	1.8	2.83	2	1.17	2			1	2.67	2	3	3
C310243: Software Engineering & Project Management (SEPM)	TE A & B	1.92	1.79	-	1.66	2.17	1.53	-	0.77	1.53	0.77	1.66	1.79
C310244: Information Systems & Engineering Economics (ISEE)	TE A & B	1.34	1.73	1.45	1.69	2.13	0.6	1.53	1.32	0.6	-	0.95	-
C310245: Computer Networks & C310248: CN LAB	TE-A	2.5	2.67	2.27	2	3	1.53	2	2.1	1.53	-	1.65	-
	TE-B	2.5	2.5	2.2	2.25	2	2.5	2.5	2.33	1.33	1.33	1.75	2
C310246: Skills Development Lab (SDL)	TE-A	2.4	2.33	-	2.2	2.83	2	-	-	2.17	2	2.17	2.33
C310249: Audit Course-III (AC-III)	TE-B	3	3	3	2	3	2	2	2	2	2	2	2
C310250: Design & Analysis of Algorithms (DAA)	TE-A	1.24	1.18	1.17	1.18	-	-	1.33	-	-	-	0.91	0.64
	TE-B	3	2.5	2.2	2.25	2	2.5	2.5	2.33	1.33	1.33	1.75	2
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE-A	2.33	2.67	2.5	3	3	2	2	2	-	-	1	3
	TE-B	2.41	2.41	2.65	2.09	2.4	0	2	1.5	1.54	-	1.53	1.87
C310252: Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE-A	2.95	1.63	2.67	1.23	2.16	1.4	-	1.73	0.98	-	2.5	1
	TE-B	1.72	0.97	1.42	0.67	1.31	0.79	-	1.05	0.58	-	1.34	0.53
C310253: Software Modeling and Design (SMD)	TE-A	2.27	2.43	1.92	1.84	2.65	1.53	1.53	2.1	1.53	-	1.65	-
	TE-B	1.34	1.27	1.1	0.83	1.43	0.6	1.07	0.86	0.6	-	0.6	-
C310254: Web Technology (WT) & C310256: WT LAB	TE-A	2.67	2.67	2	3	3	-	-	2	2.67	-	3	2.8
	TE-B	2.67	2.67	2	3	3	-	-	2	2.67	-	3	2.8

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C310255: Seminar and Technical Communication (STC)	TE-A	1	1	1.5	-	2	-	-	2.33	2	2.6	1	2
	TE-B	1	1	1.5	-	2	-	-	2.33	2	2.6	1	2
C310259: Audit Course-IV (AC-IV)	TE A & B	2	3	3	2	3	2	2	2	2	2	2	2
C410241: High Performance Computing (HPC)	BE	3	2.3	2.15	2.53	2.3	2	1	2	2	2	3	3
C410242: Artificial Intelligence & Robotics (AIR)	BE	2.23	2.23	2.05	1.63	1.26	1.75	2.05	0.74	1.6	1.15	1.18	2.05
C410243: Data Analytics (DA)	BE	3	2.67	-	2	3	2	-	2	2	2	1.67	2
C410244D: Data Mining and Warehousing (DMW)	BE	2.83	2.67	2.83	2.8	2	2	2	3	3	-	2	1
C410245B: Software Testing & Quality Assurance (STQA)	BE	2.17	2.17	-	2	2.17	-	-	-	-	-	2	2.17
C410246: Laboratory Practices-I (LP-I)	BE	3	2.8	2	2.33	3	2	1	2	2	1	2	3
C410247: Laboratory Practices-II (LP-II)	BE	2.5	2.83	2	2.6	2.6	1.67	2	2.33	3	2.5	1.25	2.17
C410248: Project Work Stage-I	BE	2.8	2.6	2.75	2.75	2.6	1.67	2.5	2.6	2.5	2.67	2.83	3
C410249: Audit Course-V	BE	2.83	2.83	2	3	3	2.5	2.8	2.75	2.8	3	3	2.83
C410250: Machine Learning (ML)	BE	2.83	2.67	2.83	2.8	2	2	2	3	3	2	2	3
C410251: Information & Cyber Security (ICS)	BE	2.67	2.5	2.2	2.25	1	2.5	2.5	2.33	1.33	1.33	1.5	1.25
C410252B: Compilers	BE	1.78	1.78	1.78	1.73	1.22	-	-	-	1.5	1.67	2	1.83
C410253B: Human Computer Interface (HCI)	BE	2.94	2.5	2.75	2.6	2.5	1.93	2.35	-	-	-	1.93	1.95
C410254: Laboratory Practices-III (LP-III)	BE	2.67	2.17	2.2	2	2	2.5	2.5	1.67	1.25	1.25	1.6	2
C410255: Laboratory Practices-IV (LP-IV)	BE	3	2.67	2.5	2.5	2	2.33	3	3	2.2	2.67	2.75	2.4

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C410256: Project Work Stage-II	BE	2.8	2.6	2.75	2.75	2.6	1.67	2.5	2.6	2.5	2.67	2.83	3
C410249: Audit Course-V	BE	2.83	2.8	2.25	3	2.6	2.5	2.8	3	2.67	2.75	2.8	2.83
Average		**2.23**	**2.08**	**1.83**	**1.75**	**1.91**	**1.73**	**1.7**	**1.78**	**1.84**	**1.77**	**1.66**	**2.07**
Indirect Attainment		**2.5**	**2.5**	**1.85**	**2.52**	**2.52**	**2.28**	**2.19**	**1.85**	**2.53**	**2.15**	**2.29**	**2.52**
Direct Attainment 80%		**1.78**	**1.66**	**1.46**	**1.4**	**1.53**	**1.38**	**1.36**	**1.42**	**1.47**	**1.42**	**1.33**	**1.66**
Indirect Attainment 20%		**0.5**	**0.5**	**0.37**	**0.5**	**0.5**	**0.46**	**0.44**	**0.37**	**0.51**	**0.43**	**0.46**	**0.5**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**2.28**	**2.16**	**1.83**	**1.9**	**2.03**	**1.84**	**1.8**	**1.79**	**1.98**	**1.85**	**1.79**	**2.16**

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B. PSO Attainment

Academic Year 2018-19

Course	Class	PSO1	PSO2	PSO3
C107001: Engineering Mathematics I (EM I)	FE-A	-	-	-
	FE-B	-	-	-
C107002: Engineering. Physics	FE-A	1	1	-
	FE-B	1	1	-
C102006: Engineering Graphics I (EGR I)	FE-A	-	-	-
	FE-B	-	-	-
C103004: Basic Electrical Engineering (BEE)	FE-A	2.77	1	2.77
	FE-B	2.53	1	2.53
C101005: Basic Civil Engineering & Environment (BCEE)	FE-A	1	-	-
	FE-B	1	-	-
C110003: Fundamental of Programming Languages-I (FPL I)	FE-A	1.28	1.53	0.77
	FE-B	2.3	1.54	2.3
C111007: Workshop Practices (WP)	FE-A	1	-	-
	FE-B	1	-	-
C107008: Engineering Mathematics II (EM-II)	FE-A	-	-	-
	FE-B	-	-	-
C107009: Engineering Chemistry	FE-A	-	-	-
	FE-B	-	-	-
C102013: Basic Mechanical Engineering (BME)	FE-A	-	-	-
	FE-B	1.62	0.77	1.62
C101011: Engineering Mechanics (EM)	FE-A	1	-	-
	FE-B	1	-	-
C104012: Basic Electronics Engineering	FE-A	-	3	2
	FE-B	-	3	2
C110010: Fundamental of Programming Languages-II (FPL II)	FE-A	1.92	0.77	1.53
	FE-B	1.92	0.77	1.53
C210241: Discrete Mathematics (DM)	SE-A	1.8	-	2.78
	SE-B	1.4	-	2.4
C210242: Digital Electronics & Logic Design (DELD) & C210246: DELD LAB	SE-A	3	3	3
	SE-B	2.58	2.33	2.77
C210243: Data Structures & Algorithms (DSA) & C210247: DSA LAB	SE-A	1.88	1	1.92
	SE-B	3	1	3
C210244: Computer Organization & Architecture (COA)	SE-A	1.5	1.83	1
	SE-B	-	-	1
C210245: Object Oriented Programming (OOP) & C210248: OOP LAB	SE-A	2.22	-	1.18
	SE-B	2.1	-	1.1
C210249: Soft Skills (SS)	SE A & B	-	-	1

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C210250: Audit Course-I (AC I)	SE A & B	1	-	-
C207003: Engineering Mathematics III (EM III)	SE-A	-	-	-
	SE-B	-	-	-
C210251: Computer Graphics (CG) & C210255: CG LAB	SE-A	2	-	-
	SE-B	1.84	-	-
C210252: Advanced Data Structures (ADS) & C210256: ADS LAB	SE-A	2.04	0.77	1.53
	SE-B	2.23	1.63	2.1
C210253: Microprocessor (MP) & C210257: MP LAB	SE-A	1.45	1.81	-
	SE-B	0.65	0.45	0.45
C210254: Principles of Programming Languages (PPL)	SE A & B	0.77	-	0.77
C210258: Audit Course-II (AC II)	SE A & B	1	-	-
C310241: Theory of Computations (TOC)	TE-A	0.84	0.53	1.25
	TE-B	1.38	1	2.07
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE-A	3	1	3
	TE-B	2.4	-	2
C310243: Software Engineering & Project Management (SEPM)	TE A & B	2.3	-	2.3
C310244: Information Systems & Engineering Economics (ISEE)	TE A & B	2.07	0.53	2.07
C310245: Computer Networks & C310248: CN LAB	TE-A	2.88	1	2.88
	TE-B	3	1	2
C310246: Skills Development Lab (SDL)	TE-A	3	1.75	3
C310249: Audit Course-III (AC- III)	TE-B	3	1	3
C310250: Design & Analysis of Algorithms (DAA)	TE-A	-	1.09	1.17
	TE-B	3	1	2
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE-A	3	2	2
	TE-B	3	-	3
C310252: Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE-A	2.5	3	2.2
	TE-B	1.69	1.6	1.2
C310253: Software Modeling and Design (SMD)	TE-A	2.65	1	2.65
	TE-B	1.25	0.53	1.25
C310254: Web Technology (WT) & C310256: WT LAB	TE-A	3	-	3
	TE-B	3	-	3
C310255: Seminar and Technical Communication (STC)	TE-A	1	-	2
	TE-B	1	-	2
C310259: Audit Course-IV (AC- IV)	TE A & B	3	1	3
C410241: High Performance Computing (HPC)	BE	2.53	2	2.53
C410242: Artificial Intelligence & Robotics (AIR)	BE	2.35	1.08	2.35
C410243: Data Analytics (DA)	BE	3	---	3

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C410244D: Data Mining and Warehousing (DMW)	BE	2	1	3
C410245B: Software Testing & Quality Assurance (STQA)	BE	1	-	1
C410246: Laboratory Practices-I (LP-I)	BE	3	2.33	3
C410247: Laboratory Practices-II (LP-II)	BE	2.6	1	3
C410248: Project Work Stage-I	BE	3	2.83	2.17
C410249: Audit Course-V	BE	3	3	3
C410250: Machine Learning (ML)	BE	2	1	3
C410251: Information & Cyber Security (ICS)	BE	3	1	1.67
C410252B: Compilers	BE	2	-	2
C410253B: Human Computer Interface (HCI)	BE	3	1.93	1
C410254: Laboratory Practices-III (LP-III)	BE	2.5	1	2
C410255: Laboratory Practices-IV (LP-IV)	BE	3	2.5	2.5
C410256: Project Work Stage-II	BE	3	2.83	2.17
C410249: Audit Course-V	BE	2.83	2.5	3
Average		**2.09**	**1.48**	**2.12**
Indirect Attainment		**2.52**	**2.58**	**1.2**
Direct Attainment 80%		**1.67**	**1.18**	**1.7**
Indirect Attainment 20%		**0.5**	**0.52**	**0.24**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**2.17**	**1.7**	**1.94**

Mrs Nikita Singhal

Criteria Incharge

Prof (Dr) SR Dhore

HoD Computer Engineering

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Department of Computer Engineering

234. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2018-19

2.6 - Student Performance and Learning Outcomes

2 Attainment of Course Outcomes and Program Outcomes (2019-20)

1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

*Attainment Level 1: **60%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 2: **70%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 3: **80%** students scoring more than University average percentage marks or set attainment level in the final examination.*

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Course Outcome Attainment:

70% of University level + 30% of Internal level

Academic Year 2019-20

Course	Class	CO1	CO2	CO3	CO4	CO5	CO6	Average
107001 Engineering Mathematics I	FE Comp-A	2.94	2.94	2.94	2.94	2.94	2.94	**2.94**
	FE Comp-B	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
107002 Engineering Physics	FE Comp-A	2.96	2.96	2.06	2.96	2.06	2.96	**2.66**
	FE Comp-B	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
103004 Basic Electrical Engineering	FE Comp-A	2.94	2.94	2.94	2.94	2.94	2.94	**2.94**
	FE Comp-B	2.06	2.96	2.96	2.96	2.96	2.06	**2.66**
102003 Systems in Mechanical Engineering	FE Comp-A	0.86	0.86	0.35	0.33	0.33	0.33	**0.51**
	FE Comp-B	0.91	0.91	0.53	0.53	0.53	0.53	**0.66**
110013 Project Based Learning	FE Comp-A	2.96	2.96	2.96				**2.96**
	FE Comp-B	2.96	2.96	2.96				**2.96**
111007 Workshop Practices	FE Comp-A	1	1	1	1	1	1	**1**
	FE Comp-B	1	1	1	1	1	1	**1**
107008 Engineering Mathematics II	FE Comp-A	2.94	2.94	2.94	2.94	2.94	2.94	**2.94**
	FE Comp-B	2.96	2.96	2.06	2.06	2.96	2.96	**2.66**
107009 Engineering Chemistry	FE Comp-A	2.96	2.96	2.06	2.06	2.96	2.06	**2.51**
	FE Comp-B	2.96	2.96	2.06	2.06	2.96	2.96	**2.66**
110005 Programming and Problem Solving	FE Comp-A	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
	FE Comp-B	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
101011 Engineering Mechanics	FE Comp-A	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
	FE Comp-B	2.96	2.96	2.96	2.96	2.96	2.96	**2.96**
104010 Basic Electronics Engineering	FE Comp-A	2.95	2.95	2.95	2.95	2.95	2.95	**2.95**
	FE Comp-B	2.94	2.94	2.94	2.94	2.94	2.94	**2.94**
102012 Engineering Graphics	FE Comp-A	0.897	0.89	0.89	0.89	0.89	0.9	**0.89**
	FE Comp-B	0.71	0.706	0.71	0.71	0.702	0.706	**0.71**
C210241: Discrete Mathematics (DM)	SE Comp-A	3	3	3	3	0.9	0.9	**2.3**
	SE Comp-B	2.7	2.7	2.7	2	2	2.7	**2.47**
C210242: Digital Electronics & Logic Design (DELD) & C210246: DELD LAB	SE Comp-A	2.4	3	2.3	3	2.3	3	**2.67**
	SE Comp-B	3	3	3	3	2		**2.8**
C210243: Data Structures & Algorithms (DSA) & C210247: DSA LAB	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
	SE Comp-A	2	2	2	2	2	2	**2**

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C210244: Computer Organization & Architecture (COA)	SE Comp-B	2.25	2.66	2.67	2.43	2.46	2.04	**2.42**
C210245: Object Oriented Programming (OOP) & C210248: OOP LAB	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210249: Soft Skills (SS)	SE Comp A&B	3	3	3	3	3	3	**3**
C210250: Audit Course-I (AC I)	SE Comp A&B	3	3	3	3	3	3	**3**
C207003: Engineering Mathematics III (EM III)	SE Comp A&B	3	3	3	3	3	3	**3**
C210251: Computer Graphics (CG) & C210255: CG LAB	SE Comp-A	3	3	3	3	3	3	**3**
	SE Comp-B	3	3	3	3	3	3	**3**
C210252: Advanced Data Structures (ADS) & C210256: ADS LAB	SE Comp-A	3	3	3	3	3	2.3	**2.88**
	SE Comp-B	3	3	3	3	3	3	**3**
C210253: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	3	3	3	3	3	2.1	**2.85**
	SE Comp-B	0.9	0.9	0.9	0.9	3	3	**1.6**
C210254: : Principles of Programming Languages (PPL)	SE Comp-A	3	3	3	2	3	3	**2.83**
	SE Comp-B	3	3	3	3	3	3	**3**
C210258: Audit Course-II (AC II)	SE Comp A&B	3	3	3	3	3	3	**3**
C310241: Theory of Computations (TOC)	TE Comp-A	1.6	2.3	0.9	2.3	0.9	1.6	**1.6**
	TE Comp-B	0.9	0.9	0.9	0.9	0.9	0.9	**0.9**
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-A	2.3	1.7	2.3	1.4	3	3	**2.28**
	TE Comp-B	3	3	3	3	3	3	**3**
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	2	2	2	2	2	2	**2**
	TE Comp-B	3	3	3	3	3	3	**3**
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	2	3	2	2	3	3	**2.5**
	TE Comp-B	1	1	1	1	2	2	**1.33**
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	3	2.7	3	1.7	3	3	**2.73**
	TE Comp-B	3	3	3	3	3	3	**3**
C310246: Skills Development Lab (SDL)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C310249: Audit Course-III (AC- III)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
	TE Comp-A	0.3	0.3	0.3	1.6	1.6	1.6	**0.95**

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C310250: Design & Analysis of Algorithms (DAA)	TE Comp-B	2.7	2.7	3	2.7	2.7	3	**2.8**
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	2.7	3	3	3	3	3	**2.95**
	TE Comp-B	3	3	3	3	2		**2.8**
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	2.3	2.3	3	3	3	2.3	**2.65**
	TE Comp-B	2.7	3	3	3	3	3	**2.95**
C310253: Software Modeling and Design (SMD)	TE Comp-A	2	2	2	2	2	2	**2**
	TE Comp-B	0.9	0.9	0.9	0.9	3	3	**1.6**
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	3	2.4	3	2.1	3	3	**2.75**
	TE Comp-B	3	3	3	3	3	3	**3**
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C310259: Audit Course-IV (AC- IV)	TE Comp-A	3	3	3	3	3	3	**3**
	TE Comp-B	3	3	3	3	3	3	**3**
C410241:High Performance Computing (HPC)	BE Comp-A	3	2.3	2.3	1.6	1.6	1.6	**2.07**
	BE Comp-B	3	1.6	1.6	0.9	0.9	1.6	**1.6**
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	2	2	2	2	2	2	**2**
	BE Comp-B	3	3	3	2.3	2.3	2.3	**2.65**
C410243: Data Analytics (DA)	BE Comp-A	3	3	3	1.6	1.6	1.6	**2.3**
	BE Comp-B	2.3	1.6	1.6	0.9	0.9	1.6	**1.48**
C410244D: Data Mining and Warehousing (DMW)	BE Comp-A	1.7	1.7	1.7	1.7	1.7	1.7	**1.7**
	BE Comp-B	3	3	3	3	3	3	**3**
C410244B Software Architecture and Design	BE Comp A&B	3	3	3	3	3	3	**3**
C410245B: Software Testing and Quality Assurance	BE Comp-A	3	2.9	3	2.8	2.9	2.9	**2.92**
	BE Comp-B	3	3	3	1	1	1	**2**
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410247: Laboratory Practices-II (LP-II)	BE Comp A&B	3	3	3	3	3	3	**3**
C410248: Project Work Stage-I	BE Comp A&B	3	3	3	3	3	3	**3**
C410249: Audit Course-V (AC-V)	BE Comp A&B	3	3	3	3	3	3	**3**
C410250: Machine Learning (ML)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**

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C410251: Information and Cyber Security (ICS)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	2.4	3	2.1	3	3	**2.75**
C410252B: Compilers	BE Comp A&B	3	2.9	3	2.8	2.9	2.9	**2.92**
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
C410453B: Human Computer Interface (HCI)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
410254: Laboratory Practices-III (LP-III)	BE Comp-A	3	3	3	3	3	3	**3**
	BE Comp-B	3	3	3	3	3	3	**3**
410255: Laboratory Practices-IV	BE Comp A	3	3	3	3	3	3	**3**
	BE Comp B	3	3	3	3	3	3	**3**
410256: Project Work Stage-II	BE Comp A&B	3	3	3	3	3	3	**3**
410257: Audit Course-VI (AC-VI)	BE Comp A&B	3	3	3	3	3	3	**3**

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2.6 - Student Performance and Learning Outcomes

2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every academic year annual report is developed where the statistics of students who have participated in professional bodies/ student chapters /workshops/seminars/conferences/paper presentations / internships /industry visit/Co-curricular and Extra Co-curricular activities, Value added Course etc. is prepared. This statement is considered to indirectly assess the POs
Placement	Most of the students are placed in good companies. Students are evaluated on the basis of their programming skills, analytical thinking, creativity, logical capability, problem solving capability, innovative thinking, communication skills etc.

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2.6 - Student Performance and Learning Outcomes

AMCAT	Aspiring Minds' Campus Analysis Report: The Aspiring Minds Campus Analysis Report provides a detailed analysis of the student quality and their employability in the industry on the basis of following: • English Comprehension • Quantitative Ability • Logical Ability • Computer Programming • Aspiring Minds Personality Inventory (AMPI)
NCAT	The National Creativity Aptitude Test will assess the creativity quotient of a student and his/her level of achievement motivation. By participating in this Test, the student shall get sensitized to the importance of these factors and their role in shaping one's future.
Alumni Survey	Collect variety of information about program satisfaction, from graduate's end. – every year
Student exit survey	To evaluate the success of program in providing students with opportunities to achieve the program outcome- every year

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2.6 - Student Performance and Learning Outcomes

. PO Attainment

Academic Year 2019-20

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	FE Comp-A	2.94	2.94		2.94	2.94					2.94		2.94
	FE Comp-B	2.96	2.96		2.96	2.96					2.96		2.96
107002 Engineering Physics	FE Comp-A	2.33	2.66	0.89	2.96	1.54	1.82	1.64	0.89	2.66	2.6	0.89	2.33
	FE Comp-B	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
103004 Basic Electrical Engineering	FE Comp-A	2.45	2.29	1.96	2.45	2.29	2.12	1.72	2.29	1.31	1.63	1.18	2.12
	FE Comp-B	2.38	2.49	1.94	1.94	2.1	1.89	1	2.1	1.58	1.65	1.73	1.72
102003 Systems in Mechanical Engineering	FE Comp-A	0.7	0.6	0.4	0.3	0.3	0.25	0.3	0.5	0.4	0.25	0.3	0.1
	FE Comp-B	0.54	0.54	0.54	0.54	0.54	0.45	0.22	0.09	0.27	0.27	0.27	0.54
110013 Project Based Learning	FE Comp-A	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
	FE Comp-B	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
111007 Workshop Practices	FE Comp-A	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.5	0.33	0.33
	FE Comp-B	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.5	0.33	0.33
107008 Engineering Mathematics II	FE Comp-A	2.94	2.94		2.94	2.94					2.94		2.94
	FE Comp-B	2.95	2.95		2.95	2.95					2.95		2.95
107009 Engineering Chemistry	FE Comp-A	1.67	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.6	1.67	2.51
	FE Comp-B	1.78	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.61	1.78	2.67
110005 Programming and Problem Solving	FE Comp-A	2.67	2.83	2	2.33	2.5	2.17	0.83	2	0.17	1	0.33	2
	FE Comp-B	2.63	2.79	1.97	2.3	2.46	2.13	1.23	1.97	0.99	1.18	0.99	1.97
101011 Engineering Mechanics	FE Comp-A	2.96	2.96	0.99	2.96	1.97	1.97	0.99	0.99	2.96	2.96	0.99	2.96
	FE Comp-B	2.96	2.96	0.99	2.96	1.97	1.97	0.99	0.99	2.96	2.96	0.99	2.96
104010 Basic Electronics Engineering	FE Comp-A	2.95	2.79	1.97	2.29	2.46	2.13	1.23	1.97	0.98	1.18	0.98	1.97
	FE Comp-B	2.94	2.77	1.96	2.28	2.45	2.12	1.22	1.96	0.98	1.17	0.98	1.96
102012 Engineering Graphics	FE Comp-A	1.15	1.92	1.28	1.28	0.38	0.38	0.89	0.64	0.77	0.77	0.26	0.77
	FE Comp-B	1.99	2.32	1.82	1.98	2.66	1.49	1.16	1.65	1.32	1.48	1.15	0.99

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2.6 - Student Performance and Learning Outcomes

C210241: Discrete Mathematics (DM)	SE Comp-A	1.53	1.53	1.53	1.53								
	SE Comp-B	1.07	1.35	1.46	1.35								
C210242: Digital Electronics & Logic Design (DELD) & C210246: DELD LAB	SE Comp-A	1.82	2.06	2.5	1.7	2.38	2.3	2	1.81	3	2.3	1.89	2
	SE Comp-B	2.21	2.23	2.65	2.3	2.36	1.95	2.27	1.07	2		1.95	2.3
C210243: Data Structures & Algorithms (DSA) & C210247: DSA LAB	SE Comp-A	2.83	2.5	2.33	2	2			2	2		2	2
	SE Comp-B	2.17	2.33	2.5	2.67								
C210244: Computer Organization & Architecture (COA)	SE Comp-A	3	2.83	3	2.67	2.2							2
	SE Comp-B	1.63	1.63	1.63	1.45	2.3							1.63
C210245: Object Oriented Programming (OOP) & C210248: OOP LAB	SE Comp-A	2.88	2.13	1.53	1.39	2.26				3		1.69	
	SE Comp-B	3	2.17	2	1.5	2.33				3		1.75	
C210249: Soft Skills (SS)	SE Comp A&B	1	1		2				2.8	2.8	2.67		1.25
C210250: Audit Course-I (AC I)	SE Comp A&B	1	2	1.5			2	2.16	1				1
C207003: Engineering Mathematics III (EM III)	SE Comp A&B	3	1.17		1	1					1		3
C210251: Computer Graphics (CG) & C210255: CG LAB	SE Comp-A	2.67	2.83	2		2	2		2	2		2	
	SE Comp-B	2.67	2.83	2		2	2		2	2		2	
C210252: Advanced Data Structures (ADS) & C210256: ADS LAB	SE Comp-A	2.76	2.67	2.33	2	1.77			2	2		2	1.77
	SE Comp-B	3	1.83	3	1					1			1
C210253: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	1.7	1.47	1.5	1.85	2	2	2			1	1	
	SE Comp-B	0.7	0.55	0.9	0.9	0.3	0.6	0.8				0.6	
C210254: : Principles of Programming Languages (PPL)	SE Comp-A	1.92	1.79	1.53	1.79	1.79						1.02	
	SE Comp-B	2	1.5	1.8	2								
C210258: Audit Course-II (AC II)	SE Comp A&B		3	3		1	2	2	3	3	3	3	3
C310241: Theory of Computations (TOC)	TE Comp-A	1.6	1.6	0.9	1.07	1.95	0.75		0.84	1.6	2.3	1.53	1.57
	TE Comp-B	0.9	0.9	0.9	0.6	0.9	0.75		0.6	0.9	0.9	0.6	0.75
	TE Comp-A	2.08	2.12	1.4	2.04	2.28	1.47					1.67	2.28

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2.6 - Student Performance and Learning Outcomes

C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-B	1.8	2.83	2	1.17	2			1	2.67	2	3	3
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	0.75	0.7	0.68	0.65	0.85	0.6	0.6	0.65	0.65	1.53	0.65	1.78
	TE Comp-B	2.5	2.33		2.17	2.83	2		1	2	1	2.17	2.33
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	1.34	1.73	1.45	1.69	2.13	0.6	1.53	1.32	0.6		0.95	
	TE Comp-B	0.55	0.75	0.6	0.6	0.9	0.6			0.6		0.6	
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	2.5	2.67	1.92	1.93	2.93	1.13	1.8	1.9	1.13		1.35	
	TE Comp-B	2.5	2.5	2.2	2.25	2	2.5	2.5	2.33	1.33	1.33	1.75	2
C310246: Skills Development Lab (SDL)	TE Comp-A	2.4	2.33		2.2	2.83	2			2.17	2	2.17	2.33
	TE Comp-B	2.4	2.33		2.2	2.83	2			2.17	2	2.17	2.33
C310249: Audit Course-III (AC- III)	TE Comp-A	2	2	2	1.5	2.5	2	2	2.33	2.8	2.6	3	3
	TE Comp-B	1	1.33	2			1		2		1.5		2
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A	0.93	0.93	0.85	0.93								
	TE Comp-B	2.35	2.5	2.25	1.8	2.85	1.8	1.8	2.1	1.8		1.8	
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	2.23	2.57	2.5	3	2.93	2	2	2			1	2.7
	TE Comp-B	2.21	2.23	2.65	2.3	2.36	1.95	2.27	1.07	2		1.95	2.3
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	2.65	1.47	2.43	1.14	2.06	1.26		1.52	0.91		2.5	0.77
	TE Comp-B	2.95	1.63	2.67	1.23	2.16	1.4		1.73	0.98		2.5	1
C310253: Software Modeling and Design (SMD)	TE Comp-A		1.4	1.75	2.1	1.4		1.4					0.7
	TE Comp-B	0.75	1.27	0.75	1.3	1.43	0.6	0.6	1.17	0.6		0.95	
C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-A	2.13	2.17	1.97	2.12	2.47	1.03	0	2	0	0	1.78	1.08
	TE Comp-B	2.67	2.67	2	3	3			2	2.67		3	2.8
C310255: Seminar and Technical Communication (STC)	TE Comp-A	2.5	2.67	2.5	2	3	2	2	2.33	2		2	
	TE Comp-B	1	1	1.5		2			2.33	2	2.6	1	2
C310259: Audit Course-IV (AC-IV)	TE Comp A	1	2.4	2.5	1		3	3	3	3	3	3	
	TE Comp B	2.5	2.67	2.5	2	3	2	2	2.33	2		2	

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C410241:High Performance Computing (HPC)	BE Comp-A	2.65	2.3	2.11	1.6	1.6	1.15	0.65	1.07	1.07		1.6	
	BE Comp-B	2.3	1.6	1.64	0.9	1.6	0.8	0.53	1.07	0.6	0.84	1.6	2.3
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	1.89	1.87	1.55	1.73	1.33						1.55	1.73
	BE Comp-B	1.98	1.68	2.17	1.97	1.97	1.87	1.53	1.15	1.53	1.52	1.77	2.65
C410243: Data Analytics (DA)	BE Comp-A	1.19	1.79	1.96	1.97	1.62							
	BE Comp-B	1.48	1.35		0.91	1.6	0.6		0.99	0.99	0.99	0.58	0.95
C410244D: Data Mining and Warehousing (DMW)	BE Comp-A	1.32	1.13	1.13									
	BE Comp-B	2.83	2.67	2.83	2.8	2	2	2	3	3		2	1
C410244B Software Architecture and Design	BE Comp A&B	3	2.5	2	1.6	3	2	3	2.33	2.17	2.17	3	2.67
C410245B: Software Testing and Quality Assurance	BE Comp-A	2.17	2.17		2	2.17						2	2.17
	BE Comp-B	1.7	1.7		2	1.62						2	1.62
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	1.75	3	2.6	3	1.75	1			2	2		
	BE Comp-B	3	3	2	2	3	2	1	2	2	1	2	3
C410247: Laboratory Practices-II (LP-II)	BE Comp A&B	3	2.67	2.5	2.5	2	2.33	3	3	2.2	2.67	2.75	2.4
C410248: Project Work Stage-I	BE Comp A&B	3	2.5	2.5	2	3	2	3	2.5	2	2	2.5	3
C410249: Audit Course-V (AC-V)	BE Comp A&B	3	2.6	2	1.5	2	3	2	2	2.5	2.5	2	2
C410250: Machine Learning (ML)	BE Comp-A	1.5	2.33	2.5	2.67	1.83							
	BE Comp-B	2.83	2.67	2.83	2.8	2	2	2	3	3	2	2	3
C410251: Information and Cyber Security (ICS)	BE Comp-A	2.5	1.5	1.5	1.25	2.67							
	BE Comp-B	2.67	2.5	2.2	2.25	1	2.5	2.5	2.33	1.33	1.33	1.5	1.25
C410252B: Compilers	BE Comp A&B	2.17	2.17		2	2.17						2	
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	1.67	1.5	2.83	1								
	BE Comp-B	1.67	1.5	2.83	1								
	BE Comp-A	2.2	1.83	2.17	1.25		1		1.5	1	1.33	1	1.33

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2.6 - Student Performance and Learning Outcomes

C410453B: Human Computer Interface (HCI)	BE Comp-B	3	2.5	2.83	2.67	2.5	2	2.5				2	2
410254: Laboratory Practices-III (LP-III)	BE Comp-A	1.67	2.3	2.33	2.4	1.6	2						
	BE Comp-B	2.67	2.17	2.2	1.33	1	2.5	2.5	1.67	1.25	1.25	1.6	2
410255: Laboratory Practices-IV	BE Comp A	3	2.67	2.5	2.5	2	2.33	3	3	2.2	2.67	2.75	2.4
	BE Comp B	3	2.67	2.5	2.5	2	2.33	3	3	2.2	2.67	2.75	2.4
410256: Project Work Stage-II	BE Comp A&B	3	2.5	2.5	2	3	2	3	2.5	2	2	2.5	3
410257: Audit Course-VI (AC-VI)	BE Comp A&B	2.5	2.67	2.5	2	3	2	2	2.33	2		2	
Direct Attainment		**2.21**	**2.16**	**1.97**	**1.93**	**2.07**	**1.75**	**1.8**	**1.82**	**1.86**	**1.87**	**1.64**	**1.98**
Indirect Attainment		**2.29**	**2.27**	**2.11**	**2.27**	**2.31**	**1.64**	**1.72**	**2**	**2.27**	**2.33**	**1.64**	**2.27**
Direct Attainment 80%		**1.77**	**1.73**	**1.58**	**1.54**	**1.66**	**1.4**	**1.44**	**1.46**	**1.49**	**1.5**	**1.31**	**1.58**
Indirect Attainment 20%		**0.46**	**0.45**	**0.42**	**0.45**	**0.46**	**0.33**	**0.34**	**0.4**	**0.45**	**0.47**	**0.33**	**0.45**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**2.23**	**2.18**	**2**	**1.99**	**2.12**	**1.73**	**1.78**	**1.86**	**1.94**	**1.97**	**1.64**	**2.03**



2.6 - Student Performance and Learning Outcomes

. PSO Attainment

Academic Year 2019-20

Course	Class	PSO1	PSO2	PSO3
107001 Engineering Mathematics I	FE Comp-A	1.37	0.68	0.68
	FE Comp-B	1.97	0.99	0.99
107002 Engineering Physics	FE Comp-A	1	1.77	1.77
	FE Comp-B	1.15	1.97	1.97
103004 Basic Electrical Engineering	FE Comp-A	2.29	1.63	2.61
	FE Comp-B	2.22	1.77	2.22
102003 Systems in Mechanical Engineering	FE Comp-A	0.6	0.4	0.55
	FE Comp-B	0.54	0.31	0.41
110013 Project Based Learning	FE Comp-A	1.97	1.48	1.97
	FE Comp-B	1.97	1.48	1.97
111007 Workshop Practices	FE Comp-A	2.67	1.83	2
	FE Comp-B	2.67	1.83	2
107008 Engineering Mathematics II	FE Comp-A	1.96	0.98	0.98
	FE Comp-B	1.96	0.98	0.98
107009 Engineering Chemistry	FE Comp-A	2.34	2.51	2.23
	FE Comp-B	2.5	2.67	2.39
110005 Programming and Problem Solving	FE Comp-A	3	2.33	2.67
	FE Comp-B	2.96	2.3	1.64
101011 Engineering Mechanics	FE Comp-A	1.97	0.99	1.97
	FE Comp-B	1.97	0.99	1.97
104010 Basic Electronics Engineering	FE Comp-A	2.79	2.13	2.62
	FE Comp-B	2.77	2.12	2.61
102012 Engineering Graphics	FE Comp-A	0.89	1.02	0.38
	FE Comp-B	1	0.33	1
C210241: Discrete Mathematics (DM)	SE Comp-A			0.77
	SE Comp-B	2.47	0.9	2.47
C210242: Digital Electronics & Logic Design (DELD) & C210246: DELD LAB	SE Comp-A	2.43	2.28	2.77
	SE Comp-B	1.6	2.18	3
C210243: Data Structures & Algorithms (DSA) & C210247: DSA LAB	SE Comp-A	2	1	2
	SE Comp-B	3		3
C210244: Computer Organization & Architecture (COA)	SE Comp-A	1.5	1.83	1
	SE Comp-B			1

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2.6 - Student Performance and Learning Outcomes

C210245: Object Oriented Programming (OOP) & C210248: OOP LAB	SE Comp-A	2.3		1.18
	SE Comp-B	2.33		1.33
C210249: Soft Skills (SS)	SE Comp A&B			1
C210250: Audit Course-I (AC I)	SE Comp A&B	3	1	3
C207003: Engineering Mathematics III (EM III)	SE Comp A&B	2		1
C210251: Computer Graphics (CG) & C210255: CG LAB	SE Comp-A	2		
	SE Comp-B	2		
C210252: Advanced Data Structures (ADS) & C210256: ADS LAB	SE Comp-A	2.55	1	1.92
	SE Comp-B	3		3
C210253: Microprocessor (MP) & C210257: MP LAB	SE Comp-A	1.88	2.28	
	SE Comp-B	0.65	0.45	0.45
C210254: : Principles of Programming Languages (PPL)	SE Comp-A	0.77		0.77
	SE Comp-B	2.83	1	2
C210258: Audit Course-II (AC II)	SE Comp A&B			3
C310241: Theory of Computations (TOC)	TE Comp-A	1.07	0.53	1.6
	TE Comp-B	0.6	0.3	0.9
C310242: Database Management Systems (DBMS) (DBMS) & 310247: DBMS LAB	TE Comp-A	2.28	0.78	2.28
	TE Comp-B	3	1	3
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	0.9		0.9
	TE Comp-B	3		3
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	2.07	0.53	2.07
	TE Comp-B	0.4	0.3	0.45
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	2.73	1	2.73
	TE Comp-B	3	1	2
C310246: Skills Development Lab (SDL)	TE Comp-A	3	1.75	3
	TE Comp-B	3	1.75	3
C310249: Audit Course-III (AC- III)	TE Comp-A			3
	TE Comp-B	1	1	1
C310250: Design & Analysis of Algorithms (DAA)	TE Comp-A			0.21
	TE Comp-B	2.8	0.9	2.8
C310251: Systems Programming & Operating System (SP&OS) & C310257: SP&OS LAB	TE Comp-A	2.95	2	1.97
	TE Comp-B	1.6	2.18	3
C310252:Embedded Systems & Internet of Things (ES&IOT) & C310258: ES&IOT LAB	TE Comp-A	2.27	3	1.9
	TE Comp-B	2.5	3	2.2
C310253: Software Modeling and Design (SMD)	TE Comp-A	1.05	1.4	1.4
	TE Comp-B	1.6	0.3	1.6
	TE Comp-A	2.75	1.18	2.75

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C310254: Web Technology (WT) & C310256: WT LAB	TE Comp-B	3		3
C310255: Seminar and Technical Communication (STC)	TE Comp-A	3	1	3
	TE Comp-B	1		2
C310259: Audit Course-IV (AC- IV)	TE Comp A		1.83	2
	TE Comp B	3	1	3
C410241:High Performance Computing (HPC)	BE Comp-A	2.07	1.3	2.07
	BE Comp-B	1.6	1.07	1.6
C410242: Artificial Intelligence and Robotics (AIR)	BE Comp-A	1.78	1.78	2
	BE Comp-B	2.65	2.15	2.65
C410243: Data Analytics (DA)	BE Comp-A	0.77		2.3
	BE Comp-B	1.48		1.48
C410244D: Data Mining and Warehousing (DMW)	BE Comp-A	1.13	0.57	1.13
	BE Comp-B	2	1	3
C410244B Software Architecture and Design	BE Comp A&B	2		3
C410245B: Software Testing and Quality Assurance	BE Comp-A	1		1
	BE Comp-B	0.77		0.77
C410246: Laboratory Practices-I (LP-I)	BE Comp-A	1.8		3
	BE Comp-B	3	2	3
C410247: Laboratory Practices-II (LP-II)	BE Comp A&B	3	2.5	2.5
C410248: Project Work Stage-I	BE Comp A&B	2.33	2	1.5
C410249: Audit Course-V (AC-V)	BE Comp A&B	3	2.5	3
C410250: Machine Learning (ML)	BE Comp-A	1		3
	BE Comp-B	2	1	3
C410251: Information and Cyber Security (ICS)	BE Comp-A	2	1	2
	BE Comp-B	3	1	1.67
C410252B: Compilers	BE Comp A&B	1		1
C410252D: Soft Computing and Optimization Algorithms (SCOA)	BE Comp-A	1	1	2
	BE Comp-B	1	1	2
C410453B: Human Computer Interface (HCI)	BE Comp-A	1.4	1	1
	BE Comp-B	3	2	1
410254: Laboratory Practices-III (LP-III)	BE Comp-A	1.17		2.67
	BE Comp-B	2.5	1.67	2.5
410255: Laboratory Practices-IV	BE Comp A	3	2.5	2.5
	BE Comp B	3	2.5	2.5
410256: Project Work Stage-II	BE Comp A&B	2.33	2	1.5

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2.6 - Student Performance and Learning Outcomes

410257: Audit Course-VI (AC-VI)	BE Comp A&B	3	1	3
Direct Attainment		**2.05**	**1.45**	**1.98**
Indirect Attainment		**2.22**	**1**	**1.64**
Direct Attainment 80%		**1.64**	**1.16**	**1.58**
Indirect Attainment 20%		**0.44**	**0.2**	**0.33**
PO Attainment =80% of direct assessment + 20% of indirect assessment		**2.08**	**1.36**	**1.91**

Mrs Nikita Singhal

Criteria Incharge

Prof (Dr) SR Dhore

HoD Computer Engineering

ARMY INSTITUTE OF TECHNOLOGY Dept. of Comp. Engg. PUNE-15.

ARMY INSTITUTE OF TECHNOLOGY

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Department of Mechanical Engineering

251. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2022-23

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes

1 Describe the assessment processes used to gather the data upon which the evaluation of Course Outcome is based :

The following assessment processes are used to evaluate the course outcomes

Sr. No	Assessment Tool/ Process	Frequency
University Examination/External Assessment Tools		
1	In Sem. University Examination (30 Marks)	Once in a Semester
2	End Sem. University Examination (70 Marks)	Once in a Semester
3	University Practical Examination/Oral (25 or 50 marks)	Once in a Semester
Internal Assessment Tools		
4	Term Work (25 or 50 marks)	Once in a Semester
5	Class Test /Preliminary exam (20,30 or 70 marks)	Once in a Semester
6	Internal Oral (20/25/50 marks)	Through Out Semester

1. University Examination :

The major assessment process used to measure course outcome is university examination. This includes: theory exam, practical exam and oral exam. The average weightage for university examination is 70 %.

2. Internal Assessment :

The average weightage for internal assessment i.e. term work, class test, internal oral is 30 %.

.2 Record the attainment of Course Outcomes of all courses with respect to set attainment levels (40):

The following targets of attainment levels are set for course outcomes:

Sr. No.	Assessment Process	Attainment Level 1	Attainment Level 2	Attainment Level 3
1	***External Assessment*** University Examination (Theory, Oral and Practical)	60 % Students Scoring More than 60 % Marks	70 % Students Scoring More than 60 % Marks	80 % Students Scoring More than 60 % Marks
2	***Internal Assessment*** Term Work, Internal Oral, Class Test Assessment	60 % Students Scoring More than 60 % Marks	70 % Students Scoring More than 60 % Marks	80 % Students Scoring More than 60 % Marks

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2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes

Record the attainment of Course Outcomes of all courses with respect to set attainment level

SE MECH								
Course	**Code**	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**	**Avge**
Engg. Maths -III	C201	1.39	1.39	1.39	1.39	1.39	1.39	1.39
Manufacturing Process	C202	1.29	1.29	1.29	1.29	1.29	1.29	1.29
Solid modeling and drafting	C203	2.07	2.07	1.965	2.84	2.84	2.84	2.44
Engg. Thermodynamics	C204	0.64	0.8	0.64	0.64	0.53	0.53	0.63
Engg. Materials and Metallurgy	C205	3	3	3	3	3	3	3.00
Solid Mechanics	C206	0	0	0	0	1.7	1.7	0.57
Geometric Dimensioning and Tolerancing Lab	C207	3	3	3	3	3	3	3.00
Fluid Mechanics	C209	0.74	0.84	0.74	0.74	0.64	0.64	0.72
Kinematics of Machinery	C211	0.9	0.9	0.9	0.9	0.9	0.9	0.90
Applied Thermodynamics	C212	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Electrical and Electronics Engineering	C213	1.47	1.47	1.47	1.07	1.53	1.53	1.42
Machine Shop	C214	3	3	3	3	3	3	3.00
Project Based Learning - II	C215	2.11	2.11	2.11	2.11	2.11	2.11	2.11
TE MECH								
Design of Machine Elements	C301	0.78	0.78	0.78	0.78	0.78	0.68	0.76
Heat & mass Transfer	C302	0.83	1	0.83	1	0.78	0.78	0.87
Skill Development	C306	2.7	2.7	2.7	2.7	2.7	2.7	2.70
Numerical & Statistical Methods	C307	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Elective-1-Advanced Forming	C308	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Digital Manufacturing Laboratory	C309	2.7	2.7	2.7	2.7	2.7	2.7	2.70

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2.6 - Student Performance and Learning Outcomes

Mechatronics	C310	2.35	2.35	2.35	2.35	2.29	2.29	2.33
Artificial Itelligencs and Machine Learning	C312	2.3	2.3	2.3	2.3	2.3	2.3	2.30
Computer Aided Egieering	C313	2.7	2.7	2.7	2.7	2.7	2.7	2.70
Design of Transmission Systems	C314	0.53	0.53	0.53	0.53	0.51	0.51	0.52
Elective II-Surface Egineering	C315	1.85	1.85	1.85	1.85	1.85	1.85	1.85
Measuremet Laboratory	C316	0.9	0.9	0.9	0.9	0.9	0.9	0.90
Fluid Power Cotrol Laboratory	C317	2.95	2.95	2.95	2.95	2.95	2.95	2.95
MiniProject	C318	2.89	2.89	2.89	2.89	2.89	2.89	2.89
BE MECH								
Heating Ventilation Air-Conditioning and Refrigeration	C401	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Dynamics of Machinery	C402	0.9	0.9	0.9	0.9	0.9	0.9	0.90
Turbomachinery	C403	1.85	1.85	2	2.29	-	-	2.00
Elective-III-Industrial Engg.	C404	2.57	2.57	2.57	2.57	2.57	2.57	2.57
Elective-IV-Energy Audit and Management	C405	2.62	2.62	2.62	2.62	2.62	2.62	2.62
Data Analytics Laboratory	C406	3	3	3	3	3	3	3.00
Project-I	C407	2.95	2.95	2.95	2.95	2.95	2.95	2.95
Computer Integrated Manufacturing	C408	2.67	2.67	2.67	2.67	2.67	2.67	2.67
Energy Engineering	C409	2.45	2.6	2.45	2.45	2.45	2.45	2.48
Elective-V : Additive Manufacturing	C411	1.71	1.71	1.71	1.71	1.71	1.71	1.71
Elective-VI : Industrial Psychology and Organizational Behavior	C412	2.63	2.63	2.63	2.63	2.63	2.63	2.63
Mechaical Systems Aalysis Laboratory	C413	2.74	2.74	2.74	2.74	2.74	2.74	2.74
Project-II	C414	2.95	2.95	2.95	2.95	2.95	2.95	2.95

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

2. Attainment of Program Outcomes and Program Specific Outcomes

Describe Assessment Tools and Processes Used for Measuring Attainment of Each Program Outcomes and Program Specific Outcomes (10):

Assessment Tools / Processes Used:

The assessment tools / processes used for Assessing Attainment of Program Outcomes (Pos) are as follows:

Sr. No.	Assessment Tool / Process	Frequency
	Direct Assessment Tools	
1	University Examination In Sem Exam-30 marks, End Sem Exam-70 marks	**Once in a Semester**
2	University Practical Examination/Oral (25 or 50 marks)	**Once in a Semester**
3	Internal (Term work) Assessment (25 or 50 marks)	**Once in a Semester**
4	Class Test (30 or 70 marks)	**Once in a semester**
5	Internal Oral (20/25/50 marks)	**Continuous Assessment**
	Indirect Assessment Tools	
6	Students Exit Feedback	**Once in Year**
7	Feedback from Industry	**Once in Year**
8	Feedback from Alumni	**Once in Year**
9	Placement	**Once in Year**

Assessment Tools and Processes Used for Measuring Attainment of Each Program Outcomes:

Table below indicates the assessment processes / tools used for measuring attainment of each program outcome:

Sr. No.	Program Outcomes	Direct Assessment Tools	Indirect Assessment Tools
1	Engineering knowledge	1,2,3,4,5	6,7,8,9
2	Problem analysis	1,2,3,4,5	6,7,8,9
3	Design/development of solutions	1,2,3,4,5	6,7,8,9
4	Conduct investigations of complex problems	1,2,3,4,5	6,7,8,9
5	Modern tool usage	1,2,3,4,5	6,7,8,9
6	The engineer and society	1,2,3,4,5	6,7,8,9
7	Environment and sustainability	1,2,3,4,5	6,7,8,9
8	Ethics	1,2,3,4,5	6,7,8,9
9	Individual and team work	1,2,3,4,5	6,7,8,9
10	Communication:	1,2,3,4,5	6,7,8,9
11	Project management and finance:	1,2,3,4,5	6,7,8,9
12	Life-long learning	1,2,3,4,5	6,7,8,9

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

Assessment Tools and Processes Used for Measuring Attainment of Each Program Specific Outcomes:

Table below indicates the assessment processes / tools used for measuring attainment of each program specific outcome:

AY 2022-23

Sr. No.	Program Specific Outcomes	Direct Assessment Tools	Indirect Assessment Tools
PSO1	Ability to identify, formulate and solve real world engineering problems in three core streams of Mechanical Engineering namely, Design engineering, Thermal-fluids engineering and Manufacturing engineering	1,2,3,4,5	6,7,8,9
PSO2	Ability to design, develop and test a cost effective and efficient system(s) for engineering application from concept to manufacture	1,2,3,4,5	6,7,8,9
PSO3	Utilize industry oriented software tools using Virtual and Robust engineering methods to design, optimize and develop product	1,2,3,4,5	6,7,8,9
PSO4	Provide a platform to generate interest in futuristic areas such as Electrical Vehicles, Systems Engineering, Artificial Intelligence and Machine Learning, Energy Management, Additive Manufacturing and Automation	1,2,3,4,5	6,7,8,9

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2.6 - Student Performance and Learning Outcomes

Provide results of evaluation of PO&PSO

A. PO Attainment

Academic Year : 2022-23

SE MECH

Subject	code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Engg. Maths -III	C201	0.9	0.9	0.6	0.55	0.3	0.36	0.3	-	-	-	0.9	0.6
Manufacturing Process	C202	-	-	-	-	-	-	-	-	-	-	-	-
Solid modeling and drafting	C203	3	3	3	1	1.83	1.75	2	1	1	0.67	0.83	1.25
Engg. Thermodynamics	C204	-	-	-	-	-	-	-	-	-	-	-	-
Engg. Materials and Metallurgy	C205	2	2.33	1.83	2	2.67	1.17	0.5	1.17	1.17	0.5	0.67	1
Solid Mechanics	C206	-	-	-	-	-	-	-	-	-	-	-	-
Geometric Dimensioning and Tolerancing Lab	C207	2	1.8	2.75	2.25	2	1.66	1.8	1	2.66	2	1.5	1
Fluid Mechanics	C209	2.33	2.17	2.5	2.67	2.33	2.33	2.33	1.83	1.67	2	2.33	2.67
Kinematics of Machinery	C211	0.6	0.54	0.83	0.68	0.6	0.5	0.54	0.3	0.8	0.6	0.45	0.3
Applied Thermodynamics	C212	0.9	0.9	0.6	0.3	0.6	-	0.3	-	0.4	0.75	-	0.3
Electrical and Electronics Engineering	C213	1.8	1.8	1.5	1.59	0.6	0.81	0.6	0.6	1.2	1.2	0.6	0.99
Machine Shop	C214	3	0.9	0.6	0.3	0.6		0.3		0.4	0.75		0.3
Project Based Learning - II	C215	1.4	1.4	1.05	1.17	1.52	0.82	0.88	1.23	0.82	0.7	0.7	0.7

ARMY INSTITUTE OF TECHNOLOGY
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PUNE-15

2.6 - Student Performance and Learning Outcomes

TE(Mech)

Subject	code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Design of Machine Elements	C301	-	-	-	-	-	-	-	-	-	-	-	-
Heat & mass Transfer	C302	-	-	-	-	-	-	-	-	-	-	-	-
Skill Development	C306	0.9	0.9	0.5	0.35	0.54	0.3	0.3	0.3	0.3	0.83	-	0.3
Numerical & Statistical Methods	C307	2.7	2.7	2.25	2.4	0.6	1.2	0.9	0.9	1.8	1.8	0.9	1.5
Elective-1-Advanced Forming & Joining Processes	C308	0	0	0	0	0	0	0	0	0	0	0	0
Digital Manufacturing Laboratory	C309	0.9	0.9	0.5	0.35	0.54	0.3	0.3	0.3	0.3	0.83	-	0.3
Mechatronics	C310	1.51	1.51	1.42	1.28	0.53	0.53	-	-	-	-	-	1.07
Artificial Itelligencs and Machine Learning	C312	0.9	0.85	0.8	0.75	0.9	0.65	0.45	0.7	0.4	0.6	0.7	0.9
Computer Aided Egieering	C313	0.8	0.85	0.8	0.75	0.9	0.65	0.45	0.7	0.4	0.6	0.7	0.9
Design of Transmission Systems	C314	2.5	2.5	2.5	2.5	1.5	1	2	1.67	1	1	1	1
Elective II-Surface Egineering	C315	0.47	0.47	0.7	0.47	0.7	0.35	0.47	0.23	0.23	0.7	0.35	0.23
Measuremet Laboratory	C316	0.9	0.9	0.84	0.5	0.9	0.3	0.3	0.3	0.9	0.9	-	0.9
Fluid Power Cotrol Laboratory	C317	3	2.67	2.67	2.17	1.75	1	1	-	1	1	-	2
MiniProject	C318	2.00	2.00	2.00	2.00	1.50	1.25	-	1.67	2	2	-	1.83

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2.6 - Student Performance and Learning Outcomes

BE(Mech)													
Subject	code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Heating Ventilation Air-Conditioning	C401	2.7	2.7	2.25	2.4	0.9	1.2	0.9	0.9	1.8	1.8	0.9	1.5
Dynamics of Machinery	C402	0.9	0.85	0.5	0.6	0.8	0.75	0.5	0.3	0.3	0.3	-	0.3
Turbomachinery	C403	1.6	1.6	1.33	1.07	0.53	0.53	0.53	0.53	0.53	0.53	0.53	1.07
Elective-III-Industrial Engg.	C404	1.99	1.65	1.82	1.82	1.98	1.32	1.98	1.80	1.32	1.32	1.64	1.67
Elective-IV-Energy Audit and	C405	3	3	2.5	1.67	1	1	1.25	1	1	1	2	2
Data Analytics Laboratory	C406	3	3	3	3	3	3	3	3	3	3	3	3
Project-I	C407	3	3	3	3	3	3	3	3	3	3	3	3
Computer Integrated Manufacturing	C408	2.67	2.83	1.67	2	2.67	2.5	1.67	1	1	1	-	1
Energy Engineering	C409	3	3	2	1	1	3	2	3	2	3	0.5	3
Elective-V : Additive Manufacturing	C411	0	0	0	0	0	0	0	0	0	0	0	0
Elective-VI : Industrial Psychology and	C412	1.4	0.7	1.75	1.4	1.75	1.4	1.05	0.7	0.7	1.75	1.05	1.05
Mechaical Systems Aalysis Laboratory	C413	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Project-II	C414	3	3	3	3	3	3	3	3	3	3	3	3
Direct Attainment		1.49	1.46	1.26	1.16	0.95	0.92	0.85	1.06	1.10	1.19	1.05	1.09
Indirect Attainment		2.54	2.61	2.56	2.43	2.39	2.25	2.43	2.80	2.76	2.55	2.27	2.59
Direct Attainment 80%		1.192	1.168	1.008	0.928	0.76	0.736	0.68	0.848	0.88	0.952	0.84	0.872
Indirect Attainment 20%		0.508	0.522	0.512	0.486	0.478	0.45	0.486	0.56	0.552	0.51	0.454	0.518
PO Attainment =80% of direct assessment + 20% of indirect assessment		1.7	1.69	1.52	1.414	1.238	1.186	1.166	1.408	1.432	1.462	1.294	1.39

ARMY INSTITUTE OF TECHNOLOGY
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2.6 - Student Performance and Learning Outcomes

Provide results of evaluation of PO&PSO

B PSO Attainment

Academic Year : 2022-23

SE MECH

Subject	Code	PSO1	PSO2	PSO3	PSO4
Engg. Maths -III	C201	0.90	0.60	0.60	0.30
Manufacturing Process	C202	-	-	-	-
Solid modeling and drafting	C203	2.5	2.5	2.2	2.25
Engg. Thermodynamics	C204	-	-	-	-
Engg. Materials and Metallurgy	C205	3	1	3	1
Solid Mechanics	C206	2.67	1.83	1.17	-
Geometric Dimensioning and Tolerancing Lab	C207	2.67	2.33	3	1.33
Fluid Mechanics	C209	0.75	0.75	0.66	0.68
Kinematics of Machinery	C211	0.9	0.5	0.3	-
Applied Thermodynamics	C212	1.8	1.5	0.6	0.81
Electrical and Electronics Engineering	C213	0.8	0.36	0.3	0.3
Machine Shop	C214	1.75	0.7	1.4	0.7
Project Based Learning - II	C215	0.5	0.5	0.44	0.45

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2.6 - Student Performance and Learning Outcomes

TE MECH					
Design of Machine Elements	C301	-	-	-	-
Heat & mass Transfer	C302	-	-	-	-
Skill Development	C306	3	1.4	2.33	2
Numerical & Statistical Methods	C307	2.7	2.25	0.9	1.2
Elective-1-Advanced Forming & Joining Processes	C308	0	0	0	0
Digital Manufacturing Laboratory	C309	3	1.4	2.33	2
Mechatronics	C310	1.42	1.42	0.53	0.53
Artificial Itelligencs and Machine Learning	C312	2.67	2.33	3	1.33
Computer Aided Egieering	C313	2.67	2.33	3	1.33
Design of Transmission Systems	C314	2.67	2.5	1	1
Elective II-Surface Egineering	C315	0.58	0.58	0.58	0.58
Measuremet Laboratory	C316	0.90	0.42	0.70	0.60
Fluid Power Cotrol Laboratory	C317	2.5	2.5	1.25	1
MiniProject	C318	2.00	2.00	1.17	-
BE MECH					
Heating Ventilation Air-Conditioning and Refrigeration	C401	2.7	2.25	0.9	1.2
Dynamics of Machinery	C402	0.9	0.3	0.65	-
Turbomachinery	C403	1.6	1.6	0.53	-
Elective-III-Industrial Engg.	C404	2.66	1.98	1.98	1.31

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Elective-IV-Energy Audit and Management	C405	2.33	1.8	1	1
Data Analytics Laboratory	C406	3	3	3	3
Project-I	C407	3	3	3	3
Computer Integrated Manufacturing	C408	3	1	2.17	-
Energy Engineering	C409	3	3	1	2.67
Elective-V : Additive Manufacturing	C411	0	0	0	0
Elective-VI : Industrial Psychology and	C412	1.75	1.75	1.75	1.4
Mechaical Systems Aalysis Laboratory	C413	2.3	2.3	2.3	2.3
Project-II	C414	3	3	3	3
Direct Attainment		1.99	1.57	1.44	1.28
Indirect Attainment		3.00	3.00	2.67	2.33
Direct Attainment 80%		1.592	1.256	1.152	1.024
Indirect Attainment 20%		0.6	0.6	0.534	0.466
PSO Attainment =80% of direct assessment + 20% of indirect assessment		2.192	1.856	1.686	1.49

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ARMY INSTITUTE OF TECHNOLOGY

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Department of Mechanical Engineering

263. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2021-22

2.6 - Student Performance and Learning Outcomes

1. Attainment of Course Outcomes

Describe the assessment processes used to gather the data upon which the evaluation of Course Outcome is based :

The following assessment processes are used to evaluate the course outcomes

Sr. No	Assessment Tool/ Process	Frequency
University Examination/External Assessment Tools		
1	In Sem. University Examination (30 Marks)	Once in a Semester
2	End Sem. University Examination (70 Marks)	Once in a Semester
3	University Practical Examination/Oral (25 or 50 marks)	Once in a Semester
Internal Assessment Tools		
4	Term Work (25 or 50 marks)	Once in a Semester
5	Class Test /Preliminary exam (20,30 or 70 marks)	Once in a Semester
6	Internal Oral (20/25/50 marks)	Through Out Semester

1. University Examination :

The major assessment process used to measure course outcome is university examination. This includes: theory exam, practical exam and oral exam. The average weightage for university examination is 70 %.

2. Internal Assessment :

The average weightage for internal assessment i.e. term work, class test, internal oral is 30 %.

Record the attainment of Course Outcomes of all courses with respect to set attainment levels

The following targets of attainment levels are set for course outcomes:

Sr. No.	Assessment Process	Attainment Level 1	Attainment Level 2	Attainment Level 3
1	***External Assessment*** University Examination (Theory, Oral and Practical)	60 % Students Scoring More than 60 % Marks	70 % Students Scoring More than 60 % Marks	80 % Students Scoring More than 60 % Marks
2	***Internal Assessment*** Term Work, Internal Oral, Class Test Assessment	60 % Students Scoring More than 60 % Marks	70 % Students Scoring More than 60 % Marks	80 % Students Scoring More than 60 % Marks

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes

Record the attainment of Course Outcomes of all courses with respect to set attainment level

SE MECH								
Course	**Code**	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**	**Avge**
Engg. Maths -III	C201	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Solid modeling and drafting	C203	2.79	2.89	2.79	3.00	3.00	3.00	2.91
Engg. Thermodynamics	C204	2.84	2.84	2.84	2.84	2.84	2.84	2.84
Engg. Materials and Metallurgy	C205	3	3	3	3	3	3	3.00
Solid Mechanics	C206	2.63	2.63	2.63	2.63	2.53	2.53	2.60
Geometric Dimensioning and Tolerancing Lab	C207	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Audit course –III	C208	2.63	2.63	-	-	-	-	2.63
Electrical and Electronics Engineering	C213	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Fluid mechanics	C209	1.67	1.81	1.67	1.52	1.37	1.32	1.495
Kinematics of Machinery	C211	1.55	1.55	1.55	1.55	1.39	1.39	1.47
Applied Thermodynamics	C212	0.47	0.47	0.52	0.47	0.36	0.32	0.395
Project Based Learning-II	C215	1.78	1.78	1.78	1.78	1.78	1.78	1.78
Audit Course –IV	C216	2.57	2.57	-	-	-	-	
TE MECH								
Design of Machine Elements	C301	2.75	2.75	2.75	2.75	2.75	2.75	2.75
Heat & mass Transfer	C302	2.75	2.75	2.75	2.75	2.75	2.75	2.75
Skill Development	C306	2.50	2.50	2.50	2.06	2.06	2.06	2.28
Numerical & Statistical Methods	C307	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Advanced Forming & Joining Processes	C308	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Digital Manufacturing Laboratory	C309	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Mechatronics	C313	2.95	2.95	2.95	2.95	2.95	2.95	2.95
Audit Course-V	C321	2.58	2.58	-	-	-	-	2.58
Design of Transmission systems	C311	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Artificial Intelligence &Machine Learning	C316	2.52	2.57	2.57	2.73	2.73	2.57	2.54
Computer Aided Engineering	C317	0.93	0.93	0.93	093	0.81	0.81	0.87

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

Surface Engineering	C318	1.77	1.77	1.77	1.77	1.77	1.77	1.77
Measurement Laboratory	C319	2.89	2.89	2.89	2.89	2.89	2.89	2.89
Fluid Power &Control Laboratory	C320	1.86	1.86	1.86	1.86	1.86	1.86	1.86
Internship/Mini project	C321	1.39	1.39	1.39	1.39	1.39	1.39	1.39
Audit course – VI	C322	2.57	2.57	-	--	-	-	2.57
BE MECH								
Hydraulics and Pneumatics	C401	3.00	3.00	3.00	2.40	2.75	2.75	2.82
CAD CAM Automation	C402	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Dynamics of Machinery	C403	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Elective-I : CFD	C404	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Elective-I : FEA	C405	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Elective-II Automobile Engineering	C406	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Project-I	C407	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Energy Engineering	C408	2.65	2.65	2.65	2.65	2.65	2.65	2.65
Mechanical System Design	C409	1.71	1.61	1.71	1.71	1.71	1.71	1.7
Elective-III : Industrial Engineering	C411	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Elective-IV: Advanced Manufacturing Processes	C412	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Elective-IV: Solar and Wind Energy	C413	2.57	2.57	2.57	2.57	2.57	2.57	2.57
Project-II	C414	3.00	3.00	3.00	3.00	3.00	3.00	3.00

2 Attainment of Program Outcomes and Program Specific Outcomes

Describe Assessment Tools and Processes Used for Measuring Attainment of Each Program Outcomes and Program Specific Outcomes (10):

Assessment Tools / Processes Used:

The assessment tools / processes used for Assessing Attainment of Program Outcomes (Pos) are as follows:

Sr. No.	Assessment Tool / Process	Frequency
	Direct Assessment Tools	
1	University Examination In Sem Exam-30 marks, End Sem Exam-70 marks	**Once in a Semester**
2	University Practical Examination/Oral (25 or 50 marks)	**Once in a Semester**
3	Internal (Term work) Assessment (25 or 50 marks)	**Once in a Semester**
4	Class Test (30 or 70 marks)	**Once in a semester**
5	Internal Oral (20/25/50 marks)	**Continuous Assessment**
	Indirect Assessment Tools	

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

6	Students Exit Feedback	**Once in Year**
7	Feedback from Industry	**Once in Year**
8	Feedback from Alumni	**Once in Year**
9	Placement	**Once in Year**

Assessment Tools and Processes Used for Measuring Attainment of Each Program Outcomes:

Table below indicates the assessment processes / tools used for measuring attainment of each program outcome:

Sr. No.	Program Outcomes	Direct Assessment Tools	Indirect Assessment Tools
1	Engineering knowledge	1,2,3,4,5	6,7,8,9
2	Problem analysis	1,2,3,4,5	6,7,8,9
3	Design/development of solutions	1,2,3,4,5	6,7,8,9
4	Conduct investigations of complex problems	1,2,3,4,5	6,7,8,9
5	Modern tool usage	1,2,3,4,5	6,7,8,9
6	The engineer and society	1,2,3,4,5	6,7,8,9
7	Environment and sustainability	1,2,3,4,5	6,7,8,9
8	Ethics	1,2,3,4,5	6,7,8,9
9	Individual and team work	1,2,3,4,5	6,7,8,9
10	Communication:	1,2,3,4,5	6,7,8,9
11	Project management and finance:	1,2,3,4,5	6,7,8,9
12	Life-long learning	1,2,3,4,5	6,7,8,9

Assessment Tools and Processes Used for Measuring Attainment of Each Program Specific Outcomes:

Table below indicates the assessment processes / tools used for measuring attainment of each program specific outcome:

AY 2021-22

Sr. No.	Program Specific Outcomes	Direct Assessment Tools	Indirect Assessment Tools
PSO1	Ability to identify, formulate and solve real world engineering problems in three core streams of Mechanical Engineering namely, Design engineering, Thermal-fluids engineering and Manufacturing engineering	1,2,3,4,5	6,7,8,9
PSO2	Ability to design, develop and test a cost effective and efficient system(s) for engineering application from concept to manufacture	1,2,3,4,5	6,7,8,9
PSO3	Utilize industry oriented software tools using Virtual and Robust engineering methods to design, optimize and develop product	1,2,3,4,5	6,7,8,9

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

PSO4	Provide a platform to generate interest in futuristic areas such as Electrical Vehicles, Systems Engineering, Artificial Intelligence and Machine Learning, Energy Management, Additive Manufacturing and Automation	1,2,3,4,5	6,7,8,9

ARMY INSTITUTE OF TECHNOLOGY
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2.6 - Student Performance and Learning Outcomes

Provide results of evaluation of PO&PSO

Academic Year : 2021-22

SE MECH

Subject	code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Engineering Mathematics-III	C201	3.00	3.00	1.00	1.00	2.00	-	-	1.00	-	2.00	-	3.00
Solid modeling and drafting	C203	3.00	3.00	3.00	1.00	1.83	1.75	2.00	1.00	1.00	0.67	0.83	1.25
Engg. Thermodynamics	C204	3.00	2.20	1.50	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.66
Engg. Materials and Metallurgy	C205	2.83	2.00	2.33	2.33	1.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Solid Mechanics	C206	2.10	1.80	2.70	2.25	2.10	1.26	1.20	0.90	1.20	1.80	0.90	0.90
Geometric Dimensioning and Tolerancing Lab	C207	0.90	0.90	0.90	0.55	0.90	0.30	0.30	0.45	0.38	0.60	0.30	0.42
Audit course -III	C208	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.60	0.30	0.50
Electrical and Electronics Engineering	C213	2.33	2.00	3.0 0	2.50	2.33	1.75	1.17	1.00	1.50	1.00	1.50	1.00
Fluid Mechanics	C209	0.60	0.54	0.83	0.68	0.60	0.50	0.54	0.30	0.80	0.60	0.45	0.30
Kinematics of Machinery	C211	3.00	0.90	0.60	0.30	0.60	-	0.30	-	0.40	0.75	-	0.30
Applied Thermodynamics	C212	0.90	0.90	0.75	0.80	0.30	0.40	0.30	0.30	0.60	0.60	0.30	0.50
Project Based Learning - II	C215	0.30	0.28	0.27	0.25	0.12	0.17	0.10	0.15	0.13	0.13	0.10	0.17
Audit Course - IV	C216	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.50

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

TE(Mech)

Subject	code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Design of Machine Elements	C301	1.40	1.26	1.93	1.58	1.40	1.16	1.26	0.70	1.86	1.40	1.05	0.70
Heat Transfer	C302	2.00	1.80	2.75	2.25	2.00	1.66	1.80	1.00	2.66	2.00	1.50	1.00
Skill Development	C306	1.53	1.38	2.11	1.73	1.53	1.27	1.38	0.77	2.04	1.53	1.15	0.77
Numerical & Statistical Method	C307	2.17	1.67	2.50	2.17	2.00	2.00	1.67	2.00	2.17	2.33	1.83	1.00
Advanced Forming & Joining Processes	C308	1.40	1.26	1.93	1.58	1.40	1.16	1.26	0.70	1.86	1.40	1.05	0.70
Digital Manufacturing Laboratory	C309	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
Mechatronics	C313	2.70	2.70	2.25	1.80	1.13	1.20	0.90	0.00	0.00	0.00	0.00	1.80
Audit Course V	C322	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.60	0.30	0.50
Design of Transmission systems	C311	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Artificial Intelligence &Machine Learning	C316	0.90	0.75	0.75	0.90	0.75	0.65	0.45	0.30	0.90	0.30	0.10	0.90
Computer Aided Engineering	C317	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Engineering	C318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Measurement Laboratory	C319	0.90	0.90	0.50	0.35	0.54	0.30	0.30	0.30	0.30	0.83	-	0.30
Fluid Power &Control Laboratory	C320	0.20	0.18	0.28	0.23	0.20	0.17	0.18	0.10	0.27	0.20	0.15	0.10
Internship/Mini project	C321	0.55	0.55	0.55	0.50	0.25	0.20	0.00	0.20	0.15	0.15	0.00	0.50
Audit course - VI	C322	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.60	0.30	0.50

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

BE(Mech)													
Subject	code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Hydraulics and Pneumatics	C401	2.10	2.10	2.10	1.63	1.05	0.93	0.70	0.00	0.70	0.70	0.23	1.40
CAD CAM Automation	C402	3.00	3.00	3.00	2.80	3.00	2.67	3.00	3.00	3.00	1.00	2.00	3.00
Dynamics of Machinery	C403	3.00	2.83	1.67	2.00	2.67	2.50	1.67	1.00	1.00	1.00	-	1.00
Elective-I : CFD	C404	3.00	1.60	1.00	1.30	2.60	1.00	1.00	1.00	1.00	2.00	1.00	3.00
Elective-I : FEA	C405	2.10	1.98	2.10	1.98	2.10	0.70	0.93	1.63	-	1.28	1.52	2.10
Elective-II Automobile Engineering	C406	1.40	1.26	1.93	1.58	1.40	1.16	1.26	0.70	1.86	1.40	1.05	0.70
Project-I	C407	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Energy Engineering	C408	2.30	2.30	1.53	0.77	0.77	2.30	1.53	2.30	1.53	2.30	0.38	2.30
Mechanical System Design	C409	0.23	0.17	0.25	0.23	0.20	0.20	0.17	0.20	0.20	0.22	0.17	0.10
Elective-III : Industrial Engg	C411	1.60	1.44	2.20	1.80	1.60	1.33	1.44	0.80	2.13	1.60	1.20	0.80
Advanced Manufacturing Processes	C412	3.00	2.66	2.33	2.83	1.82	1.66	1.66	1.66	2.33	3.00	3.00	3.00
Solar and Wind Energy	C413	2.10	1.40	1.17	1.17	0.70	0.70	0.70	0.00	0.00	0.70	0.70	1.17
Project-II	C414	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Direct Attainment		1.59	1.38	1.36	1.22	1.18	1.01	0.96	0.80	1.03	1.04	0.86	1.07
Indirect Attainment		2.33	2.33	2.83	2.83	2.33	2.67	2.33	2.33	2.33	2.33	2.17	2.33
Direct Attainment 80%		1.27	1.10	1.09	0.97	0.94	0.81	0.77	0.64	0.82	0.83	0.68	0.85
Indirect Attainment 20%		0.47	0.47	0.57	0.57	0.47	0.53	0.47	0.47	0.47	0.47	0.43	0.47
PO Attainment =80% of direct assessment + 20% of indirect assessment		1.74	1.57	1.66	1.54	1.41	1.34	1.24	1.11	1.29	1.3	1.11	1.32

ARMY INSTITUTE OF TECHNOLOGY * PUNE-15 * Dept. of Mechanical Engg.

2.6 - Student Performance and Learning Outcomes

Provide results of evaluation of PO&PSO

Academic Year : 2021-22

SE MECH

Subject	Code	PSO1	PSO2	PSO3	PSO4
Engg. Maths-III	C201	3.00	1.00	-	1.00
Solid modeling and drafting	C203	2.50	2.50	2.20	2.25
Engg. Thermodynamics	C204	2.60	2.00	1.00	2.00
Engg. Materials and Metallurgy	C205	2.50	2.50	2.20	2.25
Solid Mechanics	C206	2.40	1.13	0.90	1.62
Geometric Dimensioning	C207	0.75	0.75	0.66	0.68
Audit course -III	C208	0.30	0.30	0.30	0.30
Electrical and Electronics Engineering	C213	2.67	2.00	1.33	1.00
Fluid Mechanics	C209	0.75	0.75	0.66	0.68
Kinematics of Machinery	C211	0.90	0.50	0.30	-
Applied Thermodynamics	C212	0.90	0.75	0.30	0.40
Project Based Learning - II	C215	0.30	0.22	0.15	0.22
Audit Course - IV	C216	0.30	0.30	0.30	0.30
TE MECH					
Design of Machine Elements	C301	1.75	1.75	1.54	1.58

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2.6 - Student Performance and Learning Outcomes

Heat Transfer	C302	2.50	2.50	2.20	2.25
Skill Development	C306	2.50	2.50	2.20	2.25
Numerical & Statistical Method	C307	2.17	2.50	2.67	2.17
Advanced Forming & Joining Processes	C308	1.75	1.75	1.54	1.58
Digital Manufacturing Laboratory	C309	0.00	0.00	0.00	0.00
Mechatronics	C313	2.70	1.95	0.60	0.30
Audit Course V	C322	0.30	0.30	0.30	0.30
Design of Transmission systems	C311	0.00	0.00	0.00	0.00
Artificial Intelligence &Machine Learning	C316	0.75	0.75	0.66	0.68
Computer Aided Engineering	C317	0.00	0.00	0.00	0.00
Surface Engineering	C318	0.00	0.00	0.00	0.00
Measurement Laboratory	C319	0.90	0.42	0.70	0.60
Fluid Power &Control Laboratory	C320	0.25	0.25	0.22	0.23
Internship/Mini project	C321	0.55	0.55	0.55	0.50
Audit course - VI	C322	0.30	0.30	0.30	0.30
BE MECH					
Hydraulics and Pneumatics	C401	2.10	2.10	0.93	1.17
CAD CAM Automation	C402	2.50	2.50	2.20	2.25
Dynamics of Machinery	C403	3.00	1.00	2.17	-
Elective-I : CFD	C404	3	2	3	2
Elective-I : FEA	C405	2.10	1.40	2.10	0.70
Elective-II Automobile Engineering	C406	1.75	1.75	1.54	1.58

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

Project-I	C407	3.00	3.00	3.00	3.00
Energy Engineering	C408	2.30	2.30	0.77	2.04
Mechanical System Design	C409	0.22	0.25	0.27	0.22
Elective-III : Industrial Engineering	C411	2.00	2.00	1.76	1.80
Elective-IV: Advanced Manufacturing Processes	C412	3.00	2.83	1.83	1.83
Elective-IV: Solar and Wind Energy	C413	2.10	1.28	0.70	0.70
Project-II	C414	3.00	3.00	3.00	3.00
Direct Attainment		1.58	1.32	1.15	1.14
Indirect Attainment		2.50	2.50	2.67	2.33
Direct Attainment 80%		1.26	1.06	0.92	0.91
Indirect Attainment 20%		0.50	0.50	0.53	0.47
PSO Attainment =80% of direct assessment + 20% of indirect assessment		1.76	1.56	1.45	1.38

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Department of Mechanical Engineering

275. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2020-21

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

The following assessment processes are used to evaluate the course outcomes

Sr. No	Assessment Tool/ Process	Frequency
	University Examination/External Assessment Tools	
1	In Sem. University Examination (30 Marks)	Once in a Semester
2	End Sem. University Examination (70 Marks)	Once in a Semester
3	University Practical Examination/Oral (25 or 50 marks)	Once in a Semester
	Internal Assessment Tools	
4	Term Work (25 or 50 marks)	Once in a Semester
5	Class Test /Preliminary exam (20,30 or 70 marks)	Once in a Semester
6	Internal Oral (20/25/50 marks)	Through Out Semester

1. University Examination :

The major assessment process used to measure course outcome is university examination. This includes: theory exam, practical exam and oral exam. The average weightage for university examination is 70 %.

2. Internal Assessment :

The average weightage for internal assessment i.e. term work, class test, internal oral is 30 %.

Record the attainment of Course Outcomes of all courses with respect to set attainment levels

The following targets of attainment levels are set for course outcomes:

Sr. No.	Assessment Process	Attainment Level 1	Attainment Level 2	Attainment Level 3
1	***External Assessment*** University Examination (Theory, Oral and Practical)	60 % Students Scoring More than 60 % Marks	70 % Students Scoring More than 60 % Marks	80 % Students Scoring More than 60 % Marks
2	***Internal Assessment*** Term Work, Internal Oral, Class Test Assessment	60 % Students Scoring More than 60 % Marks	70 % Students Scoring More than 60 % Marks	80 % Students Scoring More than 60 % Marks

Mechanical Engg. Department

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2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment:

70% of University level + 30% of Internal level

Academic Year 2020-21

FE MECH							
Course	**Code**	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**
107001 Engineering Mathematics I	C101	2.95	2.95	2.95	2.95	0.25	0.25
107002 Engineering Physics	C102	2.96	2.96	2.96	2.96	2.96	2.96
103004 Basic Electrical Engineering	C104	2.96	2.96	2.96	2.96	2.96	2.96
102003 Systems in Mechanical Engineering	C113	1.95	1.95	1.95	1.95	1.95	1.95
110013 Project Based Learning	C115	2.96	2.96	2.96	-	-	-
111006 Workshop Practices	C107	1	1	1	1	1	1
107008 Engineering Mathematics II	C108	0.25	0.25	2.95	2.95	2.95	2.95
107009 Engineering Chemistry	C109	2.96	2.96	2.96	2.96	2.96	2.96
110005 Programming and problem solv	C103	2.96	2.96	2.96	2.96	2.96	2.96
101011 Engineering Mechanics	C111	2.96	2.96	2.96	2.96	2.96	2.96
104010 Basic Electronics Engineering	C112	2.95	2.95	2.95	2.95	2.95	2.95
102014 Engineering Graphics	C106	1	1	1	1	1	0.984
SE MECH							
Course	Code	CO1	CO2	CO3	CO4	CO5	CO6
Engg. Maths -III	C201	2.601	2.601	2.601	2.601	2.601	2.601
Manufacturing Process-I	C202	2.85	2.85	2.85	2.85	2.85	2.85
Computer Aided Machine Drawing	C203	3	3	3	3	3	3
Solid Modeling and Drafting	C203	3	3	3	3	3	3
Thermodynamics	C204	2.95	2.95	2.95	2.95	2.95	2.95
Material Science	C205	3	3	3	3	3	3
Strength of Materials	C206	2.63	2.63	2.63	2.63	2.58	2.58
Audit course III /Audit course IV	C208	2.58	2.58	-	-	-	-
Fluid mechanics	C209	3	3	3	3	3	3
Kinematics of Machinery	C211	2.95	2.95	2.95	2.95	2.95	2.95
Applied Thermodynamics	C212	2.95	2.95	2.95	2.95	2.95	2.95
Electrical and Electronics Engineering	C213	3	3	3	3	3	3
Machine Shop-1	C214	3	3	3	3	3	3
Project Based Learning-II	C215	3	3	3	3	3	3
TE(Mech)							
Course	**Code**	CO1	CO2	CO3	CO4	CO5	CO6
Design of Machine Elements-I	C301	2.952	2.952	2.952	2.952	2.952	2.952

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2.6 - Student Performance and Learning Outcomes

Heat Transfer	C302	3	3	3	3	3	3
Theory of Machines-II	C303	3	3	3	3	3	3
Turbo Machines	C304	3	3	3	3	3	3
Metrology and Quality Control	C305	3	3	3	3	3	3
Skill Development	C306	3	3	3	3	3	3
Numerical Methods and Optimization	C307	3	3	3	3	3	3
Design of Machine Elements-II	C311	3	3	3	3	3	3
Refrigeration and Air Conditioning	C312	2.95	2.95	2.95	2.95	2.95	2.95
Mechatronics	C313	3	3	3	3	3	3
Manufacturing -Process-II	C314	2.952	2.952	2.952	2.952	2.952	2.952
Machine Shop-II	C315	3	3	3	3	3	3
Seminar	C321	2.6	2.6	2.6	2.6	2.6	2.6
Audit Course	C322	2.79	2.79	2.79	2.79	2.79	2.79
BE(Mech)							
Course	**Code**	CO1	CO2	CO3	CO4	CO5	CO6
Hydraulics and Pneumatics	C401	3	3	3	3	3	3
CAD CAM Automation	C402	3	3	3	3	3	3
Dynamics of Machinery	C403	2.95	2.95	2.95	2.95	2.95	2.95
Elective-I : CFD	C404	3	3	3	3	3	3
Elective-I : FEA	C405	3	3	3	3	3	3
Elective-II Automobile Engineering	C406	2.73	2.62	2.62	2.62	2.62	2.62
Project-I	C407	2.334	2.334	2.334	2.334	2.334	2.334
Energy Engineering	C408	3	3	3	3	3	3
Mechanical System Design	C409	2.95	2.95	2.95	2.95	2.95	2.95
Elective-III : Tribology	C410	3	3	3	3	3	3
Elective-III : Industrial Engineering	C411	2.73	2.62	2.62	2.62	2.62	2.62
Elective-IV: Advanced Manufacturing Processes	C412	3	3	3	3	3	3
Elective-IV: Solar and Wind Energy	C413	3	3	3	3	3	3
Project-II	C414	2.763	2.763	2.763	2.763	2.763	2.763

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2.6 - Student Performance and Learning Outcomes

.2 Attainment of Program Outcomes and Program Specific Outcomes

Assessment Tools / Processes Used:
The assessment tools / processes used for Assessing Attainment of Program Outcomes (POs) are as follows:

Sr. No.	Assessment Tool / Process	Frequency
	Direct Assessment Tools	
1	University Examination In Sem Exam-30 marks, End Sem Exam-70 marks	**Once in a Semester**
2	University Practical Examination/Oral (25 or 50 marks)	**Once in a Semester**
3	Internal (Term work) Assessment (25 or 50 marks)	**Once in a Semester**
4	Class Test (30 or 70 marks)	**Once in a semester**
5	Internal Oral (20/25/50 marks)	**Continuous Assessment**
	Indirect Assessment Tools	
6	Students Exit Feedback	**Once in Year**
7	Feedback from Industry	**Once in Year**
8	Feedback from Alumni	**Once in Year**
9	Placement	**Once in Year**

Assessment Tools and Processes Used for Measuring Attainment of Each Program Outcomes:
Table below indicates the assessment processes / tools used for measuring attainment of each program outcome:

Sr. No.	Program Outcomes	Direct Assessment Tools	Indirect Assessment Tools
1	Engineering knowledge	1,2,3,4,5	6,7,8,9
2	Problem analysis	1,2,3,4,5	6,7,8,9
3	Design/development of solutions	1,2,3,4,5	6,7,8,9
4	Conduct investigations of complex problems	1,2,3,4,5	6,7,8,9
5	Modern tool usage	1,2,3,4,5	6,7,8,9
6	The engineer and society	1,2,3,4,5	6,7,8,9
7	Environment and sustainability	1,2,3,4,5	6,7,8,9
8	Ethics	1,2,3,4,5	6,7,8,9
9	Individual and team work	1,2,3,4,5	6,7,8,9

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2.6 - Student Performance and Learning Outcomes

10	Communication:	1,2,3,4,5	6,7,8,9
11	Project management and finance:	1,2,3,4,5	6,7,8,9
12	Life-long learning	1,2,3,4,5	6,7,8,9

Assessment Tools and Processes Used for Measuring Attainment of Each Program Specific Outcomes:

Table below indicates the assessment processes / tools used for measuring attainment of each program specific outcome:

Sr. No.	Program Specific Outcomes	Direct Assessment Tools	Indirect Assessment Tools
PSO1	An ability to identify, formulate and solve engineering problems in three core streams of Mechanical Engineering, i.e. design engineering, thermal and fluids engineering and manufacturing engineering.	1,2,3,4,5	6,7,8,9
PSO2	An ability to design, develop and test an energy efficient system for required engineering applications.	1,2,3,4,5	6,7,8,9
PSO3	An ability to use CAD/CAM/CAE/Computational tools to solve engineering problems.	1,2,3,4,5	6,7,8,9
PSO4	An ability to represent and read an engineering idea physically by means of a 2D / 3D drawing.	1,2,3,4,5	6,7,8,9
PSO5	An ability to prepare and execute the plan to manufacture components / assembly.	1,2,3,4,5	6,7,8,9

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2.6 - Student Performance and Learning Outcomes

. PO Attainment

Academic Year 2020-21

Academic Year : 2020-21

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
FE												
C101	2.05	2.05	0	2.05	2.05	0	0	0	0	2.41	0	2.05
C102	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
C103	2.47	2.63	1.32	2.96	1.65	1.97	1.65	0.99	2.63	2.96	1.48	2.63
C104	1.21	2.34	1.74	1.57	2.72	1.46	1.59	1.23	1.24	1.45	1.67	1.02
C105	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
C106	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.5	0.33	0.33
C107	2.05	2.05	0	2.05	2.05	0	0	0	0	1.87	0	2.05
C108	2.63	2.96	0.99	2.96	1.65	1.97	1.65	0.99	2.96	2.96	0.99	2.63
C109	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
C110	2.96	2.96	0.99	2.96	1.97	1.97	0.99	0.99	2.96	2.96	0.99	2.96
C111	2.62	2.95	0.98	2.95	1.64	1.97	1.64	0.98	2.95	2.95	0.98	2.62
C112	1.5	2.33	1.67	1.67	0.5	0.5	0.67	0.83	1	1	0.33	1
SE(Mech)												
C201	3	3	0	3	3	0	0	0	0	3	0	3
C202	3	3	2.83	2.83	1.82	3	[illegible]	2.32	3	2.33	1.32	3
C203	3	3	3	2	3	[illegible]	2.83	1.83	3	1	2	3

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2.6 - Student Performance and Learning Outcomes

C204	3	3	2	2	2	2.67	2.67	2	2	3	0	3
C205	3	2.83	2.5	2.17	2.33	1.33	1.17	1.17	1.17	1.5	1	2.33
C206	2.1	2.1	1.98	1.52	1.28	0.82	0.7	0.82	1.52	1.52	0.82	0.82
C207	3	2.15	1.82	2.16	1.49	1.16	2.15	0.99	3	3	0.99	2.15
C208	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.3	0.5
C209	2.67	1.67	1.17	1.17	1.83	2	0.83	1.67	2.33	1.65	1.83	0.83
C211	3	3	2	1	2	-	1	-	1.33	2.5	-	1
C212	3	3	2.5	2.67	1	1.33	1	1	2	2	1	1.67
C213	2.1	2.1	1.98	1.52	1.28	0.82	0.7	0.82	1.52	1.52	0.82	0.82
C214	1.52	1.28	1.17	0.93	1.52	0.93	0.82	0.82	0.82	0.82	0.7	0.82
C215	0.9	0.85	0.8	0.75	0.35	0.5	0.55	0.45	0.25	0.2	0.3	0.2
C216	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5
TE(Mech)												
C301	2.7	2.7	1.8	1.8	1.8	0.9	1.8	1.8	2.7	2.7	1.8	2.7
C302	3	3	3	3	2.49	1.66	2.66	2.2	1.66	1.66	2.33	1.66
C303 (2020-21)	3	2.83	2.67	2.5	1.16	1.49	1.49	1.32	1.49	1.65	1.16	1.32
C304	3	3	2.67	2.67	1	1	1	1	1.83	1.83	1	1.83
C305	1.4	1.17	1.05	0.82	1.52	0.82	0.82	0.82	0.82	0.7	0.7	0.7
C306	3	3	3	3	2.49	1.66	2.66	2.2	1.66	1.66	2.33	1.66
C307	3	3	3	3	3	2	1	3	3	1	2	3
C311	3	3	2	2	2	1	2	2	3	3	2	3
C312	2.7	2.7	2.7	2.7	0.9	0.9	0.9	0.9	0.9	1.8	0.9	1.8

Department of Mechanical Engg AIT Pune-15

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2.6 - Student Performance and Learning Outcomes

C313	**2.7**	**2.4**	**2.25**	**2.1**	**0.75**	**1.05**	**1.05**	**0**	**0.9**	**0**	**0**	**1.8**
C314	1.4	1.17	1.05	0.82	1.52	0	0	0	0.82	0.7	0	0.7
C315	1.52	1.28	1.17	0.93	1.52	0.93	0.82	0.82	0.82	0.82	0.7	0.82
C321	2.30	1.79	1.53	1.15	1.53	1.28	1.28	1.15	0.77	0.64	0.51	2.04
C322	2.15	0.99	1.16	2.16	1.16	1.98	1.65	2.15	1.32	3	1.16	2.83

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2.6 - Student Performance and Learning Outcomes

BE(Mech)												
C401	2.1	2.1	2.1	1.63	0.93	0.7	0.7	0	0.7	2.3	0	1.4
C402	3	3	3	2.5	3	2.67	2	2.33	3	1	2	3
C403	2.1	1.98	1.17	1.4	1.87	1.75	1.17	0.7	0.7	0.7	-	0.7
C404	2	2	2	2	2	2	1.33	2	2	2	0.67	2
C405	2.1	1.98	2.1	1.98	2.1	0.7	0.93	1.63		1.28	1.52	2.1
C406	3	3	3	3	2.49	1.66	2.66	2.2	1.66	1.66	2.32	1.66
C407	2	2	2	2	2	2	2	2	2	2	2	2
C408	3	3	2	1	1	3	2	3	2	3	0.5	3
C409	2.1	1.87	2.1	1.17	0.84	0.7	1.4	1.17	1.17	1.87	1.87	1.87
C410	2.1	2.1	1.87	1.75	1.4	0.82	-	-	1.17	0.93	0.7	0.7
C411	3	3	3	3	2.49	1.66	2.66	2.2	1.66	1.66	2.32	1.66
C412	3	2.66	2.33	2.83	1.82	1.66	1.66	1.66	2.33	3	3	3
C413	2.7	1.8	1.5	1.5	0.9	0.9	0.9	0	0	0.3	0	1.8
C414	3	3	3	3	3	3	3	3	3	3	3	3

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2.6 - Student Performance and Learning Outcomes

Year 2020-21

Total Assessment

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO 11	PO 12
Direct (D) Assessment	2.51	2.44	1.85	2.12	1.75	1.41	1.39	1.26	1.72	1.87	1.09	1.93
Indirect Assessment (I)	2.83	2.83	2.67	2.83	2.83	2.33	2.67	2.33	2.33	2.17	2.33	2.17
Total= 0.8D+0.2I	2.58	2.52	2.01	2.26	1.97	1.60	1.65	1.48	1.84	1.93	1.34	1.98

Mechanical Engg. Department of

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2.6 - Student Performance and Learning Outcomes

B. PSO Attainment

Academic Year 2020-21

Academic Year : 2020-21

	PSO1	PSO2	PSO3	PSO4	PSO5
FE					
C101	1.37	2.05	1.37	1.37	0.84
C102	1.15	1.97	-	0.99	1.48
C103	1.15	1.97	1.97	1.48	1.58
C104	3.44	2.26	1.39	1.33	1.47
C105	1.97	1.48	1.97	2.96	1.48
C106	2.67	1.83	2	2.17	2.5
C107	1.37	2.05	1.37	1.37	0.84
C108	1.15	1.97	-	1.48	1.58
C109	1.15	1.97	1.97	1.48	1.38
C110	1.97	0.99	1.97	1.48	1.38
C111	2.79	2.13	-	0.98	1.47
C112	1.17	1.33	0.5	1.83	0.5
SE(Mech)					
C201	3.00	1.98	0.00	0.99	0.00
C202	3	2.67	1.83	1.83	1.33
C203	2.33	2.83	3	3	2.67
C204	3	3	2	2	1
C205	3	1.33	2.33	1	3
C206	2.1	1.87	0.82	1.05	1.05
C207	3	0.99	3	3	3
C208	0.3	0.3	0.3	0.3	0.3
C209	3	2	1.83	2	1.83
C211	3	2	-	2.2	-

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C212	3	2.5	1	1.33	1
C213	2.1	1.87	0.82	1.05	1.05
C214	2.1	1.52	1.05	1.52	0.7
C215	0.9	0.65	0.45	0.65	0.3
C216	0.3	0.3	0.3	0.3	0.3
TE(Mech)					
C301	2.7	1.8	1.8	2.7	2.7
C302	2.66	1.98	1.98	1.98	1.98
C303	3	2.16	1.49	2.16	1.32
C304	3	2.67	1	1.83	1
C305	2.1	1.52	1.05	1.52	0.7
C306	2.66	1.98	1.98	1.98	1.98
C307	3	2.83	3	2	1.17
C311	3	2	2	3	3
C312	2.7	2.1	0.9	1.65	0.9
C313	2.7	2.1	0.45	0.15	0
C314	1.87	1.4	1.17	1.52	0.82
C315	2.1	1.52	1.05	1.52	0.7
C321	2.30	1.79	1.41	1.28	1.15
C322	1.33	1	1	1.33	1
BE(Mech)					
C401	2.1	2.1	0.47	0.7	0.23
C402	2.67	2.67	3	3	2.17
C403	2.1	1.28	1.17	1.52	-
C404	2	2	2	2	0.67
C405	2.1	1.63	2.1	2.1	0.7
C406	2.66	1.98	1.98	1.98	1.98
C407	2	2	2	2	2
C408	3	3	1	2.67	1.83
C409	2.1	2.1	1.4	2.1	1.4

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2.6 - Student Performance and Learning Outcomes

C410	1.87	1.26	0.7	1.17	0.7
C411	2.66	1.98	1.98	1.98	2.15
C412	3	2.83	1.83	1.83	2.16
C413	2.7	1.65	0.9	0.9	0
C414	3	3	3	3	3

Year 2020-21

Total Assessment

	PSO1	PSO2	PSO3	PSO4	PSO5
Direct (D) Assessment	2.30	1.93	1.53	1.72	1.33
Indirect Assessment (I)	2.67	2.67	2.67	2.33	2.17
Total= 0.8D+0.2I	2.37	2.08	1.75	1.84	1.50

Department of Mechanical Engg. AIT Pune-15

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ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411015

Department of Mechanical Engineering

289. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2019-20

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

*Attainment Level 1: **60%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 2: **70%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 3: **80%** students scoring more than University average percentage marks or set attainment level in the final examination.*

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment:

70% of University level + 30% of Internal level

Academic Year 2019-20

Academic Year 2019-20								
FE Mechanical								
Course	Code	CO1	CO2	CO3	CO4	CO5	CO6	Average
107001 Engineering Mathematics I	C101	2.06	2.06	2.06	2.06	2.06	2.06	2.06
107002 Engineering Physics	C102	2.06	2.06	2.06	2.06	2.06	2.06	2.06
103004 Basic Electrical Engineering	C104	1.16	1.16	1.16	1.16	1.16	1.16	1.16
102003 Systems in Mechanical Engineering	C113	2.73	2.73	1.23	1.11	1.11	1.11	1.67
110013 Project Based Learning	C115	2.96	2.96	2.96	-	-	-	1.48
111006 Workshop Practices	C107	1.00	1.00	1.00	1.00	1.00	1.00	1.00
107008 Engineering Mathematics II	C108	2.95	2.95	2.95	2.95	2.95	2.95	2.95
107009 Engineering Chemistry	C109	2.96	1.16	2.06	2.06	2.96	2.96	2.36
110005 Programming and problem solv	C103	1.16	1.16	1.16	1.16	1.16	1.16	1.16
101011 Engineering Mechanics	C111	2.06	2.06	2.06	2.06	2.06	2.06	2.06
104010 Basic Electronics Engineering	C112	1.16	1.16	1.16	1.16	1.16	1.16	1.16
102014 Engineering Graphics	C106	2.58	2.58	2.58	2.58	2.52	2.52	2.56
SE Mechanical								
Course	Code	CO1	CO2	CO3	CO4	CO5	CO6	Average
Engg. Maths -III	C201	2.35	2.35	2.35	2.35	1.70	2.35	2.24
Manufacturing Process-I	C202	2.35	2.35	2.35	2.35	2.35	2.35	2.35
Computer Aided Machine Drawing	C203	2.85	2.85	2.85	2.85	2.85	2.85	2.85
Thermodynamics	C204	2.27	2.13	2.13	2.13	2.13	2.13	2.15
Material Science	C205	2.00	2.00	2.00	2.00	1.95	2.00	1.99
Strength of Materials	C206	1.74	1.74	1.74	1.84	1.74	1.74	1.76
Audit course	C208	2.35	2.35	2.35	2.35	-	-	1.57
Fluid mechanics	C209	2.67	2.67	2.67	2.71	2.67	2.67	2.68
Soft skills	C210	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Theory of Machines-I	C211	2.45	2.45	2.45	2.45	2.45	2.45	2.45
Applied Thermodynamics	C212	2.71	2.71	2.71	2.66	2.71	2.71	2.70
Electrical and Electronics Engineering	C213	1.89	1.89	1.89	1.89	1.74	1.74	1.84
Machine Shop-1	C214	2.67	2.67	2.67	2.67	2.67	2.67	2.67

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

TE Mechanical								
Course	Code	CO1	CO2	CO3	CO4	CO5	CO6	Average
Design of Machine Elements-I	C301	1.95	2.00	1.95	1.50	1.40	1.35	1.69
Heat Transfer	C302	1.70	1.90	1.90	1.90	1.76	1.90	1.84
Theory of Machines-II	C303	1.70	1.70	1.70	1.80	1.70	1.70	1.72
Turbo Machines	C304	1.81	1.71	1.71	1.71	1.60	1.71	1.71
Metrology and Quality Control	C305	0.50	0.50	0.50	0.60	0.35	0.35	0.47
Skill Development	C306	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Numerical Methods and Optimization	C307	2.90	2.90	2.90	2.90	2.90	2.90	2.90
Design of Machine Elements-II	C311	2.40	2.50	2.40	1.75	1.70	1.55	2.05
Refrigeration and Air Conditioning	C312	1.96	1.96	1.96	1.96	1.96	1.96	1.96
Mechatronics	C313	2.90	2.90	2.50	2.50	2.50	2.50	2.63
Manufacturing -Process-II	C314	1.95	1.95	1.95	1.95	1.95	1.95	1.95
Machine Shop-II	C315	2.95	2.95	2.95	2.95	2.95	2.95	2.95
Seminar	C321	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Audit Course	C322	2.79	2.79	2.79	2.79	2.79	2.79	2.79
BE Mechanical								
Course	Code	CO1	CO2	CO3	CO4	CO5	CO6	Average
Hydraulics and Pneumatics	C401	2.45	2.45	2.45	2.45	2.45	2.45	2.45
CAD CAM Automation	C402	2.90	2.90	2.90	3.00	3.00	3.00	2.95
Dynamics of Machinery	C403	2.14	2.14	2.14	2.14	2.14	2.14	2.14
Elective-I : CFD	C404	1.33	1.33	1.33	1.33	1.30	1.30	1.32
Elective-I : FEA	C405	1.78	1.78	1.78	1.67	1.78	1.78	1.76
Elective-II Automobile Engineering	C406	1.23	1.23	1.23	1.23	1.23	1.23	1.23
Project-I	C407	2.81	2.81	2.81	2.81	2.81	2.81	2.81
Energy Engineering	C408	2.81	2.81	2.81	2.81	2.81	2.81	2.81
Mechanical System Design	C409	2.95	2.95	2.95	2.95	2.95	2.95	2.95
Elective-III : Tribology	C410	2.79	2.79	2.79	2.79	2.79	2.79	2.79
Elective-III : Industrial Engineering	C411	2.67	2.62	2.62	2.62	2.62	2.62	2.63
Elective-IV: Solar and Wind Energy	C413	2.95	2.95	2.95	3.00	3.00	3.00	2.98
Project-II	C414	2.81	2.81	2.81	2.81	2.81	2.81	2.81

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

.2 Attainment of Program Outcomes and Program Specific Outcomes

Assessment Tools / Processes Used:
The assessment tools / processes used for Assessing Attainment of Program Outcomes (POs) are as follows:

Sr. No.	Assessment Tool / Process	Frequency
	Direct Assessment Tools	
1	University Examination In Sem Exam-30 marks, End Sem Exam-70 marks	**Once in a Semester**
2	University Practical Examination/Oral (25 or 50 marks)	**Once in a Semester**
3	Internal (Term work) Assessment (25 or 50 marks)	**Once in a Semester**
4	Class Test (30 or 70 marks)	**Once in a semester**
5	Internal Oral (20/25/50 marks)	**Continuous Assessment**
	Indirect Assessment Tools	
6	Students Exit Feedback	**Once in Year**
7	Feedback from Industry	**Once in Year**
8	Feedback from Alumni	**Once in Year**
9	Placement	**Once in Year**

Assessment Tools and Processes Used for Measuring Attainment of Each Program Outcomes:
Table below indicates the assessment processes / tools used for measuring attainment of each program outcome:

Sr. No.	Program Outcomes	Direct Assessment Tools	Indirect Assessment Tools
1	Engineering knowledge	1,2,3,4,5	6,7,8,9
2	Problem analysis	1,2,3,4,5	6,7,8,9
3	Design/development of solutions	1,2,3,4,5	6,7,8,9
4	Conduct investigations of complex problems	1,2,3,4,5	6,7,8,9
5	Modern tool usage	1,2,3,4,5	6,7,8,9
6	The engineer and society	1,2,3,4,5	6,7,8,9
7	Environment and sustainability	1,2,3,4,5	6,7,8,9
8	Ethics	1,2,3,4,5	6,7,8,9
9	Individual and team work	1,2,3,4,5	6,7,8,9
10	Communication:	1,2,3,4,5	6,7,8,9
11	Project management and finance:	1,2,3,4,5	6,7,8,9
12	Life-long learning	1,2,3,4,5	6,7,8,9

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

Assessment Tools and Processes Used for Measuring Attainment of Each Program Specific Outcomes:

Table below indicates the assessment processes / tools used for measuring attainment of each program specific outcome:

Sr. No.	Program Specific Outcomes	Direct Assessment Tools	Indirect Assessment Tools
PSO1	An ability to identify, formulate and solve engineering problems in three core streams of Mechanical Engineering, i.e. design engineering, thermal and fluids engineering and manufacturing engineering.	1,2,3,4,5	6,7,8,9
PSO2	An ability to design, develop and test an energy efficient system for required engineering applications.	1,2,3,4,5	6,7,8,9
PSO3	An ability to use CAD/CAM/CAE/Computational tools to solve engineering problems.	1,2,3,4,5	6,7,8,9
PSO4	An ability to represent and read an engineering idea physically by means of a 2D / 3D drawing.	1,2,3,4,5	6,7,8,9
PSO5	An ability to prepare and execute the plan to manufacture components / assembly.	1,2,3,4,5	6,7,8,9

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

'. PO Attainment

Academic Year 2019-20

Academic Year: 2019-20

Course code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
FE Mechanical												
C101	2.06	2.06	0	2.06	2.06	0	0	0	0	2.06	0	2.06
C102	1.83	2.06	0.69	2.06	1.14	1.37	1.14	0.69	2.06	2.06	0.69	1.83
C103	1.03	1.16	0.39	1.16	0.65	0.77	0.65	0.39	1.16	1.16	0.39	1.03
C104	0.46	0.46	0.46	0.46	0.46	0.38	0.19	0.08	0.23	0.23	0.23	0.46
C105	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
C106	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.5	0.33	0.33
C107	2.95	2.95	0.00	2.95	2.95	0.00	0.00	0.00	0.00	2.95	0.00	2.95
C108	1.57	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.24	1.57	2.36
C109	1.03	1.16	0.39	1.16	0.64	0.77	0.64	0.39	1.16	1.16	0.39	1.03
C110	2.06	2.06	0.69	2.06	1.37	1.37	0.69	0.69	2.06	2.06	0.69	2.06
C111	1.03	1.16	0.39	1.16	0.65	0.77	0.65	0.39	1.16	1.16	0.39	1.03
C112	0.5	0.83	0.55	0.56	0.16	0.17	0.39	0.28	0.33	0.33	0.11	0.33
Average	**1.69**	**1.76**	**0.80**	**1.65**	**1.26**	**0.98**	**0.84**	**0.67**	**1.26**	**1.53**	**0.48**	**1.41**

ARMY INSTITUTE OF TECHNOLOGY * PUNE-15 * Dept of Mechanical Engg.

2.6 - Student Performance and Learning Outcomes

SE Mechanical												
C201	1.99	2.32	1.82	1.98	2.66	1.16	0.5	1.16	1.16	0.49	0.66	0.99
C202	2.83	2.83	2.67	1.83	1.67	1.83	1.83	1.33	1.67	1.50	1.00	1.00
C203	3.00	3.00	3.00	2.67	2.67	2.33	2.33	1.83	1.67	1.50	2.32	2.66
C204	0.90	0.90	0.60	0.60	0.60	0.80	0.80	0.60	0.60	0.90	0.00	0.90
C205	0.90	0.85	0.70	0.75	0.75	0.45	0.45	0.35	0.25	0.35	0.25	0.60
C206	0.90	0.90	0.85	0.65	0.55	0.35	0.30	0.35	0.65	0.65	0.30	0.50
C207	2.00	1.33	0.67	0.67	0.00	0.67	0.00	0.00	0.00	0.67	0.00	2.00
C208	3.00	3.00	3.00	2.00	1.17	1.00	1.00	1.00	2.00	2.00	1.00	1.33
C209	0.93	0.70	0.70	0.70	0.00	0.00	0.00	2.10	2.10	0.00	0.00	0.70
C211	2.70	2.55	2.40	2.25	1.05	1.05	1.20	1.20	1.20	1.50	0.90	1.20
C212	3.00	3.00	2.50	2.67	1.00	1.33	1.00	1.00	2.00	2.00	1.00	1.67
C213	0.90	0.90	0.85	0.65	0.55	0.35	0.30	0.35	0.65	0.65	0.30	0.50
C214	1.40	1.17	1.05	0.82	1.52	0.82	0.82	0.82	0.82	0.82	0.7	1.4
Average	**1.88**	**1.80**	**1.60**	**1.40**	**1.09**	**0.93**	**0.81**	**0.93**	**1.14**	**1.00**	**0.65**	**1.19**

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

TE Mechanical												
C301	0.90	0.90	0.60	0.60	0.60	0.30	0.60	0.60	0.90	0.90	0.60	0.90
C302	2.05	2.05	2.05	2.05	1.7	1.02	1.7	1.44	1.02	1.02	1.05	0.85
C303	0.90	0.85	0.80	0.75	0.35	0.50	0.45	0.45	0.40	0.40	0.30	0.40
C304	0.53	0.53	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
C305	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C306	3.00	3.00	3.00	3.00	2.50	1.66	2.67	2.20	1.67	1.67	2.33	1.67
C307	3.00	3.00	3.00	3.00	3.00	2.00	1.00	3.00	3.00	1.00	2.00	3.00
C311	0.90	0.90	0.60	0.60	0.60	0.30	0.60	0.60	0.90	0.90	0.60	0.90
C312	3.00	2.83	2.67	2.33	1.00	1.00	1.33	1.00	1.50	2.00	1.00	1,50
C313	3.00	2.67	2.5	2.17	1.5	1.17	1.00	0.00	1.00	0.33	0.00	2.00
C314	0.47	0.39	0.35	0.27	0.51	0.27	0.27	0.27	0.27	0.23	0.23	0.23
C315	0.47	0.39	0.35	0.27	0.51	0.27	0.27	0.27	0.27	0.23	0.23	0.23
C321	3.00	2.33	2.00	1.50	2.00	1.67	1.67	1.50	1.00	0.83	0.67	2.67
C322	2.17	1	1.17	2.17	1.17	2	1.67	2.17	1.33	3.00	1.17	2.83
Average	**1.80**	**1.60**	**1.48**	**1.45**	**1.20**	**0.95**	**1.03**	**1.05**	**1.03**	**0.98**	**0.80**	**1.22**

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

BE Mechanical												
C401	1.70	1.70	1.70	1.70	1.32	0.76	0.57	0.00	0.57	0.19	0.28	1.13
C402	3.00	3.00	3.00	2.50	3.00	2.67	2.00	2.33	3.00	1.00	2.00	3.00
C403	1.40	1.32	0.78	0.93	1.24	0.47	0.78	0.47	0.47	0.47	-	0.47
C404	3.00	3.00	3.00	3.00	3.00	2.50	0.22	0.67	1.67	0.67	0.67	0.67
C405	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C406	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C407	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
C408	3.00	3.00	2.00	1.00	1.00	3.00	2.00	3.00	2.00	3.00	0.50	3.00
C409	2.10	1.87	2.10	1.17	0.84	0.70	1.40	1.17	1.17	1.87	1.87	1.87
C410	2.10	2.10	1.87	1.75	1.40	0.82	-	-	1.17	0.93	0.70	0.7
C411	3.00	3.00	3.00	3.00	2.25	0.22	1.67	1.67	1.67	1.67	1.67	1.67
C413	2.70	2.40	2.10	1.50	0.90	0.90	0.90	0.00	0.00	0.30	0.00	1.80
C414	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Average	**2.15**	**2.11**	**1.97**	**1.73**	**1.61**	**1.39**	**1.20**	**1.18**	**1.36**	**1.24**	**1.05**	**1.56**

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

B. PSO Attainment

Academic Year: 2019-20

	PSO1	PSO2	PSO3	PSO4	PSO5
FE Mechanical					
C101	1.37	2.06	1.37	1.37	0.96
C102	1.00	1.77	-	0.91	1.38
C103	0.45	0.77	0.77	0.58	0.54
C104	0.46	0.27	0.35	0.23	0.49
C105	1.97	1.48	1.97	2.96	1.48
C106	2.67	1.83	2.00	2.17	2.5
C107	1.97	2.95	1.97	1.97	1.97
C108	0.90	1.57	-	1.18	1.14
C109	0.45	0.77	0.77	0.58	0.54
C110	1.37	0.69	1.37	1.03	0.96
C111	0.45	0.77	0.77	0.58	0.54
C112	0.46	0.66	1.00	0.91	0.33
Average	**1.13**	**1.30**	**1.23**	**1.21**	**1.07**

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

SE Mechanical					
C201	3.00	0.99	3.00	0.99	3.00
C202	2.67	1.83	2	2.17	2.5
C203	3.00	2.67	2.67	2.83	2.67
C204	0.90	0.90	0.60	0.60	0.30
C205	0.90	0.60	0.35	0.35	0.90
C206	0.90	0.80	0.35	0.45	0.45
C208	1.33	0.67	-	-	-
C209	3.00	2.83	1.00	1.33	1.00
C211	-	-	0.70	0.14	-
C212	2.70	1.95	1.35	1.95	0.90
C213	3.00	2.50	1.00	1.33	1.00
C214	0.90	0.8	0.35	0.45	0.45
Average	**2.03**	**1.51**	**1.20**	**1.18**	**1.16**

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

TE Mechanical					
C301	0.90	0.60	0.60	0.90	0.90
C302	2.66	1.98	1.98	1.98	1.98
C303	0.90	0.65	0.45	0.65	0.30
C304	0.53	0.18	0.18	0.18	0.18
C305	-	-	-	-	-
C306	2.66	1.98	1.98	1.98	1.98
C307	3.00	2.83	3.00	2.00	1.17
C311	0.90	0.60	0.60	0.90	0.90
C312	3.00	2.33	1.00	1.83	1.00
C313	3.00	2.67	0.83	0.33	-
C314	0.70	0.51	0.35	0.51	0.27
C315	0.70	0.51	0.35	0.54	0.27
C321	3.00	2.33	1.83	1.67	1.50
C322	1.32	0.99	0.99	1.32	0.99
Average	**1.79**	**1.40**	**1.09**	**1.14**	**0.88**

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

BE Mechanical					
C401	1.70	1.61	0.57	0.57	0.19
C402	2.67	2.67	3.00	3.00	2.17
C403	1.40	0.86	0.78	1.01	-
C404	0.90	0.90	0.90	0.90	0.30
C405	-	-	-	-	-
C406	2.66	1.98	1.98	1.98	1.98
C407	3.00	3.00	3.00	3.00	3.00
C408	3.00	3.00	1.00	2.67	1.83
C409	2.10	2.10	1.40	2.10	1.40
C410	1.87	1.26	0.70	1.17	0.70
C411	2.66	1.98	1.98	1.98	1.98
C413	2.70	1.95	0.90	0.15	-
C414	3.00	3.00	3.00	3.00	3.00
Average	**2.13**	**1.87**	**1.48**	**1.66**	**1.27**

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg JUNE-15

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Department of Mechanical Engineering

303. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2018-19

2.6 - Student Performance and Learning Outcomes

Attainment of Course Outcomes and Program Outcomes

1 Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Personal Interview	This is designed to assess student's analytical capacity along with the capability to communicate with others
Mini Project/Case Study	This is designed to assess students' problem-solving capability, designing capability, analytical capability and team work.
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

Record of the attainment of Course Outcomes of all courses with respect to set attainment levels

*Attainment Level 1: **60%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 2: **70%** students scoring more than University average percentage marks or set attainment level in the final examination.*

*Attainment Level 3: **80%** students scoring more than University average percentage marks or set attainment level in the final examination.*

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

Course Outcome Attainment:

70% of University level + 30% of Internal level

Academic Year 2018-19

Academic Year 2018-19								
FE Mechanical								
Course	Code	CO1	CO2	CO3	CO4	CO5	CO6	Average
107001 Engineering Mathematics I	C101	1.16	1.16	1.16	1.16	1.16	1.16	1.16
107002 Engineering Physics	C102	2.96	2.96	2.96	2.96	2.96	2.96	2.96
110003 Fundamentals of Programming Languages I	C103	2.96	2.96	2.96	2.96	2.96	2.96	2.96
103004 Basic Electrical Engineering	C104	2.96	2.96	2.96	2.96	2.96	2.96	2.96
101005 Basic Civil and Environmental Engineering	C105	2.96	2.96	2.96	2.96	2.96	2.96	2.96
102006 Engineering Graphics I	C106	0.39	0.37	0.37	0.39	0.37	0.37	0.37
111006 Workshop Practices	C107	0.98	0.98	0.98	0.98	0.98	0.98	0.98
107008 Engineering Mathematics II	C108	1.16	1.16	1.16	1.16	1.16	1.16	1.16
107009 Engineering Chemistry	C109	2.96	2.96	2.96	2.96	2.96	2.96	2.96
110010 Fundamentals of Programming Languages II	C110	2.96	2.96	2.96	2.96	2.96	2.96	2.96
101011 Engineering Mechanics	C111	1.16	1.16	1.16	1.16	1.16	1.16	1.16
104010 Basic Electronics Engineering	C112	0.24	0.24	0.24	0.24	0.24	0.24	0.24
102013 Basic Mechanical Engineering	C113	0.61	0.61	0.61	0.61	0.60	0.61	0.61
102012 Engineering Graphics II	C114	0.81	0.81	0.81	0.81	0.81	0.81	0.81
SE Mechanical								
Course	Code	CO1	CO2	CO3	CO4	CO5	CO6	Average
Engg. Maths -III	C201	1.55	1.55	1.55	1.55	1.55	1.55	1.55
Manufacturing Process-I	C202	1.65	1.95	1.80	1.95	1.65	1.80	1.80
Computer Aided Machine Drawing	C203	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Thermodynamics	C204	1.87	1.87	1.87	1.87	1.82	1.82	1.85
Material Science	C205	2.00	2.00	2.00	2.00	1.95	2.00	1.99
Strength of Materials	C206	1.97	1.97	1.97	1.97	1.67	1.67	1.87
Audit course	C208	2.51	2.51	2.51	2.51	-	-	1.67
Fluid mechanics	C209	1.52	1.52	1.52	1.52	1.52	1.52	1.52
Soft skills	C210	1.97	1.97	1.97	1.97	1.97	1.97	1.97
Theory of Machines-I	C211	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Applied Thermodynamics	C212	2.70	2.70	2.70	2.65	2.70	2.70	2.69

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

Electrical and Electronics Engineering	C213	1.82	1.82	1.82	1.82	1.82	1.82	1.82
Machine Shop-1	C214	2.95	2.95	2.95	2.95	2.95	2.95	2.95

TE Mechanical

Course	Code	CO1	CO2	CO3	CO4	CO5	CO6	Average
Design of Machine Elements-I	C301	1.86	1.91	1.86	1.71	1.71	1.71	1.79
Heat Transfer	C302	2.19	2.28	2.28	2.28	2.19	2.32	2.26
Theory of Machines-II	C303	1.58	1.58	1.58	1.58	1.58	1.58	1.58
Turbo Machines	C304	1.81	1.81	1.81	1.81	1.66	1.81	1.79
Metrology and Quality Control	C305	2.43	2.43	2.43	2.43	2.43	2.43	2.43
Skill Development	C306	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Numerical Methods and Optimization	C307	2.81	2.72	2.81	2.72	2.72	2.72	2.75
Design of Machine Elements-II	C311	2.30	2.35	2.30	2.15	2.05	2.05	2.20
Refrigeration and Air Conditioning	C312	1.81	1.81	1.81	1.81	1.60	1.81	1.78
Mechatronics	C313	2.45	2.55	2.40	2.40	2.40	2.40	2.43
Manufacturing -Process-II	C314	2.38	2.38	2.38	2.38	2.38	2.38	2.38
Machine Shop-II	C315	2.58	2.58	2.58	2.58	2.58	2.54	2.57
Seminar	C321	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Audit Course	C322	2.79	2.79	2.79	2.79	2.79	2.79	2.79

BE Mechanical

Course	Code	CO1	CO2	CO3	CO4	CO5	CO6	Average
Hydraulics and Pneumatics	C401	2.30	2.30	2.30	2.30	2.20	2.20	2.27
CAD CAM Automation	C402	1.84	1.84	1.84	2.08	2.03	1.94	1.93
Dynamics of Machinery	C403	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Elective-I : CFD	C405	1.80	1.80	1.80	1.70	1.70	1.70	1.75
Elective-I : FEA	C406	1.69	1.66	1.69	1.66	1.69	1.66	1.68
Elective-II Automobile Engineering	C407	2.81	2.81	2.81	2.81	2.81	2.81	2.81
Project-I	C408	2.33	2.43	2.38	2.38	2.38	2.38	2.38
Energy Engineering	C409	1.74	1.74	1.74	1.74	1.74	1.74	1.74
Mechanical System Design	C410	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Elective-III : Tribology	C411	0.80	0.75	0.75	0.75	0.75	0.75	0.76
Elective-III : Industrial Engineering	C412	1.40	1.50	1.60	1.75	1.60	1.80	1.61
Elective-IV: Solar and Wind Energy	C413	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Project-II	C414	2.76	2.76	2.76	2.76	2.76	2.76	2.76

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2 Attainment of Program Outcomes and Program Specific Outcomes

Assessment Tools / Processes Used:
The assessment tools / processes used for Assessing Attainment of Program Outcomes (POs) are as follows:

Sr. No.	Assessment Tool / Process	Frequency
	Direct Assessment Tools	
1	University Examination In Sem Exam-30 marks, End Sem Exam-70 marks	**Once in a Semester**
2	University Practical Examination/Oral (25 or 50 marks)	**Once in a Semester**
3	Internal (Term work) Assessment (25 or 50 marks)	**Once in a Semester**
4	Class Test (30 or 70 marks)	**Once in a semester**
5	Internal Oral (20/25/50 marks)	**Continuous Assessment**
	Indirect Assessment Tools	
6	Students Exit Feedback	**Once in Year**
7	Feedback from Industry	**Once in Year**
8	Feedback from Alumni	**Once in Year**
9	Placement	**Once in Year**

Assessment Tools and Processes Used for Measuring Attainment of Each Program Outcomes:
Table below indicates the assessment processes / tools used for measuring attainment of each program outcome:

Sr. No.	Program Outcomes	Direct Assessment Tools	Indirect Assessment Tools
1	Engineering knowledge	1,2,3,4,5	6,7,8,9
2	Problem analysis	1,2,3,4,5	6,7,8,9
3	Design/development of solutions	1,2,3,4,5	6,7,8,9
4	Conduct investigations of complex problems	1,2,3,4,5	6,7,8,9
5	Modern tool usage	1,2,3,4,5	6,7,8,9
6	The engineer and society	1,2,3,4,5	6,7,8,9
7	Environment and sustainability	1,2,3,4,5	6,7,8,9
8	Ethics	1,2,3,4,5	6,7,8,9
9	Individual and team work	1,2,3,4,5	6,7,8,9
10	Communication:	1,2,3,4,5	6,7,8,9
11	Project management and finance:	1,2,3,4,5	6,7,8,9
12	Life-long learning	1,2,3,4,5	6,7,8,9

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

Assessment Tools and Processes Used for Measuring Attainment of Each Program Specific Outcomes:

Table below indicates the assessment processes / tools used for measuring attainment of each program specific outcome:

Sr. No.	Program Specific Outcomes	Direct Assessment Tools	Indirect Assessment Tools
PSO1	An ability to identify, formulate and solve engineering problems in three core streams of Mechanical Engineering, i.e. design engineering, thermal and fluids engineering and manufacturing engineering.	1,2,3,4,5	6,7,8,9
PSO2	An ability to design, develop and test an energy efficient system for required engineering applications.	1,2,3,4,5	6,7,8,9
PSO3	An ability to use CAD/CAM/CAE/Computational tools to solve engineering problems.	1,2,3,4,5	6,7,8,9
PSO4	An ability to represent and read an engineering idea physically by means of a 2D / 3D drawing.	1,2,3,4,5	6,7,8,9
PSO5	An ability to prepare and execute the plan to manufacture components / assembly.	1,2,3,4,5	6,7,8,9

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

. PO Attainment

Academic Year 2018-19

Academic Year : 2018-19

Course code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
FE Mechanical												
C101	1.16	1.16	-	1.16	1.16	-	-	-	-	1.16	1.16	1.16
C102	2.63	2.96	0.99	2.96	1.64	1.97	1.64	0.99	2.96	2.96	0.99	2.63
C103	2.96	2.79	2.22	1.48	1.97	1.97	0.99	0.99	0.99	0.99	0.99	0.99
C104	2.48	2.81	0.94	2.96	1.59	1.97	1.64	0.94	2.81	2.78	0.94	2.48
C105	2.3	1.81	1.31	1.97	1.48	2.96	1.97	1.97	2.96	2.96	2.3	2.96
C106	1.50	2.50	1.67	1.67	0.50	0.50	1.17	0.83	1.00	1.00	0.33	1.00
C107	2.33	2.50	2.17	1.83	1.83	1.83	2.00	0.67	1.83	1.50	0.33	0.67
C108	1.16	1.16	-	1.16	1.16	-	-	-	-	1.16	-	1.16
C109	1.97	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	2.96	1.97	2.96
C110	2.96	2.63	2.22	1.48	1.97	1.97	0.99	0.99	0.99	0.99	0.99	0.99
C111	1.16	1.16	0.39	1.16	0.77	0.77	0.39	0.39	1.16	1.16	0.39	1.16
C112	0.21	0.24	0.08	0.24	0.13	0.16	0.13	0.08	0.24	0.24	0.08	0.21
C113	1.00	0.88	0.83	0.77	0.33	0.49	0.49	0.33	0.66	0.49	0.33	0.55
C114	0.33	0.40	0.30	0.30	0.10	0.10	0.23	0.17	0.20	0.17	0.07	0.20
Average	**1.62**	**1.68**	**1.03**	**1.46**	**1.22**	**1.23**	**0.96**	**0.75**	**1.27**	**1.39**	**0.75**	**1.29**

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

SE Mechanical												
C201	2	2.33	1.83	2	2.67	1.17	0.5	1.17	1.17	0.5	0.67	1
C202	1.09	0.90	1.09	0.72	0.36	0.54	0.72	0.36	0.72	0.72	0.36	0.36
C203	3.00	3.00	3.00	2.67	2.67	2.33	2.33	1.83	1.67	2.00	2.33	2.67
C204	1.30	1.30	0.87	0.87	0.87	1.16	1.16	0.87	0.87	1.30	-	1.30
C205	0.90	0.85	0.70	0.75	0.75	0.45	0.45	0.35	0.25	0.35	0.25	0.60
C206	0.70	0.70	0.66	0.51	0.43	0.27	0.23	0.27	0.51	0.51	0.23	0.39
C207	2.00	1.33	0.67	0.67	-	0.67	-	-	-	0.67	-	2.00
C208	0.90	0.90	0.90	0.60	0.35	0.30	0.30	0.30	0.60	0.60	0.30	0.40
C209	0.93	0.70	0.70	0.70	-	-	-	2.10	2.10	-	-	0.70
C211	0.90	0.75	0.30	0.30	-	-	-	-	0.35	0.42	-	0.30
C212	3.00	3.00	2.50	2.67	1.00	1.33	1.00	1.00	2.00	2.00	1.00	1.67
C213	0.70	0.70	0.47	0.47	0.47	0.62	0.62	0.47	0.47	0.70	-	0.70
C214	1.40	1.17	1.05	0.82	1.52	0.82	0.82	0.82	0.82	0.82	0.70	1.40
Average	**1.29**	**1.18**	**0.99**	**0.90**	**0.65**	**0.65**	**0.59**	**0.64**	**0.80**	**0.78**	**0.40**	**0.96**

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

TE Mechanical												
C301	0.90	0.90	0.60	0.60	0.60	0.30	0.60	0.60	0.90	0.90	0.60	0.90
C302	3.00	3.00	3.00	3.00	2.50	1.67	0.53	1.67	1.67	1.67	1.67	1.67
C303	0.85	0.70	0.60	0.30	0.30	0.30	0.30	0.30	0.30	0.55	0.30	0.30
C304	2.54	2.54	2.20	2.20	0.84	0.84	0.84	0.84	1.51	1.51	0.84	1.51
C305	0.93	0.78	0.70	0.54	1.01	0.54	0.54	0.54	0.54	0.47	0.47	0.47
C306	3.00	3.00	3.00	3.00	2.49	1.66	2.66	2.20	1.66	1.66	2.33	1.66
C307	1.60	1.60	1.60	1.60	1.60	1.07	0.53	1.60	1.60	0.53	1.07	1.60
C311	0.90	0.90	0.60	0.60	0.60	0.30	0.60	0.60	0.90	0.90	0.60	0.90
C312	2.55	2.55	2.38	2.21	0.84	0.84	1.18	0.84	1.18	1.68	0.84	1.35
C313	2.3	1.92	1.92	1.79	1.15	1.28	0.77	0.89	0.77	0.26	0.51	1.53
C314	0.93	0.78	0.70	0.54	1.01	0.54	0.54	0.54	0.54	0.47	0.47	0.62
C315	1.4	1.17	1.05	0.82	1.52	0.82	0.82	0.82	0.82	0.82	0.70	0.93
C321	3.00	2.33	2.00	1.50	2.00	1.67	1.67	1.50	1.00	0.83	0.67	2.67
C322	2.15	0.99	1.16	2.16	1.16	1.98	1.65	2.15	1.32	3.00	1.16	2.83
Average	**1.86**	**1.65**	**1.54**	**1.49**	**1.26**	**0.99**	**0.95**	**1.08**	**1.05**	**1.09**	**0.87**	**1.35**

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PUNE-15

2.6 - Student Performance and Learning Outcomes

BE Mechanical												
C401	1.60	1.42	1.33	1.33	1.33	0.62	0.80	0.53	0.53	0.18	0.44	1.07
C402	0.90	0.90	0.90	0.75	0.90	0.80	0.60	0.70	0.90	0.30	0.60	0.90
C403	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00
C404	3.00	3.00	3.00	3.00	2.50	1.67	2.20	1.67	1.67	1.67	1.67	1.67
C405	0.70	0.66	0.70	0.66	0.70	0.23	0.31	0.54	-	0.43	0.51	0.70
C406	0.90	0.85	0.85	0.75	0.35	0.30	0.35	0.30	0.30	0.10	0.00	0.60
C407	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
C408	1.60	1.60	1.07	0.53	0.53	1.60	1.07	1.60	1.07	1.60	0.27	1.60
C409	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C410	0.00	0.00	0.00	0.00	0.00	0.00	-	-	0.00	0.00	0.00	0.00
C411	3.00	3.00	3.00	3.00	2.49	1.66	2.66	2.20	1.66	1.66	2.33	1.66
C413	0.90	0.80	0.70	0.85	0.55	0.50	0.50	0.50	0.70	0.90	0.90	0.90
C414	2.30	2.04	1.66	1.41	0.77	1.28	1.15	0.89	0.77	0.26	0.26	1.53
Average	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	1.49	**1.45**	**1.37**	**1.31**	**1.15**	**1.05**	**1.12**	**1.07**	**0.97**	**0.94**	**0.93**	**1.19**

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg PUNE-15

2.6 - Student Performance and Learning Outcomes

B PSO Attainment

Academic Year: 2018-19

	PSO1	PSO2	PSO3	PSO4	PSO5
FE Mechanical					
C101	0.77	1.16	0.77	0.77	0.54
C102	1.15	1.97	-	0.99	1.48
C103	1.77	1.97	1.23	0.99	0.99
C104	1.05	1.87	-	1.43	1.32
C105	2.46	0.99	1.97	1.48	1.38
C106	-	-	-	-	-
C107	2.67	1.83	2.00	2.17	2.5
C108	0.77	1.16	0.77	0.77	0.77
C109	1.15	1.97	-	1.48	1.58
C110	1.48	1.48	1.23	0.99	0.99
C111	0.77	0.39	0.77	0.58	0.54
C112	0.43	1.27	0.92	1.27	0.51
	3.00	2.15	1.32	1.82	1.16
	0.23	0.17	0.43	0.37	0.10
Average	**1.26**	**1.31**	**0.95**	**1.08**	**0.99**

ARMY INSTITUTE OF TECHNOLOGY Dept. of Mechanical Engg. PUNE

2.6 - Student Performance and Learning Outcomes

SE Mechanical					
C201	0.90	0.72	0.72	0.72	0.72
C202	3.00	2.67	2.67	2.83	2.67
C203	1.30	1.30	0.87	0.87	0.43
C204	3.00	1.33	2.33	1.00	3.00
C205	2.11	1.75	0.69	0.87	0.87
C206	1.33	0.67	-	-	-
C208	0.90	0.85	0.30	0.40	0.30
C209	-	-	0.70	0.14	-
C211	0.90	0.54	0.3	0.9	-
C212	3.00	2.50	1.00	1.33	1.00
C213	0.70	0.70	0.47	0.47	0.23
C214	**1.60**	**1.21**	**0.93**	**0.92**	**0.83**

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg. PUNE-15

2.6 - Student Performance and Learning Outcomes

TE Mechanical					
C301	0.90	0.60	0.60	0.90	0.90
C302	2.66	1.98	1.98	1.98	1.98
C303	0.9	0.42	0.3	0.6	0.42
C304	2.54	2.2	0.84	1.51	0.84
C305	1.4	1.01	0.7	1.01	0.47
C306	2.66	1.98	1.98	1.98	1.98
C307	1.6	1.51	1.6	1.07	0.62
C311	0.9	0.6	0.6	0.9	0.9
C312	2.55	2.03	0.84	1.51	0.84
C313	2.30	1.66	1.15	0.77	0.77
C314	1.40	1.01	0.70	1.01	0.54
C315	2.1	1.52	1.05	1.52	0.7
C321	3.00	2.33	1.83	1.67	1.50
C322	1.32	0.99	0.99	1.32	0.99
Average	**2.02**	**1.53**	**1.17**	**1.37**	**1.03**

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2.6 - Student Performance and Learning Outcomes

BE Mechanical					
C401	1.42	1.42	1.16	0.71	0.53
C402	0.80	0.80	0.90	0.90	0.65
C403	-	-	-	-	-
C404	2.66	1.98	1.98	1.98	1.98
C405	0.70	0.54	0.70	0.70	0.23
C406	0.90	0.85	0.35	0.30	0.30
C407	3.00	3.00	3.00	3.00	3.00
C408	1.60	1.60	0.53	1.42	0.98
C409	-	-	-	-	-
C410	-	-	-	-	-
C411	2.66	1.98	1.98	1.98	1.98
C412	0.9	0.85	0.55	0.55	0.65
C413	2.3	1.41	0.77	0.77	0.77
C414	3.00	3.00	3.00	3.00	3.00
Average	**1.42**	**1.25**	**1.07**	**1.09**	**1.01**

ARMY INSTITUTE OF TECHNOLOGY Dept of Mechanical Engg. PUNE-15

Dr U V Awasarmol

HOD (Mechanical)



ARMY INSTITUTE OF TECHNOLOGY

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Department of Applied Science and General Engineering

317. Attainment of Course Outcomes, ProgramOutcomes and Program Specific Outcomes.

AY 2022-23

2.6 - Student Performance and Learning Outcomes

Attainment of course outcomes and program outcomes

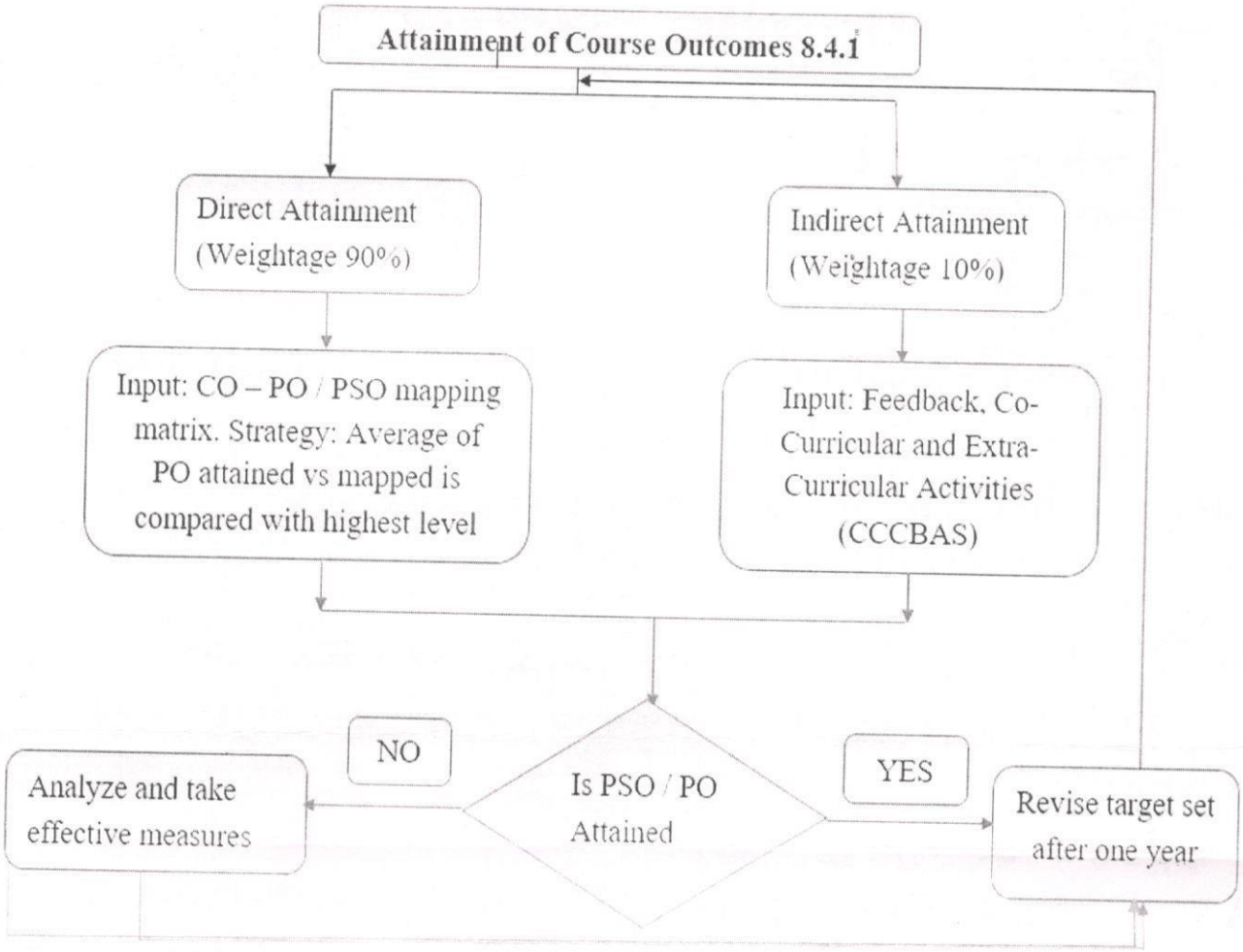
1 Attainment of Course Outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Viva	This is designed to assess student's analytical capacity along with the capability to communicate with others
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

H. O. D.
Applied Science Dept.

2.6 - Student Performance and Learning Outcomes

Attainment of course outcomes and program outcomes



The criteria for mapping:

(I) Direct Feedback (90%):

Target is 60%

(i) If 60% students get 60% mark, attainment level is **1**

(ii) If 70% students get 60% mark, attainment level is **2**

(iii) If 80% students get 60% mark, attainment level is **3**

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H. O. D.
Applied Science Deptt

2.6 - Student Performance and Learning Outcomes

(II) Indirect feed back (10%):

0.9 x course feed back + 0.1 X CCBAS (which is taken as 0.6 for all students, as our students mostly get a grade of D in CCBAS)

Attainment of Course Outcomes

FE Division: COMP A

Academic Year 2022-23

Course	CO1	CO2	CO3	CO4	CO5	CO6	Course Outcome Attainment (Average)
107001 Engineering Mathematics I	1.11	1.11	1.11	1.11	1.11	1.11	1.11
107002 Engineering Physics	2.91	2.91	2.01	2.91	2.01	2.91	2.91
103004 Basic Electrical Engineering	2.04	2.94	2.94	2.94	2.94	2.04	2.63
102003 Systems in Mechanical Engineering	2.42	2.42	2.37	2.32	2.32	2.32	2.37
110013 Project Based Learning	2.93	2.93	2.93				2.93
111007 Workshop Practices	2.95	2.95	2.95	2.95			2.95
107008 Engineering Mathematics II	2.16	2.16	2.06	2.06	2.06	2.06	2.10
107009 Engineering Chemistry	2.24	2.24	2.24	2.14	2.24	2.14	2.20
110005 Programming and Problem Solving	2.02	2.02	2.02	2.02	2.02	2.02	2.02
101011 Engineering Mechanics	2	1.1	2	1.1	2	1.1	1.55
102012 Engineering Graphics	0.62	0.48	0.46	048	0.48	0.46	0.53

FE Division: COMP B

Academic Year 2022-23

Course	CO1	CO2	CO3	CO4	CO5	CO6	Course Outcome Attainment (Average)
107001 Engineering Mathematics I	2.91	2.91	2.91	2.91	2.91	2.91	2.91

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H. O. D.
Applied Science Dept

2.6 - Student Performance and Learning Outcomes

107002 Engineering Physics	2.91	2.91	2.01	2.91	2.01	2.91	2.65
103004 Basic Electrical Engineering	2.93	2.93	2.03	2.93	2.93	2.93	2.78
102003 Systems in Mechanical Engineering	2.32	2.32	2.23	2.08	2.13	2.08	2.32
110013 Project Based Learning	2.93	2.93	2.93				2.93
111007 Workshop Practices	3	3	3	3			3
107008 Engineering Mathematics II	2.36	2.36	2.06	2.06	2.06	2.06	2.16
107009 Engineering Chemistry	2.24	2.24	2.24	2.24	2.24	2.24	2.24
110005 Programming and Problem Solving	2.08	2.08	2.98	2.98			2.53
101011 Engineering Mechanics	1.10	1.10	1.10	1.10	1.10	0.20	0.95
104012 Basic Electronics Engineering	2.98	2.98	2.98	2.98	2.98	2.98	2.98
102012 Engineering Graphics	2.95	2.85	2.71	2.56	2.56	2.56	2.95

FE Division: E&TC A

Academic Year 2022-23

Course	CO1	CO2	CO3	CO4	CO5	CO6	Course Outcome Attainment (Average)
107001 Engineering Mathematics I	0.21	0.21	2.01	2.01	2.01	2.01	1.41
107002 Engineering Physics	2.91	2.91	2.91	2.91	2.91	2.91	2.91
103004 Basic Electrical Engineering	1.14	2.94	2.94	2.94	2.94	2.04	2.49
102003 Systems in Mechanical Engineering	2.41	2.41	2.36	2.31	2.36	2.31	2.36
110013 Project Based Learning	2.93	2.93	2.93				2.93
111007 Workshop Practices	3	3	3	3			3

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2.6 - Student Performance and Learning Outcomes

107008 Engineering Mathematics II	2.36	2.26	2.06	2.06	2.06	2.06	2.15
107009 Engineering Chemistry	2.14	2.24	2.14	2.04	2.14	2.04	2.12
110005 Programming and Problem Solving	2.04	2.04	2.14	2.04	2.24	2.04	2.04
101011 Engineering Mechanics	2	2	2	2	2	2	2
104012 Basic Electronics Engineering	2.04	2.04	1.14	2.04	1.14	2.04	1.74
102012 Engineering Graphics	2.95	2.85	2.71	2.56	2.56	2.56	2.95

FE Division: E&TC B

Academic Year 2022-23

Course	CO1	CO2	CO3	CO4	CO5	CO6	Course Outcome Attainment (Average)
107001 Engineering Mathematics I	0.21	0.21	2.01	2.01	2.01	2.01	1.41
107002 Engineering Physics	2.91	2.91	2.01	2.91	2.91	2.91	2.91
103004 Basic Electrical Engineering	2.98	2.98	2.98	2.98	2.98	2.98	2.98
102003 Systems in Mechanical Engineering	2.59	2.59	2.59	2.39	2.49	2.39	2.49
110013 Project Based Learning	2.93	2.93	2.93				2.93
111007 Workshop Practices	3	3	3	3			3
107008 Engineering Mathematics II	2.36	2.36	2.06	2.06	2.06	2.06	2.16
107009 Engineering Chemistry	2.24	2.24	2.24	2.24	2.24	2.24	2.24
101011 Engineering Mechanics	1.10	0.20	0.20	0.20	0.20	0.20	0.35
104012 Basic Electronics Engineering	2.01	2.01	2.01	2.01	1.11	1.11	1.71
102012 Engineering Graphics	2.03	2.03	2.03	1.90			2.02

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2.6 - Student Performance and Learning Outcomes

FE Division MECH

Academic Year 2022-23

Course	CO1	CO2	CO3	CO4	CO5	CO6	Course Outcome Attainment (Average)
107001 Engineering Mathematics I	0.21	0.21	0.21	0.21	0.21	0.21	0.21
107002 Engineering Physics	2.01	2.01	1.11	2.01	1.11	2.01	1.71
103004 Basic Electrical Engineering	0.22	2.02	2.02	2.02	2.02	1.12	1.57
102003 Systems in Mechanical Engineering	2.22	2.22	2.11	2.06	2.06	2.06	2.14
110013 Project Based Learning	2.93	2.93	2.93				2.93
111007 Workshop Practices	2.94	2.94	2.94	2.94			2.94
107008 Engineering Mathematics II	2.16	2.16	2.06	2.06	2.06	2.06	2.10
107009 Engineering Chemistry	2.04	2.04	1.94	1.94	2.04	1.94	1.99
110005 Programming and Problem Solving	2.50	2.50	2.50	2.50	2.50	2.50	2.50
101011 Engineering Mechanics	0.20	0.20	0.20	0.20	0.20	0.20	0.20
104012 Basic Electronics Engineering	2.91	2.91	2.01	2.91	2.91	2.91	2.76
102012 Engineering Graphics	0.92	0.92	0.92	0.86			0.91

FE Division: IT

Academic Year 2022-23

Course	CO1	CO2	CO3	CO4	CO5	CO6	Course Outcome Attainment (Average)
107001 Engineering Mathematics I	0.21	0.21	2.01	2.01	2.01	2.01	1.41

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107002 Engineering Physics	2.91	2.91	2.01	2.91	2.91	2.91	2.91
103004 Basic Electrical Engineering	2.95	2.95	2.95	2.95	2.95	2.95	2.95
102003 Systems in Mechanical Engineering	2.04	2.04	2.04	2.04	2.04	2.04	2.04
110013 Project Based Learning	2.93	2.93	2.93				2.93
111007 Workshop Practices	2.94	2.94	2.94	2.94			2.94
107008 Engineering Mathematics II	2.03	2.03	2.03	2.03	2.03	2.03	2.03
107009 Engineering Chemistry	2.24	2.24	2.24	2.24	2.24	2.24	2.24
110005 Programming and Problem Solving	2.92	2.92	2.02	2.92	1.12	2.92	2.47
101011 Engineering Mechanics	1.10	1.10	1.10	0.20	1.10	0.20	0.80
104012 Basic Electronics Engineering	1.15	1.15	0.25	1.15	0.25	1.15	0.85
102012 Engineering Graphics	1.77	1.77	1.77	1.77	-	-	1.77

2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/Viva	This is designed to assess student's analytical capacity along with the capability to communicate with others
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of
End semester exam (theory + practical)	

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2.6 - Student Performance and Learning Outcomes

	course outcomes and program outcomes using a descriptive and objective type assessment.
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every semester the CCBAS (CO and extra curricular activities) based form/report is filled for each student by the counselor, which is considered to indirectly assess the POs
Feedback	The faculty feed back/subject feed back given by students is considered for indirect attainment.

A. PO Attainment

FE Division COMP A

Academic Year 2022-23

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	1.11	1.11	-	1.11	1.11	-	-	-	-	1.11	1.11	1.11
107002 Engineering Physics	2.29	2.61	0.87	2.91	1.52	1.79	1.62	0.87	2.61	2.55	0.87	2.29
103004 Basic Electrical Engineering	2.25	2.64	0.88	2.49	1.43	1.66	1.07	0.68	0.68	2.76	0.90	2.36
102003 Systems in Mechanical Engineering	1.07	0.8	1.07	0.67	0.71	0.53	0.53	0.80	0.62	0.71	0.80	0.53
110013 Project Based Learning	2.93	1.95	0.98	1.95	0.98	1.95	1.46	1.95	2.93	1.46	0.98	1.46
111007 Workshop Practices	0.90	0.83	0.53	0.45	0.45	0.30	0.30	0.60	0.30	0.30	0.45	0.60
107008 Engineering Mathematics II	2.10	2.10	-	2.10	2.10	-	-	-	-	2.10	0	2.10

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2.6 - Student Performance and Learning Outcomes

107009 Engineering Chemistry	1.74	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.74	1.74	2.62
110005 Programming and Problem Solving	1.19	1.42	0.47	2.02	0.92	1.04	1.12	0.47	1.42	1.30	0.47	1.19
101011 Engineering Mechanics	1.55	1.55	0.52	0.55	1.03	1.03	0.52	0.52	1.55	1.64	0.52	1.55
102012 Engineering Graphics	2.00	2.33	1.83	2.00	2.67	1.17	0.50	1.17	1.17	0.50	0.67	1.00

FE Division COMP B

Academic Year 2022-23

Program level Course-PO matrix

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	3	3	-	3	3	-	-	-	-	2.50	3	3
107002 Engineering Physics	2.67	3.00	1.00	2.00	1.67	1.33	0.83	1.00	3.00	2.50	1.00	2.67
103004 Basic Electrical Engineering	2.50	3.00	1.00	2.00	1.67	1.33	0.83	0.17	0.17	2.50	0.67	2.67
102003 Systems in Mechanical Engineering	2	1.5	2	1.25	1.33	1	1	1.5	1.17	1.33	1.5	1
110013 Project Based Learning	1.00	1.33	0.67	1.33	1.00	2.00	1.00	2.00	1.00	1.00	0.67	1.00
111007 Workshop Practices	3.00	2.75	1.75	1.50	1.50	1.00	1.00	2.00	1.00	1.00	1.50	2.00
107008 Engineering Mathematics II	3.00	3.00	0.00	3.00	3.00	-	-	-	-	2.50	0.00	3.00

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2.6 - Student Performance and Learning Outcomes

107009 Engineering Chemistry	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.50	2.00	3.00
110005 Programming and Problem Solving	3.00	2.25	1.00	2.00	2.00	2.00	-	1.00	3.00	-	1.00	2.00
101011 Engineering Mechanics	3	3	1	3	2	2	1	1	3	2.5	1	3
104012 Basic Electronics Engineering	2.5	3.0	1.1	2.5	1.8	1.3	0.8	1.1	3.0	2.5	1.0	2.6
102014 Engineering Graphics	2.17	2	2	1.5	2	1.67	1.17	0.75	1	1.6	1.2	1.5

FE Division E&TC A

Academic Year 2022-23

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	1.41	1.41	-	1.41	1.41	-	-	-	-	1.29	1.41	1.41
107002 Engineering Physics	2.59	2.91	0.97	2.91	1.62	1.94	1.62	0.97	2.91	2.91	0.97	2.59
103004 Basic Electrical Engineering	2.15	2.49	0.83	2.26	1.33	1.51	1.07	0.68	0.68	2.58	0.90	2.21
102003 Systems in Mechanical Engineering	0.60	0.45	0.60	0.38	0.40	0.30	0.30	0.45	0.35	0.40	0.45	0.30
110013 Project Based Learning	2.93	1.95	0.98	1.95	0.98	1.95	1.46	1.95	2.93	1.46	0.98	1.46
111007 Workshop Practices	0.90	0.83	0.53	0.45	0.45	0.30	0.30	0.60	0.30	0.30	0.45	0.60

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2.6 - Student Performance and Learning Outcomes

107008 Engineering Mathematics II	2.15	2.15	0	2.15	2.15	-	-	-	-	2.16	2.15	2.15
107009 Engineering Chemistry	1.24	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	2.02	1.24	1.87
110005 Programming and Problem Solving	1.86	2.09	0.70	2.04	1.15	1.39	1.13	0.70	2.09	2.10	0.70	1.86
101011 Engineering Mechanics	2	2	0.67	2	1.33	1.33	0.67	0.67	2	2	0.67	2
104012 Basic Electronics Engineering	1.52	1.74	0.58	1.62	1.16	1.57	1.23	0.58	1.74	1.68	0.58	1.52
102012 Engineering Graphics	0.82	0.75	0.75	0.57	0.75	0.63	0.44	0.28	0.38	0.60	0.45	0.57

FE Division: E&TC B

Academic Year 2022-23

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	1.41	1.41	0	1.41	1.41	0	0	0	0	1.29	1.41	1.41
107002 Engineering Physics	2.44	2.76	0.92	2.91	1.57	1.94	1.62	0.92	2.76	2.73	0.92	2.44
103004 Basic Electrical Engineering	2.48	2.98	0.99	2.98	1.65	1.99	1.24	0.99	0.99	2.98	0.99	2.65
102003 Systems in Mechanical Engineering	1.07	0.80	1.07	0.67	0.71	0.53	0.53	0.80	0.62	0.71	0.80	0.53
110013 Project Based Learning	2.93	1.95	0.98	1.95	0.98	1.95	1.46	1.95	2.93	1.46	0.98	1.46

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2.6 - Student Performance and Learning Outcomes

111007 Workshop Practices	0.90	0.83	0.53	0.45	0.45	0.30	0.30	0.60	0.30	0.30	0.45	0.60
107008 Engineering Mathematics II	2.16	2.16	0	2.16	2.16	0	0	0	0	2.18	2.16	2.16
107009 Engineering Chemistry	1.94	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	1.94	2.92
101011 Engineering Mechanics	0.35	0.35	0.12	0.35	0.23	0.23	0.12	0.12	0.35	0.38	0.12	0.35
104012 Basic Electronics Engineering	1.54	1.71	1.03	1.58	0.97	1.04	1.03	0.57	1.71	1.83	0.63	1.54
102012 Engineering Graphics	0.60	0.45	0.60	0.38	0.40	0.30	0.30	0.45	0.35	0.40	0.45	0.30

FE Division Mech

Academic Year 2022-23

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	0.21	0.21	0	0.21	0.21	-	-	-	-	0.21	0.21	0.21
107002 Engineering Physics	1.49	1.71	0.57	2.01	1.02	1.19	1.12	0.57	1.71	1.65	0.57	1.49
103004 Basic Electrical Engineering	1.39	1.57	0.52	1.35	0.82	0.90	0.69	0.37	0.37	1.66	0.60	1.40
102003 Systems in Mechanical Engineering	0.60	0.45	0.60	0.38	0.40	0.30	0.30	0.45	0.35	0.40	0.45	0.30
110013 Project Based Learning	2.93	1.95	0.98	1.95	0.98	1.95	1.46	1.95	2.93	1.46	0.98	1.46
111007 Workshop Practices	0.90	0.83	0.53	0.45	0.45	0.30	0.30	0.60	0.30	0.30	0.45	0.60

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2.6 - Student Performance and Learning Outcomes

107008 Engineering Mathematics II	2.10	2.10	0	2.10	2.10	-	-	-	-	2.10	2.10	2.10
107009 Engineering Chemistry	0.59	0.67	0.22	0.67	0.37	0.59	0.32	0.22	0.67	0.76	0.22	0.64
110005 Programming and Problem Solving	2.50	1.88	0.83	1.67	1.67	1.67	-	0.83	2.50	-	0.83	1.67
101011 Engineering Mechanics	0.20	0.20	0.07	0.20	0.13	0.13	0.07	0.07	0.20	0.20	0.07	0.20
104012 Basic Electronics Engineering	2.44	2.76	0.92	2.92	1.57	1.94	1.62	0.92	2.76	2.73	0.92	2.44
102012 Engineering Graphics	0.40	0.30	0.40	0.25	0.27	0.20	0.20	0.30	0.23	0.27	0.30	0.20

FE Division IT

Academic Year 2022-23

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	1.41	1.41	0	1.41	1.41	-	-	-	-	1.29	1.41	1.41
107002 Engineering Physics	2.44	2.76	0.92	2.91	1.57	1.94	1.62	0.92	2.76	2.73	0.92	2.44
103004 Basic Electrical Engineering	2.46	2.95	0.98	2.95	1.64	1.97	1.23	0.98	0.98	2.95	0.98	2.62
102003 Systems in Mechanical Engineering	0.4	0.3	0.4	0.25	0.27	0.2	0.2	0.2	0.23	0.07	0.13	0.2
110013 Project Based Learning	2.93	1.95	0.98	1.95	0.98	1.95	1.46	1.95	2.93	1.46	0.98	1.46
111007 Workshop Practices	0.90	0.83	0.53	0.45	0.45	0.30	0.30	0.60	0.30	0.30	0.45	0.60

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2.6 - Student Performance and Learning Outcomes

107008 Engineering Mathematics II	2.10	2.10	0	2.10	2.10	-	-	-	-	2.10	2.10	2.10
107009 Engineering Chemistry	0.59	0.67	0.22	0.67	0.37	0.59	0.32	0.22	0.67	0.76	0.22	0.64
110005 Programming and Problem Solving	2.50	1.88	0.83	1.67	1.67	1.67	-	0.83	2.50	-	0.83	1.67
101011 Engineering Mechanics	0.20	0.20	0.07	0.20	0.13	0.13	0.07	0.07	0.20	0.20	0.07	0.20
104012 Basic Electronics Engineering	2.44	2.76	0.92	2.92	1.57	1.94	1.62	0.92	2.76	2.73	0.92	2.44
102012 Engineering Graphics	0.40	0.30	0.40	0.25	0.27	0.20	0.20	0.30	0.23	0.27	0.30	0.20

FE Division IT

Academic Year 2022-23

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	1.41	1.41	0	1.41	1.41	-	-	-	-	1.29	1.41	1.41
107002 Engineering Physics	2.44	2.76	0.92	2.91	1.57	1.94	1.62	0.92	2.76	2.73	0.92	2.44
103004 Basic Electrical Engineering	2.46	2.95	0.98	2.95	1.64	1.97	1.23	0.98	0.98	2.95	0.98	2.62
102003 Systems in Mechanical Engineering	0.4	0.3	0.4	0.25	0.27	0.2	0.2	0.2	0.23	0.07	0.13	0.2
110013 Project Based Learning	2.93	1.95	0.98	1.95	0.98	1.95	1.46	1.95	2.93	1.46	0.98	1.46
111007 Workshop Practices	0.90	0.83	0.53	0.45	0.45	0.30	0.30	0.60	0.30	0.30	0.45	0.60

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107008 Engineering Mathematics II	2.03	2.03	-	2.03	2.03	-	-	-	-	2.03	2.03	2.03
107009 Engineering Chemistry	1.94	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	1.94	2.92
110005 Programming and Problem Solving	2.14	2.47	0.82	2.92	1.47	1.64	1.62	0.82	2.47	2.38	0.82	2.14
101011 Engineering Mechanics	0.80	0.80	0.27	0.80	0.53	0.53	0.22	0.27	0.80	0.92	0.27	0.80
104012 Basic Electronics Engineering	0.72	0.85	0.28	1.15	0.54	0.62	0.64	0.28	0.85	0.79	0.28	0.72
102012 Engineering Graphics	0.75	0.53	0.6	0.38	0.4	0.3	0.3	0.53	0.38	0.4	0.6	0.3

B. PSO Attainment

FE Division: COMP A

Academic Year 2022-23

Course	PSO1	PSO2	PSO3
107001 Engineering Mathematics I	0.74	0.37	0.37
107002 Engineering Physics	0.98	1.74	1.74
103004 Basic Electrical Engineering	1.39	0.88	1.76
102003 Systems in Mechanical Engineering	0.8	0.53	0.53
110013 Project Based Learning	1.95	1.46	1.95
111007 Workshop Practices	0.53	0.50	0.30
107008 Engineering Mathematics II	1.40	0.70	0.70
107009 Engineering Chemistry	2.45	2.62	2.29
110005 Programming and Problem Solving	0.82	0.86	0.94
101011 Engineering Mechanics	1.03	0.52	1.03
102012 Engineering Graphics	0.41	0.14	0.41

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Dighi Hills, Alandi Road, Pune 411015



Department of Applied Science and General Engineering

1. Attainment of Course Outcomes, Program Outcomes and Program Specific Outcomes.

AY 2021-22

2.6 - Student Performance and Learning Outcomes

1 Attainment of course outcomes and program outcomes

Course Outcome Assessment Method Description	
These assessment methods are used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/ Viva	This is designed to assess student's analytical capacity along with the capability to communicate with others
University Assessment	
In semester examination/ Online examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.

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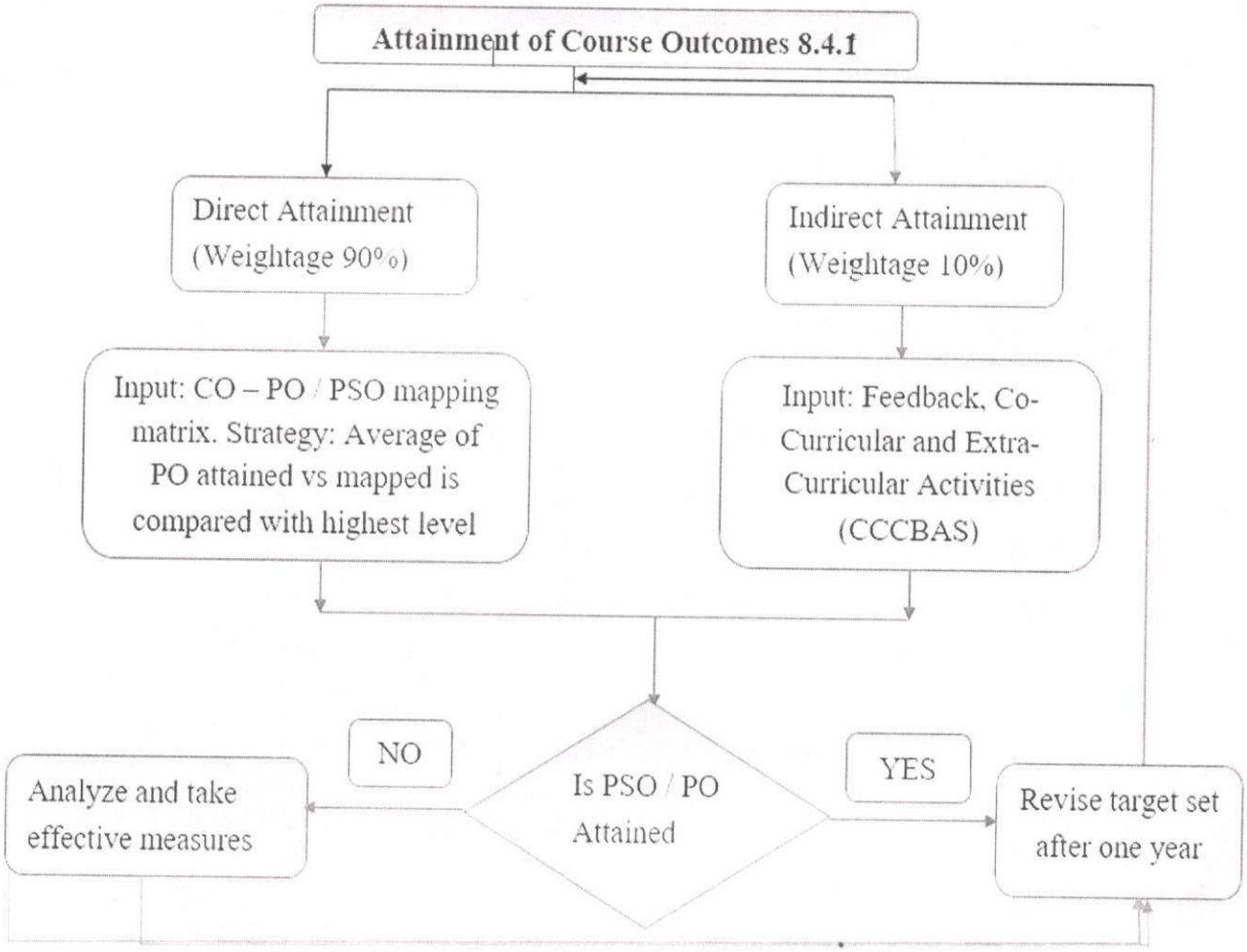
2.6 - Student Performance and Learning Outcomes

Attainment of course outcomes and program outcomes



The criteria for mapping:

(I) Direct Feedback (90%):

Target is 60%

(i) If 60% students get 60% mark, attainment level is **1**

(ii) If 70% students get 60% mark, attainment level is **2**

(iii) If 80% students get 60% mark, attainment level is **3**

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2.6 - Student Performance and Learning Outcomes

(II) Indirect feedback (10%):

0.9 x course feedback + 0.1 X CCBAS (which is taken as 0.6 for all students, as our students mostly get a grade of D in CCBAS)

Course Outcomes

FE Division: COMP A

Academic Year: 2021-22

Course	CO1	CO2	CO3	CO4	CO5	CO6
107001 Engineering Mathematics I	2.93	2.93	2.93	2.93	2.93	2.93
107002 Engineering Physics	2.92	2.92	2.92	2.92	2.92	2.92
103004 Basic Electrical Engineering	2.90	2.90	2.90	2.90	2.90	2.90
102003 Systems in Mechanical Engineering	3	3	3	3	3	3
110013 Project Based Learning	2.96	2.96	2.96			
111007 Workshop Practices	2.95	2.95	2.95	2.95	2.95	2.95
107008 Engineering Mathematics II	2.93	2.93	2.93	2.93	2.93	2.93
107009 Engineering Chemistry	2.92	2.92	2.92	2.92	2.92	2.92
110005 Programming and Problem Solving	3	3	3	3	3	3
101011 Engineering Mechanics	2.87	2.87	2.87	2.87	2.87	2.87
104012 Basic Electronics Engineering	2.92	2.92	2.92	2.92	2.92	2.92
102012 Engineering Graphics	1	1	1	1	1	1

FE Division: COMP B

Academic Year: 2021-22

Course	CO1	CO2	CO3	CO4	CO5	CO6
107001 Engineering Mathematics I	2.93	2.93	2.93	2.93	2.93	2.93
107002 Engineering Physics	2.92	2.92	2.92	2.92	2.92	2.92
103004 Basic Electrical Engineering	1.10	2.00	2.00	2.00	2.90	2.90
102003 Systems in Mechanical Engineering	3	3	3	3	3	3
110013 Project Based Learning	2.96	2.96	2.96			
111007 Workshop Practices	.98	.98	.98	.98	.98	.98
107008 Engineering Mathematics II	1.13	1.13	2.03	2.03	2.03	2.03

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107009 Engineering Chemistry	2.92	2.92	2.92	2.92	2.92	2.92
110005 Programming and Problem Solving	3	3	3	3	3	3
101011 Engineering Mechanics	2.87	2.87	2.87	2.87	2.87	2.87
104012 Basic Electronics Engineering	2.88	2.88	2.88	2.88	2.88	2.88
102012 Engineering Graphics	2.8	2.7	2.4	2.3	2.3	2.3

FE Division: E&TC A

Academic Year: 2021-22

Course	CO1	CO2	CO3	CO4	CO5	CO6
107001 Engineering Mathematics I	2.93	2.93	2.93	2.93	2.93	2.93
107002 Engineering Physics	2.02	2.02	2.02	2.02	2.02	2.02
103004 Basic Electrical Engineering	2.90	2.90	2.90	2.90	2.90	2.90
102003 Systems in Mechanical Engineering	2.90	2.90	2.90	2.90	2.90	2.90
110013 Project Based Learning	2.96	2.96	2.96			
111007 Workshop Practices	.98	.98	.98	.98	.98	.98
107008 Engineering Mathematics II	1.13	1.13	0.23	0.23	0.23	0.23
107009 Engineering Chemistry	2.92	2.92	2.92	2.92	2.92	2.92
110005 Programming and Problem Solving	2.1519	2.1519	2.1519	2.1519	2.1519	2.1519
101011 Engineering Mechanics	2.87	2.87	2.87	2.87	2.87	2.87
104012 Basic Electronics Engineering	2.92	2.92	0.22	2.92	0.22	2.92
102012 Engineering Graphics	0.62	0.62	0.62	0.62	0.62	0.62

FE Division: E&TC B

Academic Year: 2021-22

Course	CO1	CO2	CO3	CO4	CO5	CO6
107001 Engineering Mathematics I	2.93	2.93	2.93	2.93	2.93	2.93

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107002 Engineering Physics	2.92	2.92	2.92	2.92	2.92	2.92
103004 Basic Electrical Engineering	1.10	2.00	2.00	2.00	2.90	2.00
102003 Systems in Mechanical Engineering	2.42	2.42	2.42	2.42	2.42	2.42
110013 Project Based Learning	2.96	2.96	2.96			
111007 Workshop Practices	3	3	3	3	3	3
107008 Engineering Mathematics II	0.23	0.23	0.23	0.23	0.23	0.23
107009 Engineering Chemistry	2.92	2.92	2.02	2.92	2.92	2.92
110005 Programming and Problem Solving	2.1519	2.1519	2.1519	2.1519	2.1519	2.1519
101011 Engineering Mechanics	1.97	1.07	1.97	1.07	1.97	1.07
104012 Basic Electronics Engineering	2.92	2.92	2.92	2.92	2.92	2.92
102012 Engineering Graphics	0.62	0.62	0.62	0.62	0.62	0.62

FE Division: MECH

Academic Year: 2021-22

Course	CO1	CO2	CO3	CO4	CO5	CO6
107001 Engineering Mathematics I	2.03	2.03	2.93	2.93	2.93	2.93
107002 Engineering Physics	2.92	2.92	2.92	2.92	2.92	2.92
103004 Basic Electrical Engineering	2.90	2.90	2.90	2.90	2.90	2.90
102003 Systems in Mechanical Engineering	3	3	3	3	3	3
110013 Project Based Learning	2.96	2.96	2.96			
111007 Workshop Practices	3	3	3	3	3	3
107008 Engineering Mathematics II	0.23	0.23	0.23	0.23	0.23	0.23
107009 Engineering Chemistry	2.92	2.92	2.92	2.92	2.92	2.92
110005 Programming and Problem Solving	0.56	0.56	2.16	2.16		
101011 Engineering Mechanics	2.87	2.87	2.87	2.87	2.87	2.87
104012 Basic Electronics Engineering	0.18	0.18	0.18	0.18	0.18	0.18

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2.6 - Student Performance and Learning Outcomes

102012 Engineering Graphics	3	3	3	3	3	3

FE Division: IT

Academic Year: 2021-22

Course	CO1	CO2	CO3	CO4	CO5	CO6
107001 Engineering Mathematics I	**2.93**	**2.93**	**2.93**	**2.93**	**2.93**	**2.93**
107002 Engineering Physics	**2.92**	**2.92**	**2.92**	**2.92**	**2.92**	**2.92**
103004 Basic Electrical Engineering	**0.20**	**2.00**	**2.00**	**2.00**	**2.90**	**2.90**
102003 Systems in Mechanical Engineering	0.816	0.824	0.816	0.816	0.816	0.816
110013 Project Based Learning	**2.96**	**2.96**	**2.96**			
111007 Workshop Practices	3	3	3	3	3	3
107008 Engineering Mathematics II	**1.13**	**1.13**	**1.13**	**1.13**	**1.13**	**1.13**
107009 Engineering Chemistry	**2.02**	**2.02**	**2.02**	**2.02**	**2.02**	**2.02**
110005 Programming and Problem Solving	**2.11**	**2.11**	**2.91**	**2.91**		
101011 Engineering Mechanics	**2.87**	**1.97**	**2.87**	**1.97**	**2.87**	**1.97**
104012 Basic Electronics Engineering	**2.88**	**2.88**	**2.88**	**2.88**	**2.88**	**2.88**
102012 Engineering Graphics	3.00	2.67	1.33	3.00	2.67	1.33

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2 Attainment of Program Outcomes and Program Specific Outcomes

Program Outcome/Program Specific Outcome Attainment Method Description	
Direct Attainment methods	
These assessment methods can be used by faculty for judging students' work and progress.	
Internal Assessment	
Assignments/Tutorials	Assignment/Tutorials, Quiz and Class Tests are qualitative performance assessment tool designed to assess students' knowledge of engineering practices, framework, and problem solving. An analytic rubric is developed to assess students' knowledge with respect to the learning outcomes associated.
Quiz	
Class Test	
Group discussion/ Brainstorming/Viva	This is designed to assess student's analytical capacity along with the capability to communicate with others
University Assessment	
In semester Examination/ Online Examination	In semester examination/ online examination and end semester examination are metric for assessing whether all the POs are attained or not. Examination is more focused on attainment of course outcomes and program outcomes using a descriptive and objective type assessment.
End semester exam (theory + practical)	
Lab practical	This is mainly to assess student's practical knowledge, problem solving and designing capabilities.
Indirect Attainment Method	
Programme outcomes assessment report	At the end of every semester the CCBAS (CO and extra curricular activities) based form/report is filled for each student by the counselor, which is considered to indirectly assess the POs
Feedback	The faculty feed back/subject feed back given by students is considered for indirect attainment.

A. PO Attainment

FE Division: COMP A

Academic Year: 2021-22

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	2.93	2.93	-	2.93	2.93	-	-	-	-	2.93	2.93	2.93
107002 Engineering Physics	2.59	2.92	0.97	2.92	1.62	1.94	1.62	0.97	2.92	2.92	0.97	2.59

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103004 Basic Electrical Engineering	2.42	2.90	0.97	2.90	1.61	1.93	1.21	-	-	2.90	0.97	2.58
102003 Systems in Mechanical Engineering	3.00	2.66	2.49	2.32	0.99	1.49	1.49	0.99	1.98	1.49	0.99	1.66
110013 Project Based Learning	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
111007 Workshop Practices	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.50	0.33	0.33
107008 Engineering Mathematics II	2.93	2.93	-	2.93	2.93	-	-	-	-	2.93	-	2.93
107009 Engineering Chemistry	1.94	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	1.94	2.92
110005 Programming and Problem Solving	2.67	2.5	1.5	1.17	2.75	-	-	-	1.67	2.6	-	2.4
101011 Engineering Mechanics	2.87	2.87	0.96	2.87	1.91	1.91	0.96	0.96	2.87	2.87	0.96	2.87
104012 Basic Electronics Engineering	2.59	2.92	0.97	2.92	1.62	1.94	1.62	0.97	2.92	2.92	0.97	2.59
102012 Engineering Graphics	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.50	0.33	0.33

FE Division: COMP B

Academic Year: 2021-22

Program level Course-PO matrix of all courses

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	2.93	2.93	-	2.93	2.93	-	-	-	-	2.93	2.93	2.93

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107002 Engineering Physics	2.59	2.92	0.97	2.92	1.62	1.94	1.62	0.97	2.92	2.92	0.97	2.59
103004 Basic Electrical Engineering	1.82	2.15	0.72	2.00	1.16	1.48	0.98	-	-	2.00	0.74	1.88
102003 Systems in Mechanical Engineering	2.05	1.89	1.89	1.42	1.89	1.58	1.10	0.71	0.95	1.51	1.13	1.42
110013 Project Based Learning	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
111007 Workshop Practices	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.50	0.33	0.33
107008 Engineering Mathematics II	1.73	1.73	-	1.73	1.73	-	-	-	-	1.67	-	1.73
107009 Engineering Chemistry	1.94	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	1.94	2.92
110005 Programming and Problem Solving	2.67	2.5	1.5	1.17	2.75	-	-	-	1.67	2.6	-	2.4
101011 Engineering Mechanics	2.87	2.87	0.96	2.87	1.91	1.91	0.96	0.96	2.87	2.87	0.96	2.87
104012 Basic Electronics Engineering	2.56	2.88	0.96	2.88	1.60	1.92	1.60	0.96	2.88	2.88	0.96	2.56
102012 Engineering Graphics	0.82	0.75	0.75	0.57	0.75	0.63	0.44	0.28	0.38	0.60	0.45	0.57

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2.6 - Student Performance and Learning Outcomes

FE Division: E&TC A

Academic Year: 2021-22

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	2.93	2.93	-	2.93	2.93	-	-	-	-	2.93	2.93	2.93
107002 Engineering Physics	1.79	2.02	0.67	2.02	1.12	1.34	1.12	0.67	2.02	2.02	0.67	1.79
103004 Basic Electrical Engineering	2.42	2.90	0.97	2.90	1.61	1.93	1.21	-	-	2.90	0.97	2.58
102003 Systems in Mechanical Engineering	2.05	1.89	1.89	1.42	1.89	1.58	1.10	0.71	0.95	1.51	1.13	1.42
110013 Project Based Learning	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
111007 Workshop Practices	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.50	0.33	0.33
107008 Engineering Mathematics II	0.53	0.53	-	0.53	0.53	-	-	-	-	0.59	0.53	0.53
107009 Engineering Chemistry	1.94	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	2.92	1.94	2.92
110005 Programming and Problem Solving	1.49	1.72	0.57	2.02	1.02	1.19	1.12	0.57	1.72	1.66	0.57	1.49
101011 Engineering Mechanics	2.87	2.87	0.96	2.87	1.91	1.91	0.96	0.96	2.87	2.87	0.96	2.87
104012 Basic Electronics Engineering	1.69	2.02	0.67	2.92	1.32	1.49	1.62	0.67	2.02	1.84	0.67	1.69
102012 Engineering Graphics	1.92	2.31	1.82	2.00	2.54	1.17	0.50	1.17	1.17	0.50	0.67	0.99

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2.6 - Student Performance and Learning Outcomes

FE Division: E&TC B

Academic Year: 2021-22

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	2.93	2.93	-	2.93	2.93	-	-	-	-	2.93	2.93	2.93
107002 Engineering Physics	2.59	2.92	0.97	2.92	1.62	1.94	1.62	0.97	2.92	2.92	0.97	2.59
103004 Basic Electrical Engineering	1.72	2.00	0.67	1.77	1.06	1.33	0.83	-	-	2.00	0.67	1.78
102003 Systems in Mechanical Engineering	3.00	2.17	2.33	2.33	1.00	2.33	2.50	1.00	2.67	3.00	1.00	2.67
110013 Project Based Learning	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
111007 Workshop Practices	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.50	0.33	0.33
107008 Engineering Mathematics II	0.23	0.23	-	0.23	0.23	-	-	-	-	0.23	0.23	0.23
107009 Engineering Chemistry	1.84	2.77	2.77	2.77	2.77	2.77	2.77	2.77	2.77	2.74	1.84	2.77
110005 Programming and Problem Solving	2.59	2.92	0.97	2.92	1.62	1.94	1.62	0.97	2.92	2.92	0.97	2.59

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101011 Engineering Mechanics	1.52	1.52	0.51	1.52	1.01	1.01	0.51	0.51	1.52	1.61	0.51	1.52
104012 Basic Electronics Engineering	2.59	2.92	0.97	2.92	1.62	1.94	1.62	0.97	2.92	2.92	0.97	2.59
102012 Engineering Graphics	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00

FE Division: MECH

Academic Year: 2021-22

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	2.63	2.63	-	2.63	2.63	-	-	-	-	2.57	2.63	2.63
107002 Engineering Physics	2.59	2.92	0.97	2.92	1.62	1.94	1.62	0.97	2.92	2.92	0.97	2.59
103004 Basic Electrical Engineering	2.42	2.90	0.97	2.90	1.61	1.93	1.21	-	-	2.90	0.97	2.58
102003 Systems in Mechanical Engineering	1.52	1.40	1.40	1.05	1.40	1.17	0.82	0.53	0.70	1.12	0.84	1.05
110013 Project Based Learning	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
111007 Workshop Practices	1.50	2.33	1.67	1.67	0.50	0.50	0.67	0.83	1.00	1.00	0.33	1.00

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107008 Engineering Mathematics II	0.23	0.23	-	0.23	0.23	-	-	-	-	0.23	0.23	0.23
107009 Engineering Chemistry	2.59	2.92	0.97	2.92	1.62	1.94	1.62	0.97	2.92	2.92	0.97	2.59
110005 Programming and Problem Solving	1.36	1.08	0.45	0.90	0.90	0.90	-	0.45	1.36	-	0.90	0.90
101011 Engineering Mechanics	2.87	2.87	0.96	2.87	1.91	1.91	0.96	0.96	2.87	2.87	0.96	2.87
104012 Basic Electronics Engineering	0.16	0.18	0.06	0.18	0.10	0.12	0.10	0.06	0.18	0.18	0.06	0.16
102012 Engineering Graphics	1.52	1.40	1.40	1.05	1.40	1.17	0.82	0.53	0.70	1.12	0.84	1.05

FE Division: IT

Academic Year: 2021-22

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
107001 Engineering Mathematics I	2.93	2.93	-	2.93	2.93	-	-	-	-	2.93	2.93	2.93
107002 Engineering Physics	2.59	2.92	0.97	2.92	1.62	1.94	1.62	0.97	2.92	2.92	0.97	2.59
103004 Basic Electrical Engineering	1.72	2.00	0.67	1.77	1.06	1.33	0.98	-	-	1.82	0.74	1.73

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102003 Systems in Mechanical Engineering	3.00	2.66	2.49	2.32	0.99	1.49	1.49	0.99	1.98	1.49	0.99	1.66
110013 Project Based Learning	2.96	1.97	0.99	1.97	0.99	1.97	1.48	1.97	2.96	1.48	0.99	1.48
111007 Workshop Practices	2.83	2.83	2.67	1.83	1.67	1.83	1.83	0.83	1.67	1.50	0.33	0.33
107008 Engineering Mathematics II	1.13	1.13	-	1.13	1.13	-	-	-	-	1.13	1.13	1.13
107009 Engineering Chemistry	1.34	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	1.34	2.02
110005 Programming and Problem Solving	2.51	1.92	0.84	1.68	1.68	1.68	-	0.84	2.51	-	1.68	1.68
101011 Engineering Mechanics	2.42	2.42	0.81	2.42	1.61	1.61	0.81	0.81	2.42	2.51	0.81	2.42
104012 Basic Electronics Engineering	2.56	2.88	0.96	2.88	1.60	1.92	1.60	0.96	2.88	2.88	0.96	2.56
102012 Engineering Graphics	2.53	1.84	1.85	2.02	0.84	2.02	2.19	0.84	2.19	2.53	0.84	2.19

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2.6 - Student Performance and Learning Outcomes

B. PSO Attainment

FE Division: COMP A

Academic Year: 2021-22

Course	PSO1	PSO2	PSO3
107001 Engineering Mathematics I	1.95	0.98	0.98
107002 Engineering Physics	1.13	1.94	1.94
103004 Basic Electrical Engineering	1.45	0.97	1.93
102003 Systems in Mechanical Engineering	1.89	1.42	1.42
110013 Project Based Learning	1.97	1.48	1.97
111007 Workshop Practices	2.67	1.83	2.00
107008 Engineering Mathematics II	1.95	0.98	0.98
107009 Engineering Chemistry	2.75	2.92	2.59
110005 Programming and Problem Solving	3	2	-
101011 Engineering Mechanics	1.91	0.96	1.91
104012 Basic Electronics Engineering	1.13	1.94	1.94
102012 Engineering Graphics	2.67	1.83	2.00

FE Division: COMP B

Academic Year: 2021-22

Course	PSO1	PSO2	PSO3
107001 Engineering Mathematics I	1.95	0.98	0.98
107002 Engineering Physics	1.13	1.94	1.94
103004 Basic Electrical Engineering	0.92	0.57	1.43
102003 Systems in Mechanical Engineering	1.40	1.05	1.05
110013 Project Based Learning	1.97	1.48	1.97
111007 Workshop Practices	2.67	1.83	2.00
107008 Engineering Mathematics II	1.15	0.58	0.58
107009 Engineering Chemistry	2.75	2.92	2.59
110005 Programming and Problem Solving	3	2	-

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101011 Engineering Mechanics	1.91	0.96	1.91
104012 Basic Electronics Engineering	1.12	1.92	1.92
102012 Engineering Graphics	0.75	0.57	0.57

FE Division: E&TC A

Academic Year: 2021-22

Course	PSO1	PSO2
107001 Engineering Mathematics I	2.12	2.93
107002 Engineering Physics	1.01	0.67
103004 Basic Electrical Engineering	1.45	0.97
102003 Systems in Mechanical Engineering	1.89	1.42
110013 Project Based Learning	2.46	0.99
111007 Workshop Practices	2.67	1.83
107008 Engineering Mathematics II	0.37	0.53
107009 Engineering Chemistry	2.75	2.92
110005 Programming and Problem Solving	0.93	0.67
101011 Engineering Mechanics	1.91	0.96
104012 Basic Electronics Engineering	1.23	0.97
102012 Engineering Graphics	0.40	0.98

FE Division: E&TC B

Academic Year: 2021-22

Course	PSO1	PSO2
107001 Engineering Mathematics I	2.12	2.93
107002 Engineering Physics	1.46	0.97
103004 Basic Electrical Engineering	0.92	0.57
102003 Systems in Mechanical Engineering	2.66	2.66
110013 Project Based Learning	2.46	0.99
111007 Workshop Practices	2.67	1.83

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107008 Engineering Mathematics II	0.17	0.23
107009 Engineering Chemistry	2.60	2.77
110005 Programming and Problem Solving	1.46	0.97
101011 Engineering Mechanics	1.01	0.51
104012 Basic Electronics Engineering	1.46	0.97
102012 Engineering Graphics	0.41	0.41

FE Division: MECH

Academic Year: 2021-22

Course	PSO1	PSO2	PSO3	PSO4
107001 Engineering Mathematics I	1.75	2.63	1.75	1.75
107002 Engineering Physics	1.13	1.62	-	1.13
103004 Basic Electrical Engineering	1.45	0.97	-	1.13
102003 Systems in Mechanical Engineering	1.40	1.05	1.05	0.70
110013 Project Based Learning	1.97	1.48	1.97	2.96
111007 Workshop Practices	0.23	0.27	0.10	0.37
107008 Engineering Mathematics II	0.10	0.23	0.15	0.15
107009 Engineering Chemistry	1.13	1.62	-	1.13
110005 Programming and Problem Solving	1.36	0.45	1.08	
101011 Engineering Mechanics	1.91	0.96	1.91	1.43
104012 Basic Electronics Engineering	0.07	0.10	-	0.07
102012 Engineering Graphics	1.40	1.05	1.05	0.70

FE Division: IT

Academic Year: 2021-22

Course	PSO1	PSO2	PSO3
107001 Engineering Mathematics I	2.77	2.93	1.95
107002 Engineering Physics	1.13	0.97	1.94
103004 Basic Electrical Engineering	0.85	0.47	1.33

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102003 Systems in Mechanical Engineering	3.00	2.15	1.32
110013 Project Based Learning	1.97	1.48	1.97
111007 Workshop Practices	2.67	1.83	2.00
107008 Engineering Mathematics II	1.07	1.13	0.75
107009 Engineering Chemistry	1.90	2.02	1.79
110005 Programming and Problem Solving	2.34	0.84	1.92
101011 Engineering Mechanics	1.61	0.81	1.61
104012 Basic Electronics Engineering	1.12	0.96	1.92
102012 Engineering Graphics	2.53	2.19	1.00

ARMY INSTITUTE OF TECHNOLOGY PUNE 411015

Mrs M Chandola
Criteria Incharge

Prof (Dr) Swati Kulkarni
HoD ASGE

Criterion 2- Teaching- Learning and Evaluation

Key Indicator- 2.6 Student Performance and Learning Outcome (90)

2.6.2: Attainment of Programme Outcomes and Course Outcomes are evaluated

3. Evidence Document for evaluation of Attainment of POs and COs

Sr. No.	Documents	Page No.
1.	**Sample CO and PO Attainment Excel sheet (one from each department)**	
A.	Sample CO and PO Attainment Excel sheet	353
B.	Department of Information Technology	370
C.	Department of Computer Engineering	409
D.	Department of Mechanical Engineering	428
E.	Applied Science & General Engineering	439



ARMY INSTITUTE OF TECHNOLOGY
Dighi Hills, Alandi Road, Pune 411015
Department of Electronics & Telecommunication Engineering



353. Sample CO and PO Attainment Excel sheet

Course: 204183 Electrical Circuits

Class: SE E&TC B Division

AY: 2022-23

Semester: I

Faculty Incharge: Prof Preeti Warrier

Sample CO-PO Excel Sheet

Course: 204183 ELECTRICAL CIRCUITS

Class: S. E. (E&TC) - A **AY:** 2022-23 **Semester:** I

Faculty I/C: PROF. PREETI WARRIER

1. Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Program Outcomes
PO1:**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex
PO2: **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3: **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4: **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5 : **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO 6: **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO 7: **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8: **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9:**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10: **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11: **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12: **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PSO 01: Graduate will be able to apply the knowledge of semiconductor technology, software & hardware tools, signal processing, embedded and telecommunication to arrive at solutions to real world problems.
PSO 02: Graduate will be able to work in the areas involving Industry 4.0 technologies such as robotics, Internet of Things, cyber-physical systems etc.

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

HOD
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ARMY INSTITUTE OF TECHNOLOGY * PUNE-15 * Dept of E & TC

2. List of Students

LIST OF STUDENTS

ACADEMIC YEAR		2022 - 23
CLASS		S. E. (E&TC) - A
	Total	60
Sr. No.	Roll No.	Name of the Student
1	1201	A AJAY KUMAR REDDY
2	1202	A AJAY PRAVEEN
3	1203	A PAWAN KISHORE
4	1204	ABHISHEK CHAND
5	1205	ABHISHEK SHARMA
6	1206	ADITYA KUMAR
7	1207	AKRATI SINGH
8	1208	ALLEN SABU
9	1209	AMAN VERMA
10	1210	AMAN KUMAR
11	1211	AMRENDRA YADAV
12	1212	AMRIT LAKHLAN
13	1213	ANKANA SARDAR
14	1214	ANMOL SINGH
15	1215	ANURAG TIWARI
16	1216	ARMAN MAAN
17	1217	ATUL KUMAR
18	1218	AYUSH KUMAR
19	1219	BHAWANA DANU
20	1220	BIKRAM SINGH
21	1221	DEEPAK KUMAR
22	1222	GAURAV KUMAR
23	1223	HARSH SINGH
24	1224	HARSIT KUMAR
25	1225	HEMANT SINGH
26	1226	HIMANSHU UMRAO
27	1227	HRISHIKESH R
28	1228	KAVIARASAN R
29	1229	KULDEEP SINGH
30	1230	KULDEEP YADAV
31	1231	KUMOD KUMAR
32	1232	LOHITHA VAISHNAVI
33	1233	MANAS YADAV
34	1234	MAYANK DIMRI
35	1235	NAGENDER SINGH
36	1236	NISHA YADAV
37	1237	NISHANT KUMAR
38	1238	NITIN JHAJHARIA
39	1239	PADI ARAVIND KUMAR
40	1240	PALAK SINGH

ARMY INSTITUTE OF TECHNOLOGY Dept of E & TC PUNE-15

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41	1241	PIYUSH KUMAR
42	1242	PORUMAMILLA SANTHOSH
43	1243	RAHUL SINGH
44	1244	RAKESH
45	1245	RAKESH PRADHAN
46	1246	REEMA SINGH
47	1247	RISHABH GUPTA
48	1248	RITIK KUMAR
49	1249	RIYA
50	1250	ROYAL HUSSAIN
51	1251	RUDRANATH
52	1252	SANJIT KUMAR
53	1253	SANTRAM SINGH
54	1254	SHANTANU
55	1255	SHAURYA VARDHAN SINGH
56	1256	SHIVAM SINGH
57	1257	SHRISTY THAKUR
58	1258	UMANG SINGH
59	1259	VAIBHAV SINGH
60	1260	VANDANA KANDPAL

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ARMY INSTITUTE OF TECHNOLOGY
Dept of E & TC
PUNE-15

3. Course Outcome assessment Map

Army Institute of Technology	COURSE OUTCOME ASSESSMENT MAP				NO. OF COs
					6
Dighi Hills, Pune - 411015	CLASS	S. E. (E&TC) - A	COURSE CODE	204183	
DEPARTMENT OF E&TC ENGG.	COURSE	ELECTRICAL CIRCUITS			
ACADEMIC YEAR 2022 - 23	FACULTY	MRS.PREETI WARRIER			
TERM I					

SL. NO.	CO	ASSESSMENT TOOLS	INTERNAL (THEORY)						UNIVERSITY (THEORY)								TOTAL
			20	20	20	20	20	20	0	0	30	70					220
			CO1	CO2	CO3	CO4	CO5	CO6	O1	O2	IS	ES					
1	CO1	T1/A1,IS,ES	Q1-Q2								Q1/Q2	Q1/Q2					
2	CO2	T2/A2,IS,ES		Q1-Q2							Q3/Q4	Q1/Q2					
3	CO3	T3/A3,ES			Q1-Q2							Q3/Q4					
4	CO4	T4/A4,ES				Q1-Q2						Q5/Q6					
5	CO5	T5/A5,ES					Q1-Q2					Q7/Q8					
6	CO6	T6/A6,ES						Q1-Q2				Q9/Q10					
1	CO1	T1/A1,IS,ES	20								15						35
2	CO2	T2/A2,IS,ES		20							15						35
3	CO3	T3/A3,ES			20							18					38
4	CO4	T4/A4,ES				20						17					37
5	CO5	T5/A5,ES					20					18					38
6	CO6	T6/A6,ES						20				17					37
TOTAL			20	20	20	20	20	20	0	0	30	70					220
1	CO1	T1/A1,IS,ES	100%								50%						
2	CO2	T2/A2,IS,ES		100%							50%						
3	CO3	T3/A3,ES			100%							26%					
4	CO4	T4/A4,ES				100%						24%					
5	CO5	T5/A5,ES					100%					26%					
6	CO6	T6/A6,ES						100%				24%					

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Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

4. Internal & External Assessment

Army Institute of Technology
Dighi Hills, Pune - 411015
DEPARTMENT OF E&TC ENGG.

RECORD OF STUDENT ASSESSMENT – INTERNAL AND EXTERNAL

CLASS	S. E. (E&TC) - A	COURSE CODE	204183
COURSE	ELECTRICAL CIRCUITS		
FACULTY	MRS.PREETI WARRIER		
ACADEMIC YEAR	2022 - 23		
TERM	I		

SL. NO.	ROLL NO.	NAME OF STUDENT	CO1	CO2	CO3	CO4	CO5	CO6
1	1201	A AJAY KUMAR REDDY	5	5	5	5	5	5
2	1202	A AJAY PRAVEEN	5	5	5	5	5	5
3	1203	A PAWAN KISHORE	5	5	5	5	5	5
4	1204	ABHISHEK CHAND	5	5	5	5	5	5
5	1205	ABHISHEK SHARMA	5	5	5	5	5	5
6	1206	ADITYA KUMAR	5	5	4	4	5	5
7	1207	AKRATI SINGH	5	5	5	5	5	5
8	1208	ALLEN SABU	5	5	5	5	5	5
9	1209	AMAN VERMA	5	5	5	5	5	5
10	1210	AMAN KUMAR	5	5	5	5	5	5
11	1211	AMRENDRA YADAV	5	5	5	5	5	5
12	1212	AMRIT LAKHLAN	5	5	5	5	5	5
13	1213	ANKANA SARDAR	5	5	5	5	5	5
14	1214	ANMOL SINGH	5	5	5	5	5	5
15	1215	KOMAL MISHRA	5	5	5	5	5	5
16	1216	ARMAN MAAN	5	4	4	4	4	4
17	1217	ATUL KUMAR	5	5	5	5	5	5
18	1218	AYUSH KUMAR	5	5	5	5	5	5
19	1219	BHAWANA DANU	5	5	5	5	5	5
20	1220	BIKRAM SINGH	5	5	5	5	5	5
21	1221	DEEPAK KUMAR	5	5	5	5	5	5
22	1222	GAURAV KUMAR	5	5	5	5	5	5
23	1223	HARSH SINGH	5	5	4	4	4	4
24	1224	HARSIT KUMAR	5	5	5	5	5	5
25	1225	HEMANT SINGH	5	5	5	5	5	5
26	1226	HIMANSHU UMRAO	5	5	5	5	5	5
27	1227	HRISHIKESH R	5	5	5	5	5	5
28	1228	KAVIARASAN R	5	5	5	5	5	5
29	1229	KULDEEP SINGH	4	3	3	4	4	5
30	1230	KULDEEP YADAV	5	5	5	5	5	5
31	1231	KUMOD KUMAR	5	5	5	5	5	5
32	1232	LOHITHA VAISHNAVI	5	5	5	5	5	5
33	1233	MANAS YADAV	4	4	4	4	4	4
34	1234	MAYANK DIMRI	5	5	5	5	5	5
35	1235	NAGENDER SINGH	5	5	5	5	5	5
36	1236	NISHA YADAV	5	5	5	5	5	5
37	1237	NISHANT KUMAR	5	5	5	5	5	5
38	1238	NITIN JHAJHARIA	5	5	5	5	5	5
39	1239	PADI ARAVIND KUMAR	5	5	5	5	5	5
40	1240	PALAK SINGH	5	5	5	5	5	5

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41	1241	PIYUSH KUMAR	5	5	5	5	4	5
42	1242	PORUMAMILLA SANTHOSH	5	5	5	5	5	5
43	1243	RAHUL SINGH	5	5	4	5	5	5
44	1244	RAKESH	5	4	5	4	5	5
45	1245	RAKESH PRADHAN	5	5	5	5	5	5
46	1246	REEMA SINGH	5	5	5	5	5	5
47	1247	RISHABH GUPTA	5	4	4	4	4	5
48	1248	RITIK KUMAR	4	4	4	4	4	5
49	1249	RIYA	5	5	5	5	5	5
50	1250	ROYAL HUSSAIN	5	5	5	5	5	5
51	1251	RUDRANATH	5	5	5	5	5	5
52	1252	SANJIT KUMAR	5	5	5	5	5	5
53	1253	SANTRAM SINGH	5	5	5	5	5	5
54	1254	SHANTANU	5	5	4	4	4	4
55	1255	SHAURYA VARDHAN SINGH	5	5	5	5	5	5
56	1256	SHIVAM SINGH	5	5	5	5	5	5
57	1257	SHRISTY THAKUR	5	5	5	5	5	5
58	1258	UMANG SINGH	5	5	5	5	5	5
59	1259	VAIBHAV SINGH	5	5	5	5	5	5
60	1260	VANDANA KANDPAL	5	5	4	5	5	5
		% Attainment	99	98	96	97	97	99
		Overall attainment	5	4.9	4.8	4.9	5	4.9
		Indirect Attainment	3	2.9	2.9	2.9	3	3

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Dept of E & TC
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5. Students assessment-Internal and External

Army Institute of Technology

RECORD OF STUDENT ASSESSMENT – INTERNAL AND EXTERNAL

Dighi Hills, Pune - 411015	CLASS	S. E. (E&TC) - A	COURSE CODE	204183	
DEPARTMENT OF E&TC ENGG.	COURSE	ELECTRICAL CIRCUITS			
ACADEMIC YEAR 2022 - 23	FACULTY	Mrs.Preeti Warrier			
TERM I					

SL. NO.	ROLL NO.	NAME OF STUDENT	INTERNAL (THEORY)						UNIVERSITY (THEORY)				INT. (LAB)		UNIV. (LAB)		Internal	University
			20	20	20	20	20	20				100					120	100
			CO1	CO2	CO3	CO4	CO5	CO6	O1	O2	IS	ES	CA	IOR	TW	PR/OR	TOTAL	TOTAL
1	1201	A AJAY KUMAR REDDY	20	18	18	18	18	18				84					91.67	84.00
2	1202	A AJAY PRAVEEN	20	20	18	19	18	18				65					94.17	65.00
3	1203	A PAWAN KISHORE	20	20	19	19	19	19				67					96.67	67.00
4	1204	ABHISHEK CHAND	18	18	18	18	18	18				57					90.00	57.00
5	1205	ABHISHEK SHARMA	19	19	18	18	18	18				56					91.67	56.00
6	1206	ADITYA KUMAR	18	18	18	18	18	18				66					89.67	66.00
7	1207	AKRATI SINGH	20	20	19	19	19	18				72					95.83	72.00
8	1208	ALLEN SABU	19	19	18	19	19	19				43					94.17	43.00
9	1209	AMAN VERMA	20	20	19	19	19	19				77					96.67	77.00
10	1210	AMAN KUMAR	19	19	18	18	18	19				45					92.50	45.00
11	1211	AMRENDRA YADAV	19	18	18	18	18	18				52					90.83	52.00
12	1212	AMRIT LAKHLAN	20	20	19	19	19	19				80					96.67	80.00
13	1213	ANKANA SARDAR	20	20	19	18	18	18				69					94.17	69.00
14	1214	ANMOL SINGH	19	19	18	18	17	17				71					90.00	71.00
15	1215	ANURAG TIWARI	20	20	19	19	19	19				76					96.67	76.00
16	1216	ARMAN MAAN	18	18	17	16	16	16				75					84.17	75.00
17	1217	ATUL KUMAR	20	20	19	19	18	18				70					95.00	70.00
18	1218	AYUSH KUMAR	20	20	19	19	19	19				65					97.00	65.00
19	1219	BHAWANA DANU	20	19	18	18	18	18				66					93.11	66.00
20	1220	BIKRAM SINGH	19	19	19	19	19	19				66					95.00	66.00
21	1221	DEEPAK KUMAR	19	19	19	18	18	18				75					92.50	75.00
22	1222	GAURAV KUMAR	18	18	18	18	18	18				60					89.90	60.00
23	1223	HARSH SINGH	18	18	17	17	17	17				65					86.67	65.00
24	1224	HARSIT KUMAR	20	20	19	19	19	19				63					96.67	63.00
25	1225	HEMANT SINGH	19	19	18	18	18	18				70					91.67	70.00
26	1226	HIMANSHU UMRAO	18	18	18	18	18	18				68					90.07	68.00
27	1227	HRISHIKESH R	19	19	18	17	17	17				60					89.17	60.00
28	1228	KAVIARASAN R	20	20	19	18	18	19				67					95.00	67.00
29	1229	KULDEEP SINGH	18	18	17	16	16	16				56					84.17	56.00
30	1230	KULDEEP YADAV	19	19	19	19	19	18				62					94.17	62.00
31	1231	KUMOD KUMAR	20	19	19	18	18	19				63					94.33	63.00
32	1232	LOHITHA VAISHNAVI	19	19	19	19	18	18				66					93.33	66.00
33	1233	MANAS YADAV	18	18	17	16	16	16				49					84.17	49.00
34	1234	MAYANK DIMRI	20	19	19	19	19	18				76					95.00	76.00
35	1235	NAGENDER SINGH	19	19	19	19	19	19				60					95.00	60.00
36	1236	NISHA YADAV	19	19	18	18	18	18				61					91.67	61.00
37	1237	NISHANT KUMAR	18	18	17	17	17	17				54					86.67	54.00
38	1238	NITIN JHAJHARIA	19	18	18	18	18	18				62					90.83	62.00
39	1239	PADI ARAVIND KUMAR	19	18	18	18	18	18				46					90.83	46.00
40	1240	PALAK SINGH	18	18	17	18	17	18				60					88.33	60.00

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

HOD
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ARMY INSTITUTE OF TECHNOLOGY * Dept of E & TC * PUNE-15.

Students assessment-Internal and External

41	1241	PIYUSH KUMAR	18	18	18	18	18	18				65					90.00	65.00
42	1242	PORUMAMILLA SANTHOSH	18	17	17	18	18	18				29					88.33	29.00
43	1243	RAHUL SINGH	19	19	19	18	18	18				69					92.50	69.00
44	1244	RAKESH	20	20	20	19	19	19				73					97.50	73.00
45	1245	RAKESH PRADHAN	19	19	18	18	18	18				60					91.67	60.00
46	1246	REEMA SINGH	20	20	19	19	19	18				48					95.83	48.00
47	1247	RISHABH GUPTA	18	18	17	16	16	16				59					84.17	59.00
48	1248	RITIK KUMAR	18	18	17	16	16	16				22					84.17	22.00
49	1249	RIYA	18	18	19	18	18	18				49					90.83	49.00
50	1250	ROYAL HUSSAIN	18	16	16	17	18	18				43					85.83	43.00
51	1251	RUDRANATH	18	18	19	18	18	18				58					90.83	58.00
52	1252	SANJIT KUMAR	20	20	19	19	19	19				68					96.67	68.00
53	1253	SANTRAM SINGH	18	18	18	17	17	17				33					87.50	33.00
54	1254	SHANTANU	19	19	18	18	18	18				42					91.67	42.00
55	1255	SHAURYA VARDHAN SINGH	20	20	19	19	19	19				68					96.67	68.00
56	1256	SHIVAM SINGH	19	19	18	18	18	19				55					92.50	55.00
57	1257	SHRISTY THAKUR	18	18	18	18	18	18				73					90.00	73.00
58	1258	UMANG SINGH	19	18	19	18	18	18				62					91.50	62.00
59	1259	VAIBHAV SINGH	20	19	19	18	18	18				71					93.33	71.00
60	1260	VANDANA KANDPAL	19	19	19	18	18	19				48					93.33	48.00

	CO1	CO2	CO3	CO4	CO5	CO6	O1	O2	IS	ES	CA	IOR	TW	PR/OR	INT TOTAL	UNIV TOTAL
Class Average	19.02	18.80	18.28	18.07	18.00	18.03				61.00					91.84	61.00
Class Average %	95.106944	94.00694	91.42361	90.3403	90.0069	90.174				61					76.54	61
Direct Attainment	71.232083	70.90208	70.12708	69.8021	69.7021	69.752										
Indirect Attainment	99	97.66667	96.33333	97	97.3333	98.667										
Total CO attainment	74.008875	73.57854	72.74771	72.5219	72.4652	72.644										
TARGET %	85	85	85	85	85	85										
GAP	10.991125	11.42146	12.25229	12.4781	12.5348	12.356										

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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ARMY INSTITUTE OF TECHNOLOGY
Dept of E & TC
PUNE-15.

6. Course Outcomes

Army Institute of Technology Dighi Hills, Pune - 411015	ATTAINMENT OF COURSE OUTCOMES	
DEPARTMENT OF E&TC ENGG.	TARGET	80 %

ACADEMIC YEAR	2022 - 23
TERM	I
CLASS	S. E. (E&TC) - A
COURSE CODE	204183
COURSE	ELECTRICAL CIRCUITS
FACULTY	MRS.PREETI WARRIER

SL. NO.	CO	COURSE OUTCOMES	% TOTAL	%TARGET	GAP	ACTION PROPOSED TO BRIDGE GAP	MODIFIED %TARGET
1	CO1	Apply knowledge of mathematics and physics to analyze and apply circuit simplification techniques to DC and AC circuits	74.01	80	5.99	Target not increased. More problems will be given to be solved by students	80
2	CO2	Apply laws of physics and mathematics to formulate and analyze transient behavior of RL,RC and RLC circuits	73.58	80	6.42	Target not increased. More problems will be given to be solved by students	80
3	CO3	Model & determine network parameters for given two port network, analyze and apply Laplace Transform to find the network transfer function	72.75	80	7.25	Target not increased. More problems will be given to be solved by students	80
4	CO4	Apply electromechanical energy conversion principles to analyze the working of DC Machines	72.52	80	7.48	Target not increased. More practical sessions to be conducted with practice of answering questions with suitable examples	80
5	CO5	Apply electromechanical energy conversion principles to analyze the working of Single Phase & Three Phase AC Motors	72.47	80	7.53	Target not increased. More practical sessions to be conducted with practice of answering questions with suitable examples	80
6	CO6	Explain the applications of special purpose motors, Analyze and select a suitable motor for different applications and make effective oral presentations using case studies.	72.64	80	7.36	Target not increased. More practical sessions to be conducted with practice of answering questions with suitable examples	80

Gap > 0: Target not attained. Improvements must be planned to increase attainment next time.

Gap <= 0: Target attained or exceeded. Attainment target may be enhanced next time.

Action Plans for Improving the CO Attainments

1 Action plans need to be as specific as possible.
2 Indicate if any additional resources (Physical resources, Learning resources) are required to implement the improvement plans.
3 Indicate if any changes in the Lesson Plan are required.
4 Avoid vague statements like "Motivate the students", "Work harder".
5 If possible, have the action plans reviewed by peers.

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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7. CO Attainment

Army Institute of Technology		CO Attainment				
Dighi Hills, Pune - 411015		CLASS	S. E. (E&TC) - A	COURSE CODE	204183	
DEPARTMENT OF E&TC ENGG.		COURSE	ELECTRICAL CIRCUITS			
ACADEMIC YEAR	2022 - 23	FACULTY	MRS.PREETI WARRIER			
TERM	I		Target Percentage Marks		80	
		Attainment Level	Criteria			
		3	%Students >=		80	
		2	%Students >=		70	
		1	%Students >=		60	
		0	%Students <		60	

Category	Total Students	Number of Stundents Above Target level	% Students above Target level	Attainment Level	Overall Attainment	COs
Internal	60	40	66.67	1	0.57	CO1
External	60	2	3.33	0		
Internal	60	40	66.67	1	0.56	CO2
External	60	2	3.33	0		
Internal	60	40	66.67	1	0.56	CO3
External	60	2	3.33	0		
Internal	60	40	66.67	1	0.56	CO4
External	60	2	3.33	0		
Internal	60	40	66.67	1	0.56	CO5
External	60	2	3.33	0		
Internal	60	40	66.67	1	0.57	CO6
External	60	2	3.33	0		

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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8. Mapping of COs with POs and PSOs Performance Indicator and Competencies

Competancy		Performance Indicators		CO1	CO2	CO3	CO4	CO5	CO6
1.1	Demonstrate competence in mathematical modelling	1.1.1	Apply mathematical techniques such as calculus, linear algebra, and statistics to solve problems	y	y	y	y	y	y
		1.1.2	Apply advanced mathematical techniques to model and solve electronics and telecommunication	y	y	y	y	y	y
1.2	Demonstrate competence in basic sciences	1.2.1	Apply laws of natural science to an engineering problem	y	y	y	y	y	y
1.3	Demonstrate competence in engineering fundamentals	1.3.1	Apply fundamental engineering concepts to solve engineering problems	y	y	y	y	y	y
1.4	Demonstrate competence in specialized engineering knowledge to the program	1.4.1	Apply engineering concepts to solve engineering problems	y	y	y			y
				3	3	3	2	2	3
2.1	Demonstrate an ability to identify and formulate complex engineering problem	2.1.1	Articulate problem statements and identify	y	y		y	y	y
		2.1.2	Identify engineering systems, variables, and parameters to solve the problems	y	y	y	y	y	y
		2.1.3	Identify the mathematical, engineering and other relevant knowledge that applies to a given problem	y	y	y	y	y	y
2.2	Demonstrate an ability to formulate a solution plan and methodology for an engineering problem	2.2.1	Reframe complex problems into interconnected sub-	y	y	y	y	y	y
		2.2.2	Identify, assemble and evaluate information and	y	y	y	y	y	y
		2.2.3	Identify existing processes/solution methods for solving the problem, including forming justified approximations and assumptions	y	y	y	y	y	y
		2.2.4	Compare and contrast alternative solution processes to select the best process	y	y	y	y	y	y
2.3	Demonstrate an ability to formulate and interpret a model	2.3.1	Combine scientific principles and engineering concepts to formulate model/s (mathematical or otherwise) of a system or process that is appropriate	y	y	y	y	y	y
		2.3.2	Identify assumptions (mathematical and physical) necessary to allow modeling of a system at the level	y	y	y	y	y	y
2.4	Demonstrate an ability to execute a solution process and analyze results	2.4.1	Apply engineering mathematics and computations to solve mathematical models	y	y	y	y	y	y
		2.4.2	Produce and validate results through skilful use of contemporary engineering tools and models	y	y	y	y	y	y
		2.4.3	Identify sources of error in the solution process, and			y	y		y
		2.4.4	Extract desired understanding and conclusions consistent with objectives and limitations of the	y	y	y	y	y	y
				3	3	3	3	3	3
3.1	Demonstrate an ability to define a complex open ended problem in engineering terms	3.1.1	Recognize that need analysis is key to good problem	y	y	y	y	y	y
		3.1.2	Elicit and document, engineering requirements				y	y	y
		3.1.3	Synthesize engineering requirements from a	y	y	y	y	y	y
		3.1.4	Extract engineering requirements from relevant engineering Codes and Standards such as ASME,				y	y	
		3.1.5	Explore and synthesize engineering requirements considering health, safety risks, environmental,						
		3.1.6	Determine design objectives, functional requirements and arrive at specifications	y	y	y		y	y
3.2	Demonstrate an ability to generate diverse set of alternative design solutions	3.2.1	Apply formal idea generation tools to develop multiple engineering design solutions	y	y	y		y	y
		3.2.2	Build models/prototypes to develop a diverse set of	y	y	y	y	y	y
		3.2.3	Identify suitable criteria for the evaluation of	y	y	y	y	y	y
3.3	Demonstrate an ability to select an optimal design scheme for further development	3.3.1	Apply formal decision-making tools to select optimal engineering design solutions for further	y	y	y		y	y
		3.3.2	Consult with domain experts and stakeholders to select candidate engineering design solution for				y	y	
3.4	Demonstrate an ability to advance an engineering design to a defined end state	3.4.1	Refine a conceptual design into a detailed design within the existing constraints (of the resources)				y		y
		3.4.2	Generate information through appropriate tests to improve or revise the design						
				2	2	2	2	2	2

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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4.1	Demonstrate an ability to conduct investigations of technical issues consistent with their level of knowledge and understanding	4.1.1	Define a problem, its scope and importance for	y	y	y	y	y	y
		4.1.2	Examine the relevant methods, tools and techniques of experiment design, system				y	y	y
		4.1.3	Apply appropriate instrumentation and/or software tools to make measurements of physical quantities	y	y	y			
		4.1.4	Establish a relationship between measured data and underlying physical principles.	y	y	y			y
4.2	Demonstrate an ability to design experiments to solve open-ended problems	4.2.1	Design and develop an experimental approach, specify appropriate equipment and procedures	y	y	y	y	y	y
		4.2.2	Understand the importance of the statistical design of experiments and choose an appropriate				y	y	y
4.3	Demonstrate an ability to analyze data and reach a valid conclusion	4.3.1	Use appropriate procedures, tools and techniques to conduct experiments and collect data	y	y	y	y	y	y
		4.3.2	Analyze data for trends and correlations, stating possible errors and limitations				y	y	y
		4.3.3	Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the	y	y	y	y	y	y
		4.3.4	Synthesize information and knowledge about the problem from the raw data to reach appropriate	y	y	y	y	y	y
				2	2	2	2	2	3
5.1	Demonstrate an ability to identify/ create modern engineering tools, techniques and resources	5.1.1	Identify modern engineering tools such as computer-aided drafting, modeling and analysis;	y	y	y	y	y	y
		5.1.2	Create/adapt/modify/extend tools and techniques to solve engineering problems				y	y	y
5.2	Demonstrate an ability to select and apply discipline- specific tools, techniques and resources	5.2.1	Identify the strengths and limitations of tools for (i) acquiring information, (ii) modeling and simulating, (iii) monitoring system performance, and (iv)	y	y	y	y	y	y
		5.2.2	Demonstrate proficiency in using discipline-	y	y	y		y	y
5.3	Demonstrate an ability to evaluate the suitability and limitations of tools used to solve an engineering problem	5.3.1	Discuss limitations and validate tools, techniques	y	y	y		y	y
		5.3.2	Verify the credibility of results from tool use with reference to the accuracy and limitations, and the				y	y	y
				2	2	2	2	3	3
6.1	Demonstrate an ability to describe engineering roles in a broader context, e.g. pertaining to the environment, health, safety, legal and public welfare	6.1.1	Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at the global, regional and local level						
6.2	Demonstrate an	6.2.1	Interpret legislation, regulations, codes, and				y	y	y
				0	0	0	2	2	2
7.1	Demonstrate an understanding of the impact of engineering and industrial practices on social, environmental and	7.1.1	Identify risks/impacts in the life-cycle of an						y
		7.1.2	Understand the relationship between the technical, socio-economic and environmental dimensions of						
7.2	Demonstrate an ability to apply principles of sustainable design and development	7.2.1	Describe management techniques for sustainable						
		7.2.2	Apply principles of preventive engineering and sustainable development to an engineering activity						y
				0	0	0	0	0	2
8.1	Demonstrate an ability to recognize ethical dilemmas	8.1.1	Identify situations of unethical professional conduct and propose ethical alternatives	y	y	y		y	
8.2	Demonstrate an ability to apply the Code of Ethics	8.2.1	Identify tenets of the ASME professional code of	y	y	y	y	y	y
		8.2.2	Examine and apply moral & ethical principles to				y		y
				2	2	2	2	2	2

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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9.1	Demonstrate an ability to form a team and define a role for each member	9.1.1	Recognize a variety of working and learning preferences; appreciate the value of diversity on a	y	y	y	y	y	y
		9.1.2	Implement the norms of practice (e.g. rules, roles, charters, agendas, etc.) of effective team work, to	y	y	y	y	y	y
9.2	Demonstrate effective individual and team operations-- communication, problem- solving, conflict resolution and leadership skills	9.2.1	Demonstrate effective communication, problem-solving, conflict resolution and leadership skills	y	y	y	y	y	y
		9.2.2	Treat other team members respectfully						
		9.2.3	Listen to other members						
		9.2.4	Maintain composure in difficult situations						
9.3	Demonstrate success in a team-based project	9.3.1	Present results as a team, with smooth integration of contributions from all	y	y	y	y	y	y
				2	2	2	2	2	2
10.1	Demonstrate an ability to comprehend technical literature and document project work	10.1.1	Read, understand and interpret technical and non-	y	y	y	y	y	y
		10.1.2	Produce clear, well-constructed, and well-supported written engineering	y	y	y	y	y	y
		10.1.3	Create flow in a document or presentation - a logical progression of ideas so that the main point is clear	y	y	y	y	y	y
10.2	Demonstrate competence in listening, speaking, and presentation	10.2.1	Listen to and comprehend information,				y	y	y
		10.2.2	Deliver effective oral presentations to technical and				y	y	y
10.3	Demonstrate the ability to integrate different modes of communication	10.3.1	Create engineering standard figures, reports and drawings to complement writing and presentation	y	y	y	y	y	y
		10.3.2	Use a variety of media effectively to convey a messasge in a document or a presentation	y	y	y			
				2	2	2	3	3	3
11.1	Demonstrate an ability to evaluate the economic and financial performance of an engineering activity	11.1.1	Describe various economic and financial costs/benefits of an engineering activity						
		11.1.2	Analyze different forms of financial statements to evaluate the financial status of an engineering project						
11.2	Demonstrate an ability to compare and contrast the costs/benefits of alternate proposals for an engineering activity	11.2.1	Analyze and select the most appropriate proposal based on economic and financial considerations.						
11.3	Demonstrate an ability to plan/manage an engineering activity within time and budget constraints	11.3.1	Identify the tasks required to complete an engineering activity, and the resources required to						
		11.3.2	Use project management tools to schedule an engineering project, so it is completed on time and						
				0	0	0	0	0	0
12.1	Demonstrate an ability to identify gaps in knowledge and a strategy to close these gaps	12.1.1	Describe the rationale for the requirement for continuing professional development				y	y	y
		12.1.2	Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to						
12.2	Demonstrate an ability to identify changing trends in engineering knowledge and practice	12.2.1	Identify historic points of technological advance in engineering that required				y	y	y
		12.2.2	Recognize the need and be able to clearly explain	y	y	y	y	y	y
12.3	Demonstrate an ability to identify and access sources for new information	12.3.1	Source and comprihend technical literature and	y	y	y			
		12.3.2	Analyze sourced technical and popular information for feasibility, viability, sustainability, etc.				y	y	y
				1	1	1	2	2	2

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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13.1	Demonstrate an ability to apply the knoledge of Software and hardware tools used in Semiconductor technology to solve real world problems.	PI 13.1.1	Describe the rationale for the requirement of Software and hardware tools used in Semiconductor	y	y	y	y	y	y
		PI 13.1.2	Identify and work on strategy of using Software and hardware tools in Semiconductor technology to	y	y	y	y	y	y
13.2	Demonstrate an ability to apply the knoledge of Software and hardware tools used in embedded and telecommunication to solve real word problems	PI 13.2.1	Identify historic points of technological advances and changing trends in embedded and	y	y	y	y	y	y
		PI 13.2.2	Recognize the need and be able to clearly explain why it is vitally important to keep updated regarding new developments in embedded and				y	y	y
13.3	Demonstrate an ability to apply the knoledge of Software and hardware tools used in Signal Processing to solve real	PI 13.3.1	identify and analyze source and comprihend technical literature and other credible sources of	y	y	y			
		PI 13.3.2	Analyze and solve engg problems in area of Signal						
				2	2	2	2	2	2
14.1	Demonstrate an ability to gain wide knowledge in the areas involving Industry 4.0 technologies such as robotics, Internet of Things, cyber-	PI 14.1.1	Describe the rationale for the requirement, investigation of Industry 4.0 technologies	y	y	y	y	y	y
		PI 14.1.2	Design hardware or software programs and Identify deficiencies or gaps in knowledge					y	y
14.2	Demonstrate an ability to develop hardware and software programs, analyze & interpret the data in the	PI 14.2.1	Identify historic points of technological advances in involving Industry 4.0 technologies to develop	y	y	y	y	y	y
		PI 14.2.2	Analyze and Interpret data while developing	y	y	y	y	y	y
14.3	Demonstrate an ability to work on projects in the areas involving Industry 4.0 technologies such as robotics, Internet of Things, cyber-physical	PI 14.3.1	Gaining knowledge of robotics, Internet of Things, cyber-physical systems etc. to work on projects.						
		PI 14.3.2	Analyze sourced technical and popular information for feasibility, viability, sustainability and security						
				2	2	2	2	2	2

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9. CO-PO Mapping & Attainment

Army Institute of Technology
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Dighi Hills, Pune - 411015
DEPARTMENT OF E&TC ENGG.

ASSESSMENT AND EVALUATION OF PROGRAM OUTCOMES

ACADEMIC YEAR	2022 - 23	CLASS	S. E. (E&TC) - A
TERM	I	COURSE CODE	204183
COURSE	ELECTRICAL CIRCUITS		
FACULTY	MRS.PREETI WARRIER	MAPPING CORELATION	

HIGH	3	100%
MEDIUM	2	70%
LOW	1	50%

CO-PO CORRELATION MATRIX

CO	CO ATTAINMENT %		PROGRAM OUTCOMES											
			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	0.57		3	3	2	2	2			2	2	2		1
CO2	0.56		3	3	2	2	2			2	2	2		1
CO3	0.56		3	3	2	2	2			2	2	2		1
CO4	0.56		2	3	2	2	2	2		2	2	3		2
CO5	0.56		2	3	2	2	3	2		2	2	3		2
CO6	0.57		3	3	2	3	3	2	2	2	2	3		2
			2.67	3.00	2.00	2.17	2.33	2.00	2.00	2.00	2.00	2.50		1.50

EVALUATION OF POs BASED ON CORRELATION MATRIX & CO ATTAINMENT

CO	CO ATTAINMENT LEVEL		PROGRAM OUTCOMES											
	LEVEL		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	0.57		0.19	0.19	0.13	0.13	0.13			0.13	0.13	0.13		0.06
CO2	0.56		0.19	0.19	0.13	0.13	0.13			0.13	0.13	0.13		0.06
CO3	0.56		0.19	0.19	0.12	0.12	0.12			0.12	0.12	0.12		0.06
CO4	0.56		0.12	0.19	0.12	0.12	0.12	0.12		0.12	0.12	0.19		0.12
CO5	0.56		0.12	0.19	0.12	0.12	0.19	0.12		0.12	0.12	0.19		0.12
CO6	0.57		0.19	0.19	0.13	0.19	0.19	0.13	0.13	0.13	0.13	0.19		0.13
OVERALL EVALUATION OF POs			0.17	0.19	0.13	0.14	0.15	0.13	0.13	0.13	0.13	0.16		0.09

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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10. CO-PSO Mapping & Attainment

Army Institute of Technology
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DEPARTMENT OF E&TC ENGG.

ASSESSMENT AND EVALUATION OF PROGRAM SPECIFIC OUTCOMES

ACADEMIC YEAR	2022 - 23	CLASS	S. E. (E&TC) - A
TERM	I	COURSE CODE	204183
COURSE	ELECTRICAL CIRCUITS		
FACULTY	MRS.PREETI WARRIER	MAPPING CORELATION	

HIGH	3	100%
MEDIUM	2	70%
LOW	1	50%

CO-PSO CORRELATION MATRIX

CO	CO ATTAINMENT		PSOs	
			PSO1	PSO2
CO1	0.57		2	2
CO2	0.56		2	2
CO3	0.56		2	2
CO4	0.56		2	2
CO5	0.56		2	2
CO6	0.57		2	2
			2.00	2.00

EVALUATION OF PSOs BASED ON CORRELATION MATRIX & CO ATTAINMENT

CO	CO ATTAINMENT		PSOs	
			PSO1	PSO2
CO1	0.57		0.13	0.13
CO2	0.56		0.13	0.13
CO3	0.56		0.12	0.12
CO4	0.56		0.12	0.12
CO5	0.56		0.12	0.12
CO6	0.57		0.13	0.13
OVERALL EVALUATION OF PSOs			0.13	0.13

Prof Preeti Warrier
ECKT Subject Incharge

Prof (Dr) GR Patil
HoD E&TC

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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ARMY INSTITUTE OF TECHNOLOGY
Dighi Hills, Alandi Road, Pune 411015
Department of Information Technology



370. Sample CO and PO Attainment Excel sheet

Course: 414450 Distributed System

Class: BE IT

AY: 2022-23

Semester: II

Faculty Incharge: Prof Vaishali Ingale

Sample CO-PO Excel Sheet

1. Course Outcomes

Army Institute of Technology Onward to Glory Dighi Hills, Pune - 411015	ATTAINMENT OF COURSE OUTCOMES	
DEPARTMENT OF INFORMATION TECHNOLOGY	TARGET	60 %

ACADEMIC YEAR	2022-2023
TERM	II
CLASS	BE (IT)
COURSE CODE	414455
COURSE	Distributed Systems
FACULTY	Prof Vaishali Ingale

SL. NO.	CO	COURSE OUTCOMES	TOTAL
1	CO1	Demonstrate the core concepts of distributed systems	1.04
2	CO2	Understand the concept of middleware of distributed systems	1.04
3	CO3	Understand Inter-process communication methods and analyze different coordination algorithms	2.00
4	CO4	Comprehend the importance of replication to achieve fault tolerance in distributed systems	2.00
5	CO5	Analyze the design and functioning of existing distributed file systems, distributed multimedia, and distributed web-based systems	2.01
6	CO6	Understand various Recent Trends in distributed systems	2.01

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2. Mapping of COs with POs Performance Indicator and Competencies given by AICTE

Army Institute of Technology, Department of Information Technology

Class & Branch	BE IT
Semester	II
Course	Distributed System
year	2022-23
Course Instructor	Prof. Vaishali Ingale

Total Students	61

Program Outcomes		Competancy		Performance Indicators	CO1	CO2	CO3	CO4	CO5	CO6
					Demonstrate the core concepts of distributed systems	Understand the concept of middleware of distributed systems	Understand Inter-process communication methods and analyze different coordination algorithms	Comprehend the importance of replication to achieve fault tolerance in distributed systems	Analyze the design and functioning of existing distributed file systems, distributed multimedia, and distributed web-based systems	Understand various Recent Trends in distributed systems
PO 01 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex	1.2	Demonstrate competence in mathematical modelling	1.2.1	Apply the knowledge of discrete structures, linear algebra, statistics and numerical techniques to solve problems						
			1.2.2	Apply the concepts of probability, statistics and queuing theory in modeling of computer-based system, data and network protocols.	y	y	y	y	y	y
	1.5	Demonstrate competence in basic sciences	1.5.1	Apply laws of natural science to an engineering problem.	y	y	y	y	y	y
	1.6	Demonstrate competence in engineering fundamentals	1.6.1	Apply engineering fundamentals	y	y	y	y	y	y
	1.7	Demonstrate competence in specialized engineering knowledge to the program	1.7.1	Apply theory and principles of computer science and engineering to solve an engineering problem	y	y	y	y	y	y
PO to CO Mapping for PO 1					3	3	3	3	3	3

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	2.5	Demonstrate an ability to identify and formulate complex engineering problem	2.5.1	Evaluate problem statements and identifies objectives		y	y	y	y	y	y
			2.5.2	Identify processes/modules/algorithms of a computer-based system and parameters to solve a problem		y	y	y	y	y	y
			2.5.3	Identify mathematical algorithmic knowledge that applies to a given problem		y	y	y	y	y	y
	2.6	Demonstrate an ability to formulate a solution plan and methodology for an engineering problem	2.6.1	Reframe the computer-based system into interconnected subsystems				y	y	y	y
			2.6.2	Identify, assemble and evaluate information and resources.		y	y	y	y	y	y
			2.6.3	Identify existing processes/solution methods for solving the problem, including forming justified approximations and assumptions				y	y	y	y
			2.6.4	Compare and contrast alternative solution processes to select the best process.				y	y	y	y
	2.7	Demonstrate an ability to formulate and interpret a model	2.7.1	Able to apply computer engineering principles to formulate modules of a system with required applicability and performance.		y	y	y	y	y	y
			2.7.2	Identify design constraints for required performance criteria.		y	y	y	y	y	y
	2.8	Demonstrate an ability to execute a solution process and analyze results	2.8.1	Applies engineering mathematics to implement the solution.				y	y	y	y
			2.8.2	Analyze and interpret the results using contemporary tools.		y	y	y	y	y	y
			2.8.3	Identify the limitations of the solution and sources/causes.		y	y		y	y	y
			2.8.4	Arrive at conclusions with respect to the objectives		y	y	y	y	y	y
PO to CO Mapping for PO 2						3	3	3	3	3	3

PO 3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.	3.5	Demonstrate an ability to define a comples open ended problem in engineering terms	3.5.1	Able to define a precise problem statement with objectives and scope.	y	y	y	y	y	y
			3.5.2	Able to identify and document system requirements from stake-holders.	y	y		y	y	y
			3.5.3	Able to review state-of-the-art literature to synthesize system requirements.	y	y	y	y	y	y
			3.5.4	Able to choose appropriate quality attributes as defined by ISO/IEC/IEEE standard.	y	y	y	y	y	
			3.5.5	Explore and synthesize system requirements from larger social and professional concerns.	y	y		y	y	y
			3.5.6	Able to develop software requirement specifications (SRS).	y	y	y	y	y	y
	3.6	Demonstrate an ability to generate diverse set of alternative design solutions	3.6.1	Able to explore design alternatives.			y	y	y	y
			3.6.2	Able to produce a variety of potential design solutions suited to meet functional requirements.			y	y	y	y
			3.6.3	Identify suitable non-functional requirements for evaluation of alternate design solutions.	y	y	y	y	y	y
	3.7	Demonstrate an ability to select an optimal design scheme for further development	3.7.1	Able to perform systematic evaluation of the degree to which several design concepts meet the criteria.			y	y	y	y
			3.7.2	Consult with domain experts and stakeholders to select candidate engineering design solution for further development	y	y	y	y	y	y
	3.8	Demonstrate an ability to advance an engineering design to a defined end state	3.8.1	Able to refine architecture design into a detailed design within the existing constraints.			y	y	y	y
			3.8.2	Able to implement and integrate the modules, Able to verify the functionalities and validate the design.	y	y		y	y	y
PO to CO Mapping for PO 3					3	3	3	3	3	3

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PO 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.	4.4	Demonstrate an ability to conduct investigations of a technical issues consistant with their level of knowledge and understanding	4.4.1	Define a problem for purposes of investigation, its scope and importance	y	y	y	y	y	y
			4.4.2	Able to choose appropriate procedure/algorithm, dataset and test cases.			y	y	y	y
			4.4.3	Able to choose appropriate hardware tools to conduct the experiment.						
			4.4.4	Able to choose appropriate software tools to conduct the experiment.	y	y		y	y	y
	4.5	Demonstrate an ability to design experiments to solve open ended problem	4.5.1	Design appropriate procedures/methodologies based on the study objectives	y	y	y	y	y	y
			4.5.2	Develop appropriate procedures/methodologies based on the study objectives			y	y	y	y
	4.6	Demonstrate an ability to analyze data and reach a valid conclusion	4.6.1	Use appropriate procedures, tools and techniques to collect and analyze data	y	y	y	y	y	
			4.6.2	Critically analyze data for trends and correlations, stating possible errors and limitations				y	y	y
			4.6.3	Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions			y	y	y	
			4.6.4	Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions	y	y	y	y	y	y
PO to CO Mapping for PO 4					3	3	3	3	3	3

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PO 5 : Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	5.4	Demonstrate an ability to identify/create modern engineering tools, techniques and resources	5.4.1	Identify modern engineering tools, techniques and resources for engineering activities	y	y	y	y	y	y
			5.4.2	Create/adapt/modify/extend tools and techniques to solve engineering problems		y	y	y	y	y
	5.5	Demonstrate an ability to select and apply disciplinespecific tools, techniques and resources	5.5.1	Identify the strengths and limitations of tools for (i) acquiring information, (ii) modeling and simulating, (iii) monitoring system performance, and (iv) creating engineering designs.		y	y	y	y	y
			5.5.2	Demonstrate proficiency in using discipline-specific tools						
	5.6	Demonstrate an ability to evaluate the suitability and limitations of tools used to slve an engineering problem	5.6.1	Discuss limitations and validate tools, techniques and resources	y	y	y	y	y	y
			5.6.2	Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.			y	y	y	
PO to CO Mapping for PO 5					2	3	3	3	3	3

PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the	6.3	Demonstrate an ability to describe engineering roles in a broader context, pertaining to environment, health, safety, legal and public	6.3.1	Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at the global, regional and local level			y			
	6.4	Demonstrate an understanding of professional engineering regulations, legislation and standards	6.4.1	Interpret legislation, regulations, codes, and standards relevant to your discipline and explain its contribution to the protection of the public			y	y	y	y
PO to CO Mapping for PO 6					0	0	3	3	3	3

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PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice	6.3	Demonstrate an ability to describe engineering roles in a broader context, pertaining to environment, health, safety, legal and	6.3.1	Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at the global, regional and local level				y			
	6.4	Demonstrate an understanding of professional engineering regulations, legislation and standards	6.4.1	Interpret legislation, regulations, codes, and standards relevant to your discipline and explain its contribution to the protection of the public				y	y	y	y
PO to CO Mapping for PO 6						0	0	3	3	3	3
PO 7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	7.3	Demonstrate an understanding of the impact of engineering and industrial practices on social, environmental and in economic contexts.	7.3.1	Identify risks/impacts in the life-cycle of an engineering product or activity		y					y
			7.3.2	Understand the relationship between the technical, socio-economic and environmental dimensions of sustainability		y		y		y	y
	7.4	Demonstratr an ability to apply principles of sustainable design and development	7.4.1	Describe management techniques for sustainable development				y			
			7.4.2	Apply principles of preventive engineering and sustainable development to an engineering activity or product relevant to the discipline		y		y		y	y
PO to CO Mapping for PO 7						3	0	3	0	3	3

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PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	8.3	Demonstrate an ability to recognize ethical dilemmas	8.3.1	Identify situations of unethical professional conduct and propose ethical alternatives		y	y	y		y	y
	8.4	Demonstrate an ability to apply the code of Ethics	8.4.1	Identify tenets of the ASME professional code of ethics					y	y	y
			8.4.2	Examine and apply moral & ethical principles to known case studies			y	y	y		y
PO to CO Mapping for PO 8						2	3	3	3	3	3
PO 9:Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	9.4	Demonstrate an ability to form a team and define a role for each member	9.4.1	Recognize a variety of working and learning preferences; appreciate the value of diversity on a team							
			9.4.2	Implement the norms of practice (e.g. rules, roles, charters, agendas, etc.) of effective team work, to accomplish a goal.							
	9.5	Demonstrate effective individual and team operations-communication, problem solving, conflict resolving, and leadership skills	9.5.1	Demonstrate effective communication, problem-solving, conflict resolution and leadership skills							
			9.5.2	Treat other team members respectfully							
			9.5.3	Listen to other members							
			9.5.4	Maintain composure in difficult situations							
	9.6	Demonstrate success in a team based project	9.6.1	Present results as a team, with smooth integration of contributions from all individual efforts							
PO to CO Mapping for PO 9						0	0	0	0	0	0

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PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	10.4	Demonstrate an ability to comprehend technical literature and document project work	10.4.1	Read, understand and interpret technical and non-technical informa		y	y	y	y	y	y
			10.4.2	Produce clear, well-constructed, and well-supported written engineering documents		y	y	y	y	y	y
			10.4.3	Create flow in a document or presentation - a logical progression of ideas so that the main point is clear		y	y	y	y	y	y
	10.5	Demonstrate competance in listening, speaking, and presentation	10.5.1	Listen to and comprehend information, instructions, and viewpoints of others							
			10.5.2	Deliver effective oral presentations to technical and non-technical audience							
	10.6	Demonstrate the ability to integrate different modes of communication	10.6.1	Create engineering standard figures, reports and drawings to complement writing and presentation				y		y	y
			10.6.2	Use a variety of media effectively to convey a messasge in a document or a presentation				y	y	y	y
PO to CO Mapping for PO 10						2	2	3	3	3	3

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PO 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	11.4	Demonstrate an ability to evaluate the economics and financial performance of an engineering activity	11.4.1	Describe various economic and financial costs/benefits of an engineering activity							
			11.4.2	Analyze different forms of financial statements to evaluate the financial status of an engineering project							
	11.5	Competancy 11.2: Demonstrate an ability to compare and contrast the costs/benefits of alternate proposals for an engineering activity	11.5.1	Analyze and select the most appropriate proposal based on economic and financial considerations.							
	11.6	Demonstrate an ability to plan/manage an engineering activity within time and budget constraints	11.6.1	Identify the tasks required to complete an engineering activity, and the resources required to complete the tasks.		y	y	y	y	y	y
			11.6.2	Use project management tools to schedule an engineering project, so it is completed on time and on budget		y	y				
PO to CO Mapping for PO 11						2	2	1	1	1	1

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PO 12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	12.4	Demonstrate an ability to identify gaps in knowledge and a strategy to close these gaps	12.4.1	Describe the rationale for the requirement for continuing professional development			y	y	y	y
			12.4.2	Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap			y		y	y
	12.5	Demonstrate an ability to identify changing trends in engineering knowledge and practice	12.5.1	Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current			y	y	y	y
			12.5.2	Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field			y	y	y	y
	12.6	Demonstrate an ability to identify and access sources for new information	12.6.1	Source and comprihend technical literature and other credible sources of information				y	y	y
			12.6.2	Analyze sourced technical and popular information for feasibility, viability, sustainability, etc.			y	y	y	y
PO to CO Mapping for PO 12					0	0	3	3	3	3

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PSO 01: Graduate will demonstrate an ability to identify, formulate & solve computer science and Information Technology Engineering problems	13.1	Demonstrate an ability to identify engg problems and a strategy to solve these problems	PI 13.1.1	Describe the rationale for the requirement for solving engineering problems	y	y	y	y	y	
			PI 13.1.2	Identify and work on strategy to solve engineering problems	y	y	y	y	y	y
	13.2	Demonstrate an ability to formulate and identify changing trends in CS and IT engineering knowledge and practice	PI 13.2.1	Identify historic points of technological advances and changing trends in CS and IT.	y	y	y	y	y	y
			PI 13.2.2	Recognize the need and be able to celarly explain why it is vitally important to keep current regarding new developments in CS and IT engineering fields	y	y	y	y	y	y
	13.3	Demonstrate an ability to identify and solve engg problems in area of CS and IT	PI 13.3.1	identify and analyze source and comprihend technical literature and other credible sources of information to solve engg problems	y	y	y	y	y	y
			PI 13.3.2	Analyze and solve engg problems in area of CS and IT	y	y	y	y	y	y
PSO to CO Mapping forPSO 01					3	3	3	3	3	3
PSO 02: Graduate will demonstrate an ability to investigate, design and develop software programs, analyze & interpret the data and work on multidisciplinary projects.	14.1	Graduate will demonstrate an ability to investigate and design software programs.	PI 14.1.1	Describe the rationale for the requirement, investigation of software programs	y	y	y	y	y	y
			PI 14.1.2	Design software programs and Identify deficiencies or gaps in knowledge		y	y		y	y
	14.2	Demonstrate an ability to develop software programs, analyze & interpret the data.	PI 14.2.1	Identify historic points of technological advances in computer science and information Technology to develop software programs	y	y	y	y	y	y
			PI 14.2.2	Analyze and Interpret data while developing software programs	y	y	y	y	y	y
	14.3	Demonstrate an ability to work on multidisciplinary projects.	PI 14.3.1	Gaining knowledge of other fields to work on multidisciplinary projects.	y	y	y	y	y	y
			PI 14.3.2	Analyze sourced technical and popular information for feasibility, viability, sustainability for multidisciplinary projects.	y	y	y	y	y	y
PSO to CO Mapping forPSO 02					3	3	3	3	3	3

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PSO 03 Graduate who can pursue higher studies or get placed in computer science and IT based companies are also encouraged to become entrepreneurs	15.1	Demonstrate an ability to gain wide knowledge to pursue higher studies	PI 15.1.1	Describe the rationale for the requirement for continuing professional development and higher education		y	y	y	y	y	y
			PI 15.1.2	Identify historic points of technological advance in CS and IT engineering that required practitionars to seek education in order to stay current		y	y	y	y	y	y
	15.2	Demonstrate an ability to identify changing trends in CS and IT fields	PI 15.2.1	Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap		y	y	y	y	y	y
			PI 15.2.2	Recognize the need and be able to celarly explain why it is vitally important to keep current regarding new developments in CS-IT fields		y	y	y		y	y
	15.3	Demonstrate an ability to identify and access sources for new information and able to generate the employbility.	PI 15.3.1	Demonstrate an ability to get placed in core industry and an ability to increase the status in professional world.		y	y	y	y	y	y
			PI 15.3.2	Demonstrate and abale to generate employbility		y			y	y	y
PSO to CO Mapping forPSO 03						3	3	3	3	3	3

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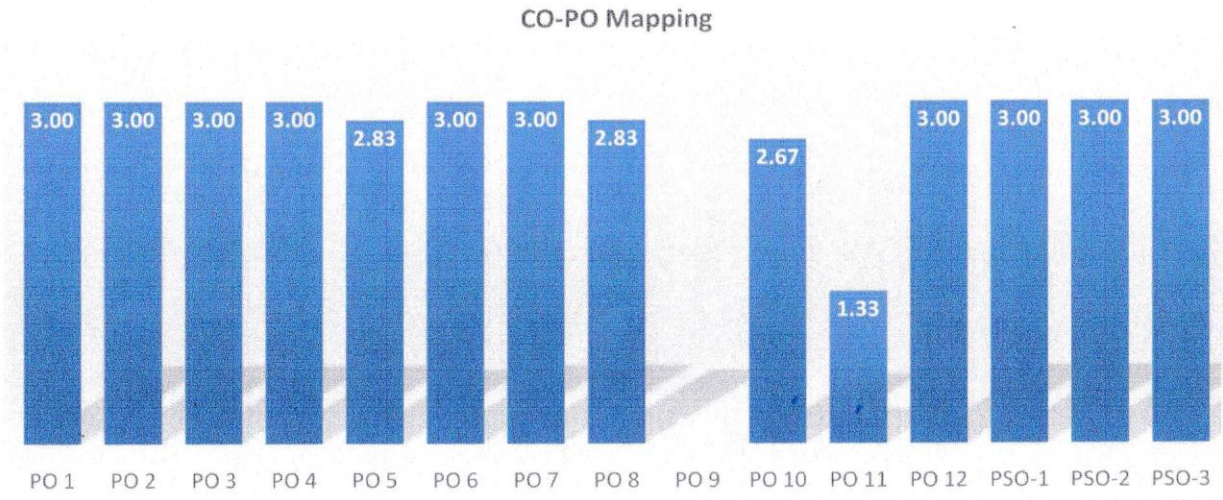
3. CO-PO Mapping

CO-PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO-1	PSO-2	PSO-3
CO1	3	3	3	3	2		3	2		2	2		3	3	3
CO2	3	3	3	3	3			3		2	2		3	3	3
CO3	3	3	3	3	3	3	3	3		3	1	3	3	3	3
CO4	3	3	3	3	3	3		3		3	1	3	3	3	3
CO5	3	3	3	3	3	3	3	3		3	1	3	3	3	3
CO6	3	3	3	3	3	3	3	3		3	1	3	3	3	3
Avg	3.00	3.00	3.00	3.00	2.83	3.00	3.00	2.83		2.67	1.33	3.00	3.00	3.00	3.00



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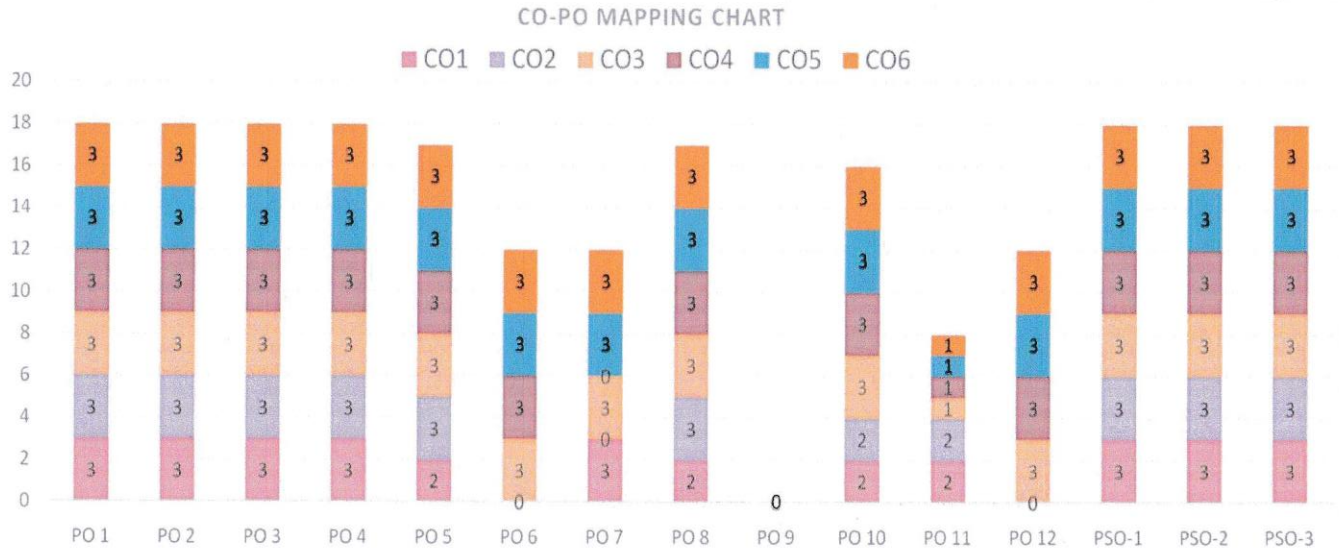

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4. Internal Assessment

Test-I Marks

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Department of Information Technology

Class & Branch	**BE (IT)**
Semester	**II**
Course	**Distributed Systems**
Academic Year	**2022 - 2023**
Course Instructor	**Prof Vaishali Ingale**
Total no. of Students	**61**

			CO1 07 Marks	CO1 08 Marks	CO2 07 Marks	CO2 08 Marks		
Sr. No	**Roll No.**	**Name of Student**	**Q: 1 (a)**	**Q: 1 (b)**	**Q: 2 (a)**	**Q:2 (b)**	**Q: 1 (15 M)**	**Q: 2 (15 M)**
1	4401	**AARTI KUMARI**	7	8	7	0	15	7
2	4402	**AAYUSH KUMAR**	1	0	5	6	1	11
3	4403	**ABHISHEK SATYAWAN SHEDGE**	7	7	7	5	14	12
4	4404	**AJAY SINGH**	7	8	7	2	15	9
5	4405	**AJAY KUMAR MOURYA**	6	6	7	2	12	9
6	4406	**ANIKET SAHA**	2	1	0	0	3	0
7	4407	**ANKIT KUMAR**	5	2	5	3	7	8
8	4408	**ANMOL CHARAK**	5	2	2	1	7	3
9	4409	**CHANDRESH SINGH**	6	6	6	6	12	12
10	4410	**D VIJAY KUMAR**	7	6	7	3	13	10
11	4411	**DEEPAK BARNWAL**	3	3	3	2	6	5
12	4413	**GAURAV YADAV**	7	7	7	7	14	14

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13	4414	GOVIND PRASAD SHARMA	7	6	7	5	13	12
14	4415	HARISH KUMAR BAJIYA	7	8	0	5	15	5
15	4416	ISHA TYAGI	5	3	4	3	8	7
16	4417	JATIN KUMAR	4	3	5	5	7	10
17	4418	KAMALUDDIN RAJU MULANI	6	2	6	2	8	8
18	4419	LAXMAN SINGH	5	6	5	0	11	5
19	4420	MANISH ASWAL	7	0	2	0	7	2
20	4421	MANISH KUMAR SINGH	6	3	3	2	9	5
21	4422	MANOJ KUMAR REWAR	6	0	4	2	6	6
22	4423	MOHD KASIB	7	5	7	6	12	13
23	4424	MUKUL YADAV	3	1	1	2	4	3
24	4425	NALIN MAHALA	5	0	4	3	5	7
25	4426	NEERAJ SOUN	2	7	3	0	9	3
26	4427	NIGAM PRATAP SINGH RATHORE	7	0	3	1	7	4
27	4428	NISHU RAI	7	7	7	6	14	13
28	4429	NITISH KUMAR	6	6	4	5	12	9
29	4430	OMKAR VIVEKANAND MORE	5	3	5	1	8	6
30	4431	PRABAL KUMAR	0	6	3	5	6	8
31	4432	PRADEEP KUMAR	6	3	0	4	9	4
32	4433	PRANAV SURENDRAN	5	6	6	5	11	11
33	4434	PRATIK SUNIL PHADTARE	7	8	0	0	15	0
34	4435	PREETI	5	2	0	0	7	0
35	4436	PRINCE YADAV	4	0	0	3	4	3
36	4437	RAHUL BHATT	3	5	6	2	8	8
37	4438	RAHUL KUMAR YADAV	4	6	2	3	10	5
38	4439	RAJEEV KUMAR	7	6	7	5	13	12
39	4440	RAJVEERSINH GOHIL	7	6	2	3	13	5
40	4441	ROHAN KHANDKOLE	1	0	0	0	1	0
41	4442	ROHIT KUMAR	6	4	6	6	10	12
42	4443	RUSHIKESH HEMANT	4	3	5	0	7	5

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		MOGALE						
43	4444	SANDESH KUMAR	6	6	5	5	12	10
44	4445	SAURAV SINGH RAUTHAN	5	2	4	0	7	4
45	4446	SAVEEN KUMAR	0	0	1	2	0	3
46	4447	SHAMBHAVI CHOUDHARY	7	8	6	5	15	11
47	4448	SHASHANK SINGH	3	6	6	1	9	7
48	4449	SHEKHAR KUMAR SINGH	5	5	0	0	10	0
49	4450	SHIVANGI CHAUHAN	0	5	5	3	5	8
50	4451	SHORABH SINGH	7	5	6	6	12	12
51	4452	SUMIT DAHIYA	6	3	5	3	9	8
52	4453	TUSHAR RAJ	6	0	0	4	6	4
53	4454	VAIBHAV	2	2	0	0	4	0
54	4455	VARUN KUMAR	4	3	4	2	7	6
55	4456	VIKAS CHOUDHARY	6	0	2	2	6	4
56	4457	VIKAS KUMAR RANA	7	5	6	6	12	12
57	4458	VIKAS SINGH	6	0	2	1	6	3
58	4459	YASANT KUMAR SHARMA	7	5	2	2	12	4
59	4460	YASH	5	6	0	6	11	6
60	4461	YASHKRIT KUMAR SINGH	7	7	7	5	14	12
61	4462	YOGESH KUMAR	7	5	3	2	12	5
Bloom's taxonomy			Remember (R) / Understand (U) / Apply (P)		Analysis (A) / Evaulate (E) / Create (C)		Max Marks Co Wise	
							CO1	CO2
Questionwise Max Marks			7	8	7	8	15	15
Competence 60% Threshold			U	P	P	P	9	9
No .of Students above Threshold			CO1	CO1	CO2	CO2	33	20

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Benchmark and Attainment

Attainment

Level	60% Students got more than target	36.6	1
	70% Students got more than target	42.7	2
	80% Students got more than target	48.8	3

Students Above Threshold
Attainment

CO 1	33	0
CO 2	20	0

Quality Of Question Paper according to Bloom's taxonomy

Remember (R)	
Understand (U)	7
Apply (P)	23
Analysis (A)	
Evaulate (E)	
Create (C)	

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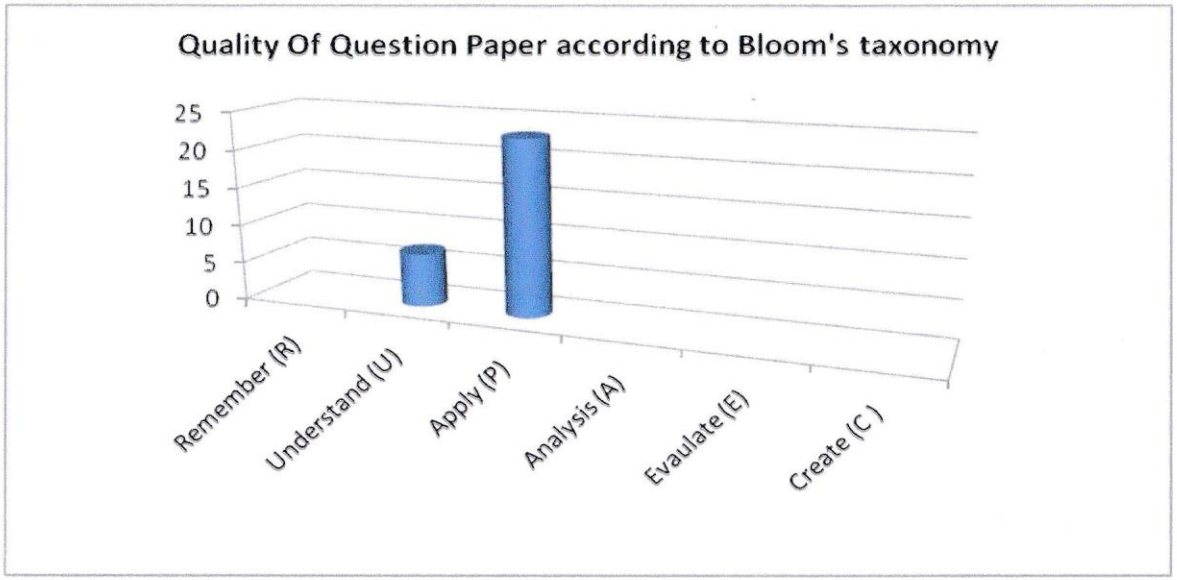

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015

HOD
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Test-2 Marks

Army Institute of Technology
Department of Information Technology

Class & Branch	**BE (IT)**
Semester	**II**
Course	**Distributed Systems**
Academic Year	**2022 - 2023**
Course Instructor	**Prof Vaishali Ingale**
Total no. of Students	**61**

			CO3 07 Marks	CO3 08 Marks	CO4 07 Marks	CO4 08 Marks		
Sr. No	**Roll No.**	**Name of Student**	**Q: 1 (a)**	**Q: 1 (b)**	**Q: 2 (a)**	**Q:2 (b)**	**Q: 1 (15 M)**	**Q: 2 (15 M)**
1	4401	**AARTI KUMARI**	9	5	10	10	14	20
2	4402	**AAYUSH KUMAR**	8	8	8	5	16	13
3	4403	**ABHISHEK SATYAWAN SHEDGE**	6	9	6	6	15	12
4	4404	**AJAY SINGH**	5	8	7	7	13	14
5	4405	**AJAY KUMAR MOURYA**	8	9	5	8	17	13
6	4406	**ANIKET SAHA**	6	10	6	9	16	15
7	4407	**ANKIT KUMAR**	6	7	5	10	13	15
8	4408	**ANMOL CHARAK**	5	7	5	6	12	11
9	4409	**CHANDRESH SINGH**	9	9	9	10	18	19
10	4410	**D VIJAY KUMAR**	7	9	10	7	16	17
11	4411	**DEEPAK BARNWAL**	5	8	10	9	13	19
12	4413	**GAURAV YADAV**	10	5	9	10	15	19
13	4414	**GOVIND PRASAD SHARMA**	10	8	9	9	18	18

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14	4415	HARISH KUMAR BAJIYA	9	10	5	6	19	11
15	4416	ISHA TYAGI	5	9	8	8	14	16
16	4417	JATIN KUMAR	8	6	6	6	14	12
17	4418	KAMALUDDIN RAJU MULANI	10	8	8	9	18	17
18	4419	LAXMAN SINGH	9	9	5	5	18	10
19	4420	MANISH ASWAL	9	8	7	10	17	17
20	4421	MANISH KUMAR SINGH	9	6	6	10	15	16
21	4422	MANOJ KUMAR REWAR	6	5	9	7	11	16
22	4423	MOHD KASIB	10	8	9	6	18	15
23	4424	MUKUL YADAV	6	5	9	5	11	14
24	4425	NALIN MAHALA	6	8	9	5	14	14
25	4426	NEERAJ SOUN	8	7	8	10	15	18
26	4427	NIGAM PRATAP SINGH RATHORE	8	5	5	8	13	13
27	4428	NISHU RAI	8	8	7	9	16	16
28	4429	NITISH KUMAR	7	9	8	8	16	16
29	4430	OMKAR VIVEKANAND MORE	8	7	7	5	15	12
30	4431	PRABAL KUMAR	5	10	7	8	15	15
31	4432	PRADEEP KUMAR	6	9	10	10	15	20
32	4433	PRANAV SURENDRAN	10	10	8	8	20	16
33	4434	PRATIK SUNIL PHADTARE	9	6	6	7	15	13
34	4435	PREETI	9	8	9	8	17	17
35	4436	PRINCE YADAV	10	9	8	8	19	16
36	4437	RAHUL BHATT	5	10	9	5	15	14
37	4438	RAHUL KUMAR YADAV	8	6	9	9	14	18
38	4439	RAJEEV KUMAR	8	10	5	9	18	14
39	4440	RAJVEERSINH GOHIL	10	5	8	6	15	14
40	4441	ROHAN KHANDKOLE	9	6	6	10	15	16
41	4442	ROHIT KUMAR	7	5	9	9	12	18
42	4443	RUSHIKESH HEMANT MOGALE	7	6	10	8	13	18
43	4444	SANDESH KUMAR	6	10	5	9	16	14

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44	4445	SAURAV SINGH RAUTHAN	5	9	6	9	14	15
45	4446	SAVEEN KUMAR	7	9	7	7	16	14
46	4447	SHAMBHAVI CHOUDHARY	5	5	10	8	10	18
47	4448	SHASHANK SINGH	10	10	9	8	20	17
48	4449	SHEKHAR KUMAR SINGH	6	7	9	10	13	19
49	4450	SHIVANGI CHAUHAN	6	10	10	9	16	19
50	4451	SHORABH SINGH	5	8	5	10	13	15
51	4452	SUMIT DAHIYA	9	9	5	5	18	10
52	4453	TUSHAR RAJ	8	7	8	10	15	18
53	4454	VAIBHAV	9	10	10	5	19	15
54	4455	VARUN KUMAR	5	7	5	8	12	13
55	4456	VIKAS CHOUDHARY	7	6	9	7	13	16
56	4457	VIKAS KUMAR RANA	10	8	5	8	18	13
57	4458	VIKAS SINGH	9	8	8	7	17	15
58	4459	YASANT KUMAR SHARMA	7	7	6	6	14	12
59	4460	YASH	6	9	5	10	15	15
60	4461	YASHKRIT KUMAR SINGH	9	7	9	6	16	15

Bloom's taxonomy	Remember (R)		Analysis (A)		Max Marks Co Wise	
	Understand (U)		Evaulate (E)			
	Apply (P)		Create (C)		CO3	CO4
Questionwise Max Marks	7	8	7	8	15	15
Competence 60% Threshold	U	P	P	P	9	9
No .of Students above Threshold	CO3	CO3	CO4	CO4	60	60

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Benchmark and Attainment

Attainment

Level	60% Students got more than target	36.6	1
	70% Students got more than target	42.7	2
	80% Students got more than target	48.8	3

Students Above Threshold
Attainment

CO 3	60	3
CO 4	60	3

Quality Of Question Paper according to Bloom's taxonomy

Remember (R)	
Understand (U)	7
Apply (P)	23
Analysis (A)	
Evaulate (E)	
Create (C)	

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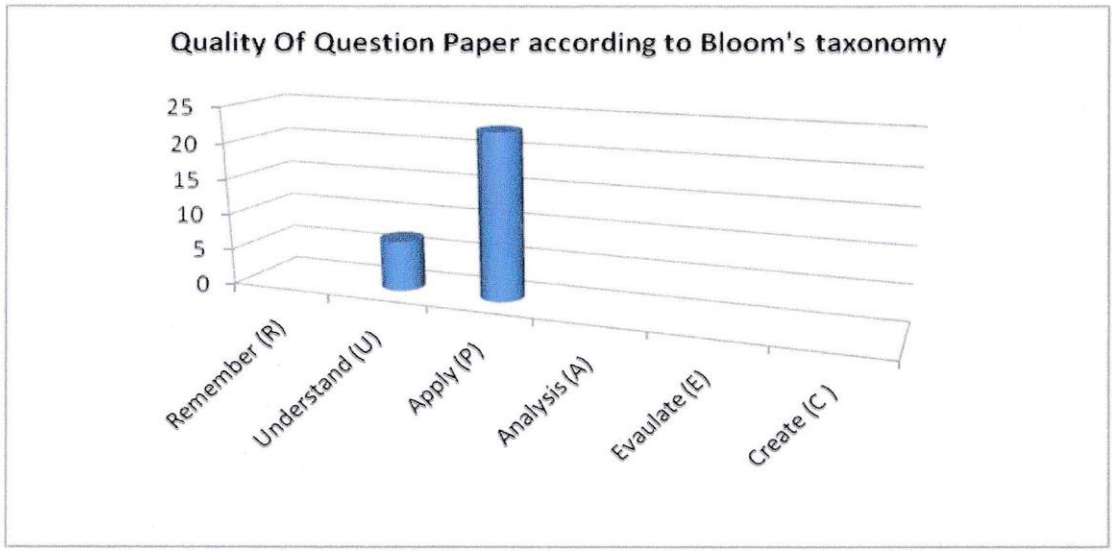

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Assignment

Army Institute of Technology
Department of Information Technology

Class & Branch	**BE (IT)**
Semester	**II**
Course	**Distributed Systems**
Academic Year	**2022 - 2023**
Course Instructor	**Prof VaishaliIngale**
Total no. of Students	**61**

			CO5 07 Marks	CO5 08 Marks	CO6 07 Marks	CO6 08 Marks		
Sr. No	**Roll No.**	**Name of Student**	**Q: 1 (a)**	**Q: 1 (b)**	**Q: 2 (a)**	**Q:2 (b)**	**Q: 1 (15 M)**	**Q: 2 (15 M)**
1	4401	**AARTI KUMARI**	9	5	10	10	14	20
2	4402	**AAYUSH KUMAR**	8	8	8	5	16	13
3	4403	**ABHISHEK SATYAWAN SHEDGE**	6	9	6	6	15	12
4	4404	**AJAY SINGH**	5	8	7	7	13	14
5	4405	**AJAY KUMAR MOURYA**	8	9	5	8	17	13
6	4406	**ANIKET SAHA**	6	10	6	9	16	15
7	4407	**ANKIT KUMAR**	6	7	5	10	13	15
8	4408	**ANMOL CHARAK**	5	7	5	6	12	11
9	4409	**CHANDRESH SINGH**	9	9	9	10	18	19
10	4410	**D VIJAY KUMAR**	7	9	10	7	16	17
11	4411	**DEEPAK BARNWAL**	5	8	10	9	13	19
12	4413	**GAURAV YADAV**	10	5	9	10	15	19
13	4414	**GOVIND PRASAD SHARMA**	10	8	9	9	18	18
14	4415	**HARISH KUMAR BAJIYA**	9	10	5	6	19	11

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15	4416	ISHA TYAGI	5	9	8	8	14	16
16	4417	JATIN KUMAR	8	6	6	6	14	12
17	4418	KAMALUDDIN RAJU MULANI	10	8	8	9	18	17
18	4419	LAXMAN SINGH	9	9	5	5	18	10
19	4420	MANISH ASWAL	9	8	7	10	17	17
20	4421	MANISH KUMAR SINGH	9	6	6	10	15	16
21	4422	MANOJ KUMAR REWAR	6	5	9	7	11	16
22	4423	MOHD KASIB	10	8	9	6	18	15
23	4424	MUKUL YADAV	6	5	9	5	11	14
24	4425	NALIN MAHALA	6	8	9	5	14	14
25	4426	NEERAJ SOUN	8	7	8	10	15	18
26	4427	NIGAM PRATAP SINGH RATHORE	8	5	5	8	13	13
27	4428	NISHU RAI	8	8	7	9	16	16
28	4429	NITISH KUMAR	7	9	8	8	16	16
29	4430	OMKAR VIVEKANAND MORE	8	7	7	5	15	12
30	4431	PRABAL KUMAR	5	10	7	8	15	15
31	4432	PRADEEP KUMAR	6	9	10	10	15	20
32	4433	PRANAV SURENDRAN	10	10	8	8	20	16
33	4434	PRATIK SUNIL PHADTARE	9	6	6	7	15	13
34	4435	PREETI	9	8	9	8	17	17
35	4436	PRINCE YADAV	10	9	8	8	19	16
36	4437	RAHUL BHATT	5	10	9	5	15	14
37	4438	RAHUL KUMAR YADAV	8	6	9	9	14	18
38	4439	RAJEEV KUMAR	8	10	5	9	18	14
39	4440	RAJVEERSINH GOHIL	10	5	8	6	15	14
40	4441	ROHAN KHANDKOLE	9	6	6	10	15	16
41	4442	ROHIT KUMAR	7	5	9	9	12	18
42	4443	RUSHIKESH HEMANT MOGALE	7	6	10	8	13	18
43	4444	SANDESH KUMAR	6	10	5	9	16	14
44	4445	SAURAV SINGH RAUTHAN	5	9	6	9	14	15
45	4446	SAVEEN KUMAR	7	9	7	7	16	14

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46	4447	SHAMBHAVI CHOUDHARY	5	5	10	8	10	18
47	4448	SHASHANK SINGH	10	10	9	8	20	17
48	4449	SHEKHAR KUMAR SINGH	6	7	9	10	13	19
49	4450	SHIVANGI CHAUHAN	6	10	10	9	16	19
50	4451	SHORABH SINGH	5	8	5	10	13	15
51	4452	SUMIT DAHIYA	9	9	5	5	18	10
52	4453	TUSHAR RAJ	8	7	8	10	15	18
53	4454	VAIBHAV	9	10	10	5	19	15
54	4455	VARUN KUMAR	5	7	5	8	12	13
55	4456	VIKAS CHOUDHARY	7	6	9	7	13	16
56	4457	VIKAS KUMAR RANA	10	8	5	8	18	13
57	4458	VIKAS SINGH	9	8	8	7	17	15
58	4459	YASANT KUMAR SHARMA	7	7	6	6	14	12
59	4460	YASH	6	9	5	10	15	15
60	4461	YASHKRIT KUMAR SINGH	9	7	9	6	16	15
Bloom's taxonomy			Remember (R)		Analysis (A)		Max Marks Co Wise	
			Understand (U)		Evaulate (E)			
			Apply (P)		Create (C)		CO5	CO6
Questionwise Max Marks			7	8	7	8	15	15
Competence 60% Threshold			U	P	P	P	9	9
No .of Students above Threshold			CO5	CO5	CO6	CO6	60	60

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5. Internal Attainment

Test 1

CO 1	0
CO 2	0
CO 3	
CO 4	
CO 5	
CO 6	

Test 2

CO 1	
CO 2	
CO 3	3
CO 4	3
CO 5	
CO 6	

Assignment

CO 1	
CO 2	
CO 3	
CO 4	
CO 5	3
CO 6	3

Final Internal attainment

CO 1	0
CO 2	0
CO 3	3
CO 4	3
CO 5	3
CO 6	3

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6. External University Assessment

Army Institute of Technology
Department of Information Technology

Class & Branch	BE (IT)
Semester	II
Course	Distributed Systems
Academic Year	2022 - 2023
Course Instructor	Prof VaishaliIngale
Total no. of Students	61

Sr. No	Roll No.	Exam Seat No.	Name of Student	SPPU Marks (100)
1	4401	B190228501	AARTI KUMARI	81
2	4402	B190228502	AAYUSH KUMAR	62
3	4403	B190228503	ABHISHEK SATYAWAN SHEDGE	67
4	4404	B190228505	AJAY SINGH	69
5	4405	B190228504	AJAY KUMAR MOURYA	52
6	4406	B190228506	ANIKET SAHA	44
7	4407	B190228507	ANKIT KUMAR	49
8	4408	B190228508	ANMOL CHARAK	59
9	4409	B190228509	CHANDRESH SINGH	71
10	4410	B190228510	D VIJAY KUMAR	57
11	4411	B190228511	DEEPAK BARNWAL	68
12	4413	B190228512	GAURAV YADAV	53
13	4414	B190228513	GOVIND PRASAD SHARMA	64
14	4415	B190228514	HARISH KUMAR BAJIYA	73
15	4416	B190228515	ISHA TYAGI	65
16	4417	B190228516	JATIN KUMAR	63

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17	4418	B190228525	KAMALUDDIN RAJU MULANI	68
18	4419	B190228518	LAXMAN SINGH	53
19	4420	B190228519	MANISH ASWAL	65
20	4421	B190228520	MANISH KUMAR SINGH	64
21	4422	B190228521	MANOJ KUMAR REWAR	46
22	4423	B190228523	MOHD KASIB	67
23	4424	B190228524	MUKUL YADAV	60
24	4425	B190228526	NALIN MAHALA	67
25	4426	B190228527	NEERAJ SOUN	57
26	4427	B190228528	NIGAM PRATAP SINGH RATHORE	66
27	4428	B190228529	NISHU RAI	68
28	4429	B190228530	NITISH KUMAR	56
29	4430	B190228531	OMKAR VIVEKANAND MORE	61
30	4431	B190228532	PRABAL KUMAR	58
31	4432	B190228533	PRADEEP KUMAR	53
32	4433	B190228534	PRANAV SURENDRAN	77
33	4434	B190228535	PRATIK SUNIL PHADTARE	69
34	4435	B190228536	PREETI	65
35	4436	B190228537	PRINCE YADAV	40
36	4437	B190228538	RAHUL BHATT	58
37	4438	B190228539	RAHUL KUMAR YADAV	70
38	4439	B190228540	RAJEEV KUMAR	58
39	4440	B190228541	RAJVEERSINH GOHIL	73
40	4441	B190228517	ROHAN KHANDKOLE	48
41	4442	B190228542	ROHIT KUMAR	68
42	4443	B190228522	RUSHIKESH HEMANT MOGALE	80
43	4444	B190228543	SANDESH KUMAR	53
44	4445	B190228544	SAURAV SINGH RAUTHAN	62
45	4446	B190228545	SAVEEN KUMAR	25
46	4447	B190228546	SHAMBHAVI CHOUDHARY	73

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47	4448	B190228547	SHASHANK SINGH	48
48	4449	B190228548	SHEKHAR KUMAR SINGH	55
49	4450	B190228549	SHIVANGI CHAUHAN	64
50	4451	B190228550	SHORABH SINGH	66
51	4452	B190228551	SUMIT DAHIYA	66
52	4453	B190228552	TUSHAR RAJ	67
53	4454	B190228553	VAIBHAV	55
54	4455	B190228554	VARUN KUMAR	65
55	4456	B190228555	VIKAS CHOUDHARY	64
56	4457	B190228556	VIKAS KUMAR RANA	47
57	4458	B190228557	VIKAS SINGH	50
58	4459	B190228558	YASANT KUMAR SHARMA	72
59	4460	B190228559	YASH	60
60	4461	B190228560	YASHKRIT KUMAR SINGH	64
61	4462	B190228561	YOGESH KUMAR	80
			No. of students above 60%	38
			Final External Attainment	**1**

Benchmark and Attainment

Attainment

Level		
	60% Students got more than target	36.6
	70% Students got more than target	42.7
	80% Students got more than target	48.8

Students Above Threshold

Attainment

Final External Attainment	**CO 1 to CO 6**	1

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7. Direct Attainment

Internal attainment

CO 1	0
CO 2	0
CO 3	3
CO 4	3
CO 5	3
CO 6	3

External attainment

CO 1	1
CO 2	1
CO 3	1
CO 4	1
CO 5	1
CO 6	1

Final Direct attainment

CO 1	0.6
CO 2	0.6
CO 3	1.8
CO 4	1.8
CO 5	1.8
CO 6	1.8

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8. Indirect Attainment

Course Feedback (2022-2023 SEM II)

Year : BE IT

Course Name: Distributed Systems **Total No Student** **61**

Sr. No.	CO 01	CO 02	CO 03	CO 04	CO 05	CO 06
	3	**3**	**3**	**3**	**3**	**3**
1	3	3	3	3	3	3
2	3	3	2	2	3	3
3	3	2	2	3	3	3
4	3	3	3	3	3	3
5	2	2	2	2	2	2
6	3	3	3	3	3	3
7	3	3	3	3	3	3
8	2	2	2	2	3	3
9	2	2	2	2	2	2
10	3	3	3	3	3	3
11	3	3	3	3	3	3
12	3	3	3	3	3	3
13	3	3	3	3	3	3
14	3	3	3	3	3	3
15	2	3	3	3	3	3
16	3	3	3	3	3	3
17	3	3	3	3	3	3
18	3	3	3	3	3	3
19	2	2	2	2	2	2
20	2	2	2	2	2	2
21	3	3	3	3	3	3
22	3	3	3	3	3	3

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23	3	3	3	3	3	3
24	3	3	3	3	3	3
25	3	3	3	3	3	3
26	3	3	3	2	3	3
27	3	3	3	3	3	3
28	3	3	3	3	3	3
29	3	3	3	3	3	3
30	2	2	2	2	2	2
31	3	3	3	3	3	3
32	3	3	3	3	3	3
33	2	2	2	2	2	3
34	3	3	3	3	3	3
35	3	3	3	3	3	3
36	3	3	3	3	3	3
37	3	3	3	3	3	3
38	3	3	3	3	3	3
39	3	3	3	3	3	3
40	3	3	3	3	3	3
41	2	2	2	2	2	3
42	2	2	2	2	2	2
43	3	3	3	3	3	3
44	3	3	3	3	3	3
45	3	3	3	3	3	3
46	3	3	3	3	3	3
47	3	3	3	3	3	3
48	3	3	3	3	3	2
49	3	3	3	3	3	3
50	3	3	3	3	3	3
51	3	3	3	3	3	3
52	3	3	2	3	3	2
AVERAGE	**2.82**	**2.82**	**2.78**	**2.8**	**2.85**	**2.85**

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9. Attainment of Course Outcomes

Army Institute of Technology Dighi Hills, Pune - 411015	ATTAINMENT OF COURSE OUTCOMES	
DEPARTMENT OF INFORMATION TECHNOLOGY	TARGET	60 %

ACADEMIC YEAR	2022-2023
TERM	II
CLASS	BE (IT)
COURSE CODE	414455
COURSE	Distributed Systems
FACULTY	Prof Vaishali Ingale

SL. NO.	CO	COURSE OUTCOMES	TOTAL
1	CO1	Demonstrate the core concepts of distributed systems	1.04
2	CO2	Understand the concept of middleware of distributed systems	1.04
3	CO3	Understand Inter-process communication methods and analyze different coordination algorithms	2.00
4	CO4	Comprehend the importance of replication to achieve fault tolerance in distributed systems	2.00
5	CO5	Analyze the design and functioning of existing distributed file systems, distributed multimedia, and distributed web-based systems	2.01
6	CO6	Understand various Recent Trends in distributed systems	2.01

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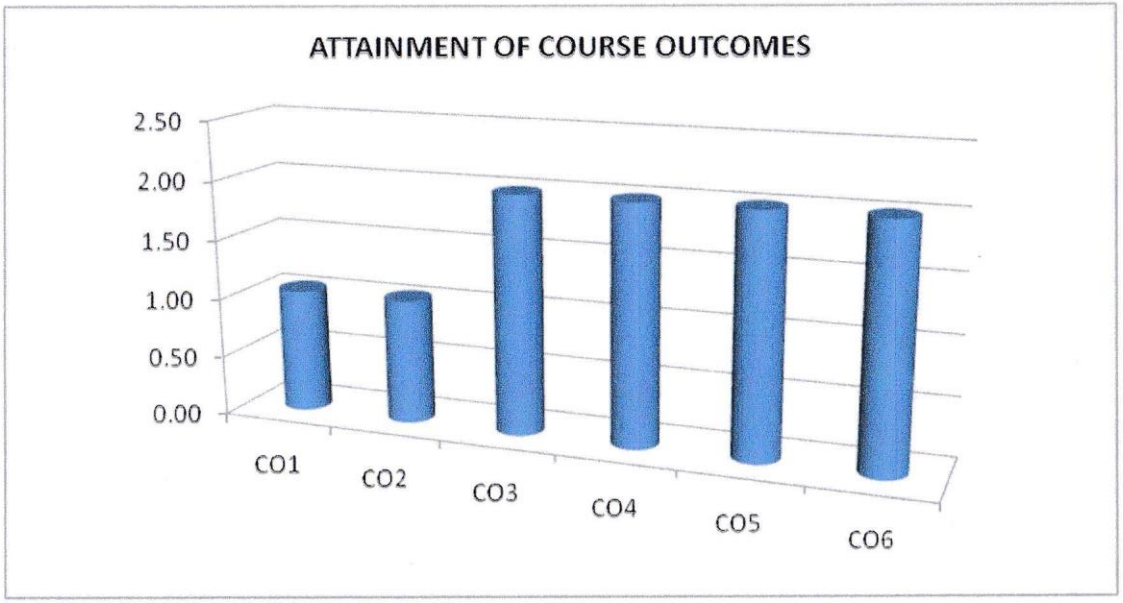

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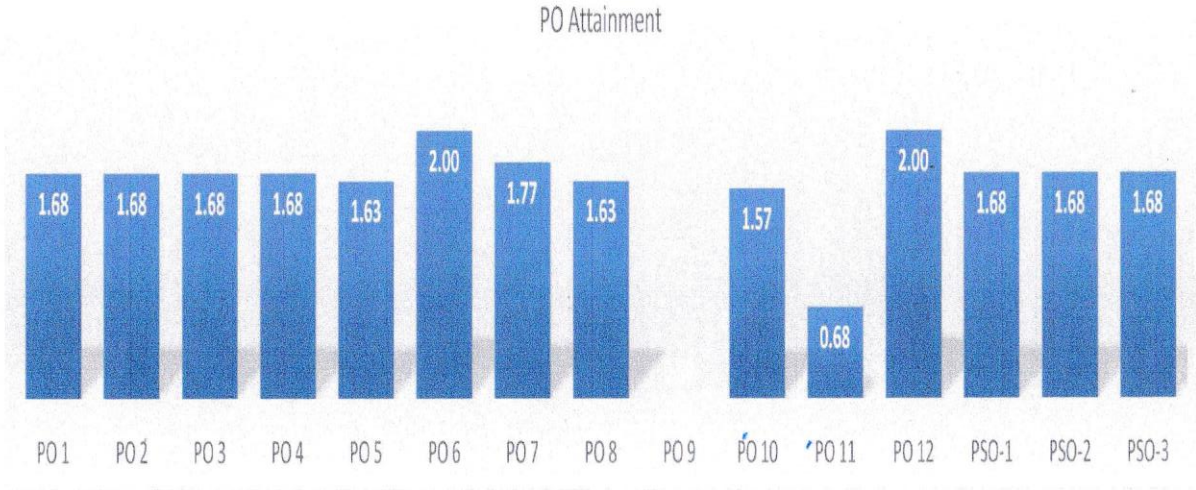
10. Attainment of CO-PO-PSO

PO Attainment for Course (Distributed Systems)

CO-PO	CO Attain	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO-1	PSO-2	PSO-3
CO1	1.04	3	3	3	3	2		3	2		2	2		3	3	3
CO2	1.04	3	3	3	3	3			3		2	2		3	3	3
CO3	2.00	3	3	3	3	3	3	3	3		3	1	3	3	3	3
CO4	2.00	3	3	3	3	3	3		3		3	1	3	3	3	3
CO5	2.01	3	3	3	3	3	3	3	3		3	1	3	3	3	3
CO6	2.01	3	3	3	3	3	3	3	3		3	1	3	3	3	3

PO Attainment	1.68	1.68	1.68	1.68	1.63	2.00	1.77	1.63		1.57	0.68	2.00	1.68	1.68	1.68



HOD
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Department of Computer Engineering



409. Sample CO and PO Attainment Excel sheet

Course: 310244 Computer Networks and Security Course

Class: TE Computer B Division

AY: 2022-23

Semester: I

Faculty Incharge: Prof Nikita Singhal

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Department of Computer Engineering

Sample CO-PO Excel Sheet

Course: 310244 Computer Networks and Security Course

Class: TE Computer B **AY:** 2022-23 **Semester:** I

Faculty I/C: Prof Nikita Singhal

1. Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Army Institute of Technology	PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES
Dighi Hills, Pune - 411015	
DEPARTMENT OF COMPUTER ENGINEERING	

PO : Program Outcomes		
PO1	To apply knowledge of mathematics, science, engineering fundamentals, problem solving skills, algorithmic analysis and mathematical modelling to the solution of complex engineering problems.	(Engineering knowledge)
PO2	To analyse the problem by finding its domain and applying domain specific skills	(Problem Analysis)
PO3	To understand the design issues of the product/software and develop effective solutions with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations	(Design/Development of Solustions)
PO4	To find solutions of complex problems by conducting investigations applying suitable techniques.	(Conduct investigations of Complex problems)
PO5	To adapt the usage of modern tools and recent software.	(Modern Tool Usage)
PO6	To contribute towards the society by understanding the impact of Engineering on global aspect.	(The engineer and Society)
PO7	To understand environment issues and design a sustainable system	(Environment and sustainability)
PO8	To understand and follow professional ethics.	(Ethics)
PO9	To function effectively as an individual and as member or leader in diverse teams and interdisciplinary settings.	(Indivisiaual and Team work)
PO10	To demonstrate effective communication at various levels.	(Communication)
PO11	To apply the knowledge of Computer Engineering for development of projects, finance and management.	(Project management and finance)
PO12	To keep in touch with current technologies and inculcate the practice of lifelong learning.	(Life long learning)

PSO: Program Specific Outcomes	
PSO1	Ability to select and apply appropriate hardware and software tools to solve problems that require enhanced programming skills
PSO2	Ability to develop IoT and cloud-based solutions for emerging societal problems
PSO3	Ability to learn and apply Industry 4.0 standards for solving industrial problems

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Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

2. Course Outcomes (COs)

Army Institute of Technology	COURSE OUTCOMES
Dighi Hills, Pune - 411015	
DEPARTMENT OF COMPUTER ENGG.	
ACADEMIC YEAR	2022-23
TERM	I
CLASS	TE COMP-B
COURSE CODE	310244
COURSE	Computer Networks & Security
FACULTY	Prof Nikita Singhal

CO	COURSE OUTCOMES	BLOOM'S TAXONOMY
C310244.1	Analyze the requirements of network types, topology and transmission media.	L4 Analyze
C310244.2	Demonstrate error control, flow control techniques and protocols and analyze them.	L3 Apply
C310244.3	Demonstrate the subnet formation with IP allocation mechanism and apply various routing algorithms	L3 Apply
C310244.4	Implement client-server applications using sockets	L3 Apply
C310244.5	Illustrate role of application layer with its protocols, client-server architectures	L3 Apply
C310244.6	Comprehend the basics of Network Security	L2 Understand

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3. Mapping of COs with POs Performance Indicator and Competencies given by AICTE

PO 1: Engineering Knowledge		CO1	CO2	CO3	CO4	CO5	CO6
	5						
Competency	**Indicators**						
1.1 Demonstrate competence in mathematical modelling	1.1.1 Apply the knowledge of Discrete Structure, linear algebra, statistics and numerical techniques to solve problems	Y	Y	Y	N	N	N
	1.1.2 Apply the concepts of probability, statistics and queuing theory in modelling of computer-based system, data and network protocols	Y	Y	Y	Y	N	N
1.2 Demonstrate competence in basic science	1.2.1 Apply laws of natural science to engineering problem	N	N	N	N	N	N
1.3 Demonstrate competence in engineering fundamentals	1.3.1 Apply Engineering fundamentals	Y	Y	Y	Y	Y	Y
1.4 Demonstrate competence in specialized engineering knowledge to the program	1.4.1 Apply theory and principles of computer science and engineering to solve an engineering problem	Y	Y	Y	Y	Y	Y
		4	4	4	3	2	2

CO1	CO2	CO3	CO4	CO5	CO6
3	3	3	3	2	2

PO2: Problem Analysis		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
2.1 Demonstrate an ability to identify and formulate complex engineering problem	2.1.1 Evaluate problem statements and identifies objectives	Y	Y	Y	Y	Y	Y
	2.1.2 Identify processes/modules/algorithms of a computer based system and parameters to solve a problem	Y	Y	Y	Y	Y	Y
	2.1.3 Identify mathematical algorithmic knowledge that applies to a given problem	N	N	N	N	N	N
2.2 Demonstrate an ability to formulate a solution plan and methodology for an engineering problem	2.2.1 Reframe the computer-based system into interconnected subsystems	Y	Y	Y	Y	Y	Y
	2.2.2 Identify functionalities and computing resources.	Y	Y	Y	Y	Y	Y
	2.2.3 Identify existing solution/methods to solve the problem, including forming justified approximations and assumptions	N	N	N	N	N	N
	2.2.4 Compare and contrast alternative solution/methods to select the best methods	Y	Y	N	Y	Y	Y
	2.2.5 Compare and contrast alternative solution processes to select the best process	Y	Y	N	Y	Y	Y
2.3 Demonstrate an ability to formulate and interpret a model	2.3.1. Able to apply computer engineering principles to formulate modules of a system with required applicability and performance	Y	Y	Y	Y	Y	Y
	2.3.2 Identify design constraints for required performance criteria	Y	N	N	N	Y	N
2.4 Demonstrate an ability to execute a solution process and analyze results	2.4.1 Applies engineering mathematics to implement the solution.	Y	Y	Y	N	N	N
	2.4.2 Analyze and interpret the results using contemporary tools	Y	Y	N	Y	Y	Y
	2.4.3 Identify the limitations of the solution and sources/causes.	N	N	N	N	Y	N
	2.4.4. Arrive at conclusions with respect to the objectives.	Y	Y	Y	Y	Y	Y
		11	10	7	9	11	9

CO1	CO2	CO3	CO4	CO5	CO6
3	3	3	3	3	3

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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PO3: Design/ Development of Solutions		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
3.1 Demonstrate an ability to define a complex/ open ended problem in engineering terms	3.1.1 Able to define a precise problem statement with objectives and scope.	Y	Y	Y	Y	Y	Y
	3.1.2 Able to identify and document system requirements from stake- holders.	N	N	N	N	N	N
	3.1.3 Able to review state-of-the-art literature to synthesize system requirements.	N	N	N	N	N	N
	3.1.4 Able to choose appropriate quality attributes as defined by ISO/IEC/IEEE standard	Y	Y	Y	Y	Y	Y
	3.1.5 Explore and synthesize system requirements from larger social and professional concerns	Y	N	N	N	N	N
	3.1.6 Able to develop software requirement specifications (SRS).	N	N	N	N	N	N
3.2 Demonstrate an ability to generate a diverse set of alternative design solutions	3.2.1 Able to explore design alternatives.	N	Y	N	N	N	N
	3.2.2 Able to produce a variety of potential design solutions suited to meet functional requirements.	N	Y	N	N	N	N
	3.2.3 Identify suitable non-functional requirements for evaluation of alternate design solutions.	Y	N	N	N	N	Y
3.3 Demonstrate an ability to select optimal design scheme for further development	3.3.1 Able to perform systematic evaluation of the degree to which several design concepts meet the criteria.	N	Y	N	N	N	N
	3.3.2 Consult with domain experts and stakeholders to select candidate engineering design solution for further development	N	N	N	N	N	N
3.4 Demonstrate an ability to advance an engineering design to defined end state	3.4.1 Able to refine architecture design into a detailed design within the existing constraints.	N	N	N	N	N	N
	3.4.2 Able to implement and integrate the modules	N	N	N	N	N	N
	3.4.3 Able to verify the functionalities and validate the design.	N	N	N	N	N	N
		4	5	2	2	2	3

CO1	CO2	CO3	CO4	CO5	CO6
1	2	1	1	1	1

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Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

PO4: Conduct investigations of complex problems		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
4.1 Demonstrate an ability to conduct investigations of technical issues consistent with their level of knowledge and understanding	4.1.1 Define a problem for purposes of investigation, its scope and importance	Y	Y	Y	Y	Y	Y
	4.1.2 Able to choose appropriate procedure/algorithm, dataset and test cases	N	N	N	N	N	N
	4.1.3 Able to choose appropriate hardware/software tools to conduct the experiment.	Y	Y	Y	Y	Y	Y
4.2 Demonstrate an ability to design experiments to solve open-ended problems	4.2.1 Design and develop appropriate procedures/methodologies based on the study objectives	N	N	N	N	N	N
4.3 Demonstrate an ability to analyze data and reach a valid conclusion	4.3.1 Use appropriate procedures, tools and techniques to collect and analyze data	Y	Y	Y	Y	Y	Y
	4.3.2 Critically analyze data for trends and correlations, stating possible errors and limitations	N	N	N	N	N	N
	4.3.3 Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions	N	N	N	N	N	N
	4.3.4 Synthesize information and knowledge about the problem from the raw data to reach appropriate conclusions	N	N	N	N	N	N
		3	3	3	3	3	3

CO1	CO2	CO3	CO4	CO5	CO6
2	2	2	2	2	2

PO5: Modern tool usage		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
5.1 Demonstrate an ability to identify/create modern engineering tools, techniques and resources	5.1.1 Identify modern engineering tools, techniques and resources for engineering activities	Y	Y	Y	Y	Y	Y
	5.1.2 Create/adapt/modify/extend tools and techniques to solve engineering problems	N	N	N	N	N	N
5.2 Demonstrate an ability to select and apply discipline specific tools, techniques and resources	5.2.1 Identify the strengths and limitations of tools for (i) acquiring information, (ii) modeling and simulating, (iii) monitoring system performance, and (iv) creating engineering designs	Y	Y	Y	Y	Y	Y
	5.2.2 Demonstrate proficiency in using discipline-specific tools	Y	Y	Y	Y	Y	Y
5.3 Demonstrate an ability to evaluate the suitability and limitations of tools used to solve an engineering problem	5.3.1 Discuss limitations and validate tools, techniques and resources	N	N	N	N	N	N
	5.3.2 Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use	N	N	N	N	N	N
		3	3	3	3	3	3

CO1	CO2	CO3	CO4	CO5	CO6
3	3	3	3	3	3

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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PO6: The engineer and society		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
6.1 Demonstrate an ability to describe engineering roles in a broader context, e.g. pertaining to the environment, health, safety, legal and public welfare	6.1.1 Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at the global, regional and local level	N	N	N	N	N	N
6.2 Demonstrate an understanding of professional engineering regulations, legislation and standards	6.2.1 Interpret legislation, regulations, codes, and standards relevant to your discipline and explain its contribution to the protection of the public	N	N	N	N	N	N
		0	0	0	0	0	0

CO1	CO2	CO3	CO4	CO5	CO6
0	0	0	0	0	0

PO7: Environment and sustainability		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
7.1 Demonstrate an understanding of the impact of engineering and industrial practices on social, environmental and in economic contexts	7.1.1 Identify risks/impacts in the life-cycle of an engineering roduct or activity	N	N	N	N	N	N
	7.1.2 Understand the relationship between the technical, socio-economic and environmental dimensions of sustainability	N	N	N	N	N	N
7.2 Demonstrate an ability to apply principles of sustainable design and development	7.2.1 Describe management techniques for sustainable development	N	N	N	N	N	N
	7.2.2 Apply principles of preventive engineering and sustainable development to an engineering activity or product relevant to the discipline	N	N	N	N	N	N
		0	0	0	0	0	0

CO1	CO2	CO3	CO4	CO5	CO6
0	0	0	0	0	0

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PO8: Ethics		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
8.1 Demonstrate an ability to recognize ethical dilemmas	8.1.1 Identify situations of unethical professional conduct and propose ethical alternatives	N	N	N	N	N	N
8.2 Demonstrate an ability to apply the Code of Ethics	8.2.1 Identify tenets of the ASME professional code of ethics	N	N	N	N	N	N
	8.2.2 Examine and apply moral & ethical principles to known case studies	Y	Y	Y	Y	Y	Y
		1	1	1	1	1	1

CO1	CO2	CO3	CO4	CO5	CO6
1	1	1	1	1	1

PO9: Individual and team work		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
9.1 Demonstrate an ability to form a team and define a role for each member	9.1.1 Recognize a variety of working and learning preferences; appreciate the value of diversity on a team	N	N	N	N	N	N
	9.1.2 Implement the norms of practice (e.g. rules, roles, charters, agendas, etc.) of effective team work, to accomplish a goal	N	N	N	N	N	N
9.2 Demonstrate effective individual and team operations-communication, problem solving, conflict resolution and leadership skills	9.2.1 Demonstrate effective communication, problem-solving, conflict resolution and leadership skills	N	N	N	N	N	N
	9.2.2 Treat other team members respectfully	N	N	N	N	N	N
	9.2.3 Listen to other members	N	N	N	N	N	N
	9.2.4 Maintain composure in difficult situations	N	N	N	N	N	N
9.3 Demonstrate success in a team-based project	9.3.1 Present results as a team, with smooth integration of contributions from all individual efforts	N	N	N	N	N	N
		0	0	0	0	0	0

CO1	CO2	CO3	CO4	CO5	CO6
0	0	0	0	0	0

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Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

PO10: Communication		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
10.1 Demonstrate an ability to comprehend technical literature and document project work	10.1.1 Read, understand and interpret technical and non-technical information	Y	Y	Y	Y	Y	Y
	10.1.2 Produce clear, well constructed, and well-supported written engineering documents	N	N	N	N	N	N
	10.1.3 Create flow in a document or presentation - a logical progression of ideas so that the main point is clear	N	N	N	N	N	N
10.2 Demonstrate competence in listening, speaking, and presentation	10.2.1 Listen to and comprehend information, instructions, and viewpoints of others	N	N	N	N	N	N
	10.2.2 Deliver effective oral presentations to technical and non-technical audiences	N	N	N	N	N	N
10.3 Demonstrate the ability to integrate different modes of communication	10.3.1 Create engineering-standard figures, reports and drawings to complement writing and presentations	N	N	N	N	N	N
	10.3.2 Use a variety of media effectively to convey a message in a document or a presentation	Y	Y	Y	Y	Y	Y
		2	2	2	2	2	2

CO1	CO2	CO3	CO4	CO5	CO6
1	1	1	1	1	1

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Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

PO11: Project management and finance		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
11.1 Demonstrate an ability to evaluate the economic and financial performance of an engineering activity	11.1.1 Describe various economic and financial costs/benefits of an engineering activity	N	N	N	N	N	N
	11.1.2 Analyze different forms of financial statements to evaluate the financial status of an engineering project	N	N	N	N	N	N
11.2 Demonstrate an ability to compare and contrast the costs/benefits of alternate proposals for an engineering activity	11.2.1 Analyze and select the most appropriate proposal based on economic and financial considerations	N	N	N	N	N	N
11.3 Demonstrate an ability to plan/manage an engineering activity within time and budget constraints	11.3.1 Identify the tasks required to complete an engineering activity, and the resources required to complete the tasks	N	N	N	N	N	N
	11.3.2 Use project management tools to schedule an engineering project, so it is completed on time and on budget	N	N	N	N	N	N
		0	0	0	0	0	0

CO1	CO2	CO3	CO4	CO5	CO6
0	0	0	0	0	0

PO12: Life-long learning		CO1	CO2	CO3	CO4	CO5	CO6
Competency	**Indicators**						
12.1 Demonstrate an ability to identify gaps in knowledge and a strategy to close these gaps	12.1.1 Describe the rationale for the requirement for continuing professional development	N	N	N	N	N	N
	12.1.2 Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap	N	N	N	N	N	N
12.2 Demonstrate an ability to identify changing trends in engineering knowledge and practice	12.2.1 Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current	Y	N	Y	N	Y	N
	12.2.2 Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field	Y	N	Y	N	Y	N
12.3 Demonstrate an ability to identify and access sources for new information	12.3.1 Source and comprehend technical literature and other credible sources of information	N	N	N	N	N	N
	12.3.2 Analyze sourced technical and popular information for feasibility, viability, sustainability, etc.	N	N	N	N	N	N
		2	0	2	0	2	0

CO1	CO2	CO3	CO4	CO5	CO6
2	0	2	0	2	0

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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4. Mapping of COs with PSOs Performance Indicator and Competencies

PSO1:		CO1	CO2	CO3	CO4	CO5	CO6
Ability to select and apply appropriate hardware and software tools to solve problems that require enhanced programming skills							
Competency	**Indicators**						
Demonstrate an ability to investigate new hardware or software tools to enhance corresponding programming skill.	Identify and analyze the new tools introduced for the subject.	Y	Y	Y	Y	Y	Y
	Use newly learnt programming skills and recently introduced tools to solve problems in hand	Y	Y	Y	Y	Y	Y
Demonstrate the ability to identify & study the hardware or software tools available.	Identify and use any industrial tools for the problem or subject	Y	Y	Y	Y	Y	Y
	Identify any simulation tools available	Y	N	N	N	Y	N
		4	3	3	3	4	3

CO1	CO2	CO3	CO4	CO5	CO6
3	3	3	3	3	3

PSO2:		CO1	CO2	CO3	CO4	CO5	CO6
Ability to develop IoT and cloud-based solutions for emerging societal problems							
Competency	**Indicators**						
Demonstrate IoT or cloud based solution for societal problems	Identify any topic related to IoT or cloud computing in current semester	N	N	N	N	N	N
	Gathered the knowledge by attending course on IoT or cloud	N	N	N	N	N	N
	Verify the understanding of the social problems using case studies	N	N	N	N	N	N
Demonstrate the ability to understand IoT and cloud oriented case studies.	Identify any topic or course related to IoT or cloud computing studied previously	N	N	N	N	N	N
	Apply the knowledge of of IoT related subjects like Microprocessor, Networking, ESIoT to solve scocital problems	N	N	N	N	N	N
		0	0	0	0	0	0

CO1	CO2	CO3	CO4	CO5	CO6
0	0	0	0	0	0

PSO3:		CO1	CO2	CO3	CO4	CO5	CO6
Ability to learn and apply Industry 4.0 standards for solving industrial problems							
Competency	**Indicators**						
Demonstrate the ability to apply Artficial Intelligence and Machine learning to solve industrial problems.	Identify any problem related to AI and ML	N	N	N	N	N	N
	Examine the students have attended any course on AI and ML	N	N	N	N	N	N
Demonstrate the ability to apply Data Science to solve industrial problems.	Identify any problem related to data science	N	N	N	N	N	N
	Examine the students have attended any course on data science	N	N	N	N	N	N
Demonstrate the ability to apply Information and cyber security to solve industrial problems.	Identify any problem related to Information and cyber Security.	N	N	N	N	N	N
	Examine the students have attended any course on Information and cyber Security.	N	N	N	N	N	N
		0	0	0	0	0	0

CO1	CO2	CO3	CO4	CO5	CO6
0	0	0	0	0	0

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

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5. CO-PO Mapping

Army Institute of Technology	CO-PO-PSO Mapping
Dighi Hills, Pune - 411015	
DEPARTMENT OF COMPUTER ENGINEERING	

ACADEMIC YEAR	2022-23
TERM	I
CLASS	TE COMP-B
COURSE CODE	310244
COURSE	Computer Networks & Security
FACULTY	Prof Nikita Singhal

CO	Program Outcomes (PO)												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C310244.1	3	3	1	2	3			1		1		2	3		
C310244.2	3	3	2	2	3			1		1			3		
C310244.3	3	3	1	2	3			1		1		2	3		
C310244.4	3	3	1	2	3			1		1			3		
C310244.5	2	3	1	2	3			1		1		2	3		
C310244.6	2	3	1	2	3			1		1			3		
Average	2.67	3	1.17	2	3			1		1		2	3		

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Department of Computer Engineering

6. External University Assessment

Army Institute of Technology	ATTAINMENT OF COURSE OUTCOMES	
Dighi Hills, Pune - 411015		
DEPARTMENT OF COMPUTER ENGINEERING	Target Set	60
External Assessment (University)		
ACADEMIC YEAR	2022-23	
TERM	I	
CLASS	TE COMP-B	
COURSE CODE	310244	
COURSE	Computer Networks & Security	
FACULTY	Prof Nikita Singhal	

External Assessment Tools	CO Marks Distribution								
	Marking Scheme	Weightage in %		CO1	CO2	CO3	CO4	CO5	CO6
End Sem Theory (Th)	70	30%		17%	17%	17%	17%	17%	17%
Insem (IN)	30	20%		50%	50%				
Online									
Practical (PR)									
Oral (OR)	25	20%		20%	15%	15%	20%	20%	20%
TermWork (TW)	25	30%		10%	20%	20%	20%	15%	15%

University Marks							
Exam Seat no	Name	CNS		CNSL			
		IN	Th	TW	PR	OR	Online
		30	70	25		25	0
T190224203	ABHAY PRATAP SINGH CHAU	13	55	11		15	
T190224204	ABHAY VYSHNAV P	17	28	17		17	
T190224205	ABHIJIT SINGH	15	44	16		22	
T190224206	ABHISEK KUMAR SINGH	13	28	17		20	
T190224207	ABHISHEK KUMAR	23	31	18		21	
T190224210	ABNEESH KUMAR	20	28	21		23	
T190224214	AKHILESH RAWAT	22	35	23		23	
T190224215	AMAN SHARMA	13	43	19		18	
T190224216	AMATYA SHEKHAR	25	28	22		24	
T190224217	AMIT DATTATRAYA KANASE	14	28	22		20	
T190224219	ANAND PRAKASH DWIVEDI	26	30	23		24	
T190224220	ANIKET NAMDEV DIGOLE	23	28	20		20	
T190224221	ANIRUDH MALIK	21	29	21		18	
T190224222	ANKIT SINGH	23	28	20		24	
T190224226	ATUL VERMA	16	36	16		24	
T190224228	AVNISH PRAJAPAT	28	42	23		24	
T190224229	AYUISH SHARMA	18	35	18		19	
T190224230	AYUSH KUMAR TIWARI	24	55	22		24	
T190224231	AYUSH MAAN	14	39	15		19	
T190224232	BHUVAN CHANDRA JOSHI	24	40	18		22	
T190224233	C TANUSH	26	36	20		22	
T190224234	DASARI HEMA SREE	29	42	23		23	
T190224235	DEVANSH BHADAURIA	15	29	23		17	
T190224237	DIPESH KUMAR	19	43	20		13	
T190224241	FAHAD FAIZAN	14	33	20		16	
T190224242	GOUTAM MAHAJAN	27	37	20		20	
T190224248	HARSIMRAT SINGH KAHLON	27	38	20		23	

External CO Attainment					
CO1	CO2	CO3	CO4	CO5	CO6
8.2486	8.7486	5.7486	5.9986	5.6236	5.6236
4.9789	5.1589	3.8589	4.0089	3.8439	3.8439
4.28944	4.62944	2.92944	3.09944	2.84444	2.84444
5.05912	5.31912	3.81912	4.03912	3.79912	3.79912
4.00944	4.31944	3.01944	3.21944	2.96444	2.96444
5.22938	5.55938	3.25938	3.46938	3.19938	3.19938
4.94944	5.34944	3.34944	3.57944	3.26444	3.26444
5.5593	6.0193	3.8193	4.0493	3.7043	3.7043
4.73914	5.12914	3.82914	4.00914	3.72414	3.72414
5.51944	5.93944	3.43944	3.67944	3.34944	3.34944
4.25944	4.71944	3.31944	3.51944	3.18944	3.18944
5.7494	6.1994	3.5994	3.8394	3.4944	3.4944
5.09944	5.49944	3.19944	3.39944	3.09944	3.09944
4.89942	5.34942	3.24942	3.42942	3.11442	3.11442
5.25944	5.61944	3.31944	3.55944	3.25944	3.25944
4.83928	5.07928	3.47928	3.71928	3.47928	3.47928
6.54916	6.99916	4.19916	4.43916	4.09416	4.09416
4.8493	5.1993	3.3993	3.5893	3.3193	3.3193
6.7689	7.1889	4.7889	5.0289	4.6989	4.6989
4.55922	4.81922	3.41922	3.60922	3.38422	3.38422
5.8192	6.1392	3.7392	3.9592	3.6892	3.6892
5.87928	6.25928	3.65928	3.87928	3.57928	3.57928
6.60916	7.06916	4.16916	4.39916	4.05416	4.05416
4.31942	4.83942	3.33942	3.50942	3.16442	3.16442
5.16914	5.63914	3.73914	3.86914	3.56914	3.56914
4.28934	4.72934	3.32934	3.48934	3.18934	3.18934
5.94926	6.34926	3.64926	3.84926	3.54926	3.54926
6.11924	6.48924	3.78924	4.01924	3.71924	3.71924

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

ARMY INSTITUTE OF TECHNOLOGY Dept. of Comp. Engg PUNE-15

Prof. (Dr.) S. R. Dhore
Head of Computer Department
Army Institute of Technology
Dighi Hill's,Pune - 15.

T190224252	HITESH KUMAR	20	31	21		13	
T190224253	JANVI RATHI	27	44	20		20	
T190224256	KHUSHI	14	34	21		20	
T190224259	MAHIPAL SINGH	18	35	21		20	
T190224261	MANISH KALYAN	19	31	18		14	
T190224262	MANISH KUMAR BHAVRIYA	17	40	19		21	
T190224264	MANVAINDER	12	30	17		15	
T190224265	MEGHA KUMARI	26	30	21		23	
T190224267	MOHIT RAJ	18	42	22		24	
T190224268	MOHIT SINGH	15	50	14		20	
T190224271	NIKHIL SINGH	26	35	15		17	
T190224273	NISHA	22	43	21		17	
T190224276	PRADEEP JOSHI	19	38	17		10	
T190224277	PRAMOD JYANI	17	39	18		18	
T190224279	RAVAL PRATAP SINGH	24	38	14		14	
T190224280	PRIYANK PRAKASH PATIL	16	31	19		23	
T190224281	PRIYANSHU PRIYAM	18	33	24		24	
T190224282	PUJA	28	42	19		23	
T190224284	RAHUL KUMAR	17	37	19		23	
T190224288	RAJVARDHAN SINGH INDA	26	37	19		19	
T190224291	RITIKA PANDEY	17	45	18		23	
T190224296	SACHIN KUMAR	17	32	13		13	
T190224299	SATYAM KUMAR TRIPATHY	24	44	19		18	
T190224300	SAURABH JOSHI	23	31	19		18	
T190224301	SHIVAM KUMAR	12	35	16		24	
T190224302	SHIVANSHU SINGH	26	44	21		24	
T190224303	SHIVANSHU TIWARI	28	51	22		24	
T190224307	SUNIL	18	43	16		20	
T190224311	TUSHAR DUTTA	13	30	11		22	
T190224314	UMANG KUMAR	18	38	19		20	
T190224317	VENKATA SAI NARENDRA G	18	37	18		15	
T190224318	VIDUSHI SINGH	16	40	18		14	
T190224321	VIRENDRA KUMAR	15	44	18		20	
T190224322	VISHAL CHOUDHARY	24	41	17		21	
T190224324	yASH BHANDARI	16	40	16		23	
T190224326	YOGESH	19	42	22		23	

4.69938	5.19938	3.19938	3.32938	3.01438	3.01438
6.29912	6.69912	3.99912	4.19912	3.89912	3.89912
4.52932	4.95932	3.55932	3.75932	3.44432	3.44432
4.9793	5.4093	3.6093	3.8093	3.4943	3.4943
4.54938	4.94938	3.04938	3.18938	2.91938	2.91938
5.1092	5.4692	3.7692	3.9792	3.6942	3.6942
3.8094	4.1694	2.9694	3.1194	2.8644	2.8644
5.6494	6.0494	3.4494	3.6794	3.3644	3.3644
5.51916	5.93916	4.13916	4.37916	4.04916	4.04916
5.219	5.439	3.939	4.139	3.929	3.929
5.4793	5.7593	3.1593	3.3293	3.1043	3.1043
5.65914	6.11914	3.91914	4.08914	3.77414	3.77414
4.70924	5.11924	3.21924	3.31924	3.06424	3.06424
4.90922	5.26922	3.56922	3.74922	3.47922	3.47922
5.27924	5.55924	3.15924	3.29924	3.08924	3.08924
4.63938	4.97938	3.37938	3.60938	3.32438	3.32438
5.12934	5.60934	3.80934	4.04934	3.68934	3.68934
6.38916	6.72916	3.92916	4.15916	3.87416	3.87416
5.03926	5.37926	3.67926	3.90926	3.62426	3.62426
5.77926	6.15926	3.55926	3.74926	3.46426	3.46426
5.4091	5.7191	4.0191	4.2491	3.9791	3.9791
4.20936	4.46936	2.76936	2.89936	2.70436	2.70436
5.88912	6.27912	3.87912	4.05912	3.77412	3.77412
5.13938	5.52938	3.22938	3.40938	3.12438	3.12438
4.3893	4.6293	3.4293	3.6693	3.4293	3.4293
6.38912	6.77912	4.17912	4.41912	4.10412	4.10412
6.96898	7.38898	4.58898	4.82898	4.49898	4.49898
5.22914	5.50914	3.70914	3.90914	3.66914	3.66914
4.0094	4.1194	2.8194	3.0394	2.8744	2.8744
5.06924	5.43924	3.63924	3.83924	3.55424	3.55424
4.78926	5.17926	3.37926	3.52926	3.25926	3.25926
4.6992	5.0992	3.4992	3.6392	3.3692	3.3692
5.03912	5.37912	3.87912	4.07912	3.80912	3.80912
5.79918	6.09918	3.69918	3.90918	3.65418	3.65418
4.9992	5.2492	3.6492	3.8792	3.6392	3.6392
5.57916	6.00916	4.10916	4.33916	4.00916	4.00916

Attain	**41**	**42**	**38**	**42**	**38**	**38**
Not Attain	**22**	**21**	**25**	**21**	**25**	**25**
Total Students	**63**	**63**	**63**	**63**	**63**	**63**
Attainment (%)	**65.08**	**66.67**	**60.32**	**66.67**	**60.32**	**60.32**

ARMY INSTITUTE OF TECHNOLOGY
Dept. of Comp. Engg
PUNE-15

Prof. (Dr.) S. R. Dhore
Head of Computer Department
Army Institute of Technology
Dighi Hill's,Pune - 15.

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

ARMY INSTITUTE OF TECHNOLOGY
Dighi Hills, Alandi Road, Pune 411 015
Department of Computer Engineering

7. Internal Assessment

Army Institute of Technology	ATTAINMENT OF COURSE OUTCOMES	
Dighi Hills, Pune - 411015		
DEPARTMENT OF COMPUTER ENGINEERING	Target Set	60
Internal Assessment		
ACADEMIC YEAR	2022-23	
SEMESTER	I	
CLASS	TE COMP-B	
COURSE CODE	310244	
COURSE	Computer Networks & Security	
FACULTY	Prof Nikita Singhal	

	CO Marks Distribution								
Internal Assessment Tools	Marking Scheme	Weightage in %	CO	CO1	CO2	CO3	CO4	CO5	CO6
Practical Assignment1-2	20	10%	CO1	100%					
Practical Assignment3-4	20	10%	CO2		100%				
Practical Assignment 5-7	20	10%	CO3			100%			
Practical Assignment8	10	10%	CO4				100%		
Practical Assignment9-11	20	10%	CO5					100%	
Practical Assignment12	10	10%	CO6						100%
Unit Test	20	10%	CO1	100%					
Numerical Assignment	30	30%	CO2		100%				

Internal Assessment									
Exam Seat no	Name	Practical Assignment1-2	Practical Assignment3-4	Practical Assignment 5-7	Practical Assignment8	Practical Assignment9-11	Practical Assignment12	Unit Test	Numerical Assignment
		20	20	20	10	20	10	20	30
T190224203	ABHAY PRATAP SINGH CHAU	10	10	10	6	12	6	0	25
T190224204	ABHAY VYSHNAV P	19	14	13	7	15	8	7	29
T190224205	ABHIJIT SINGH	18	12	12	6	12	6	9	25
T190224206	ABHISEK KUMAR SINGH	19	14	14	7	14	7	8	24
T190224207	ABHISHEK KUMAR	19	14	14	7	14	7	13	23
T190224210	ABNEESH KUMAR	20	16	16	8	16	8	17	29
T190224214	AKHILESH RAWAT	20	20	20	10	20	10	16	29
T190224215	AMAN SHARMA	20	19	17	7	14	9	15	27
T190224216	AMATYA SHEKHAR	20	18	18	9	18	9	15	30
T190224217	AMIT DATTATRAYA KANASE	20	20	17	9	18	9	17	30
T190224219	ANAND PRAKASH DWIVEDI	20	20	20	10	20	10	12	29
T190224220	ANIKET NAMDEV DIGOLE	0	0	0	0	0	0	7	0
T190224221	ANIRUDH MALIK	20	20	19	8	19	8	13	28
T190224222	ANKIT SINGH	20	17	17	9	18	8	13	29
T190224226	ATUL VERMA	18	14	13	6	13	7	8	29
T190224228	AVNISH PRAJAPAT	20	20	20	10	20	10	15	29
T190224229	AYUSH SHARMA	20	18	18	9	17	9	3	28
T190224230	AYUSH KUMAR TIWARI	20	16	16	8	16	8	1	20
T190224231	AYUSH MAAN	20	20	20	10	20	10	12	30
T190224232	BHUVAN CHANDRA JOSHI	19	16	16	8	18	9	9	25
T190224233	C TANUSH	20	16	16	8	18	9	13	27
T190224234	DASARI HEMA SREE	20	20	20	10	20	10	15	30
T190224235	DEVANSH BHADAURIA	20	20	20	10	20	10	15	28
T190224237	DIPESH KUMAR	20	20	18	9	18	9	11	30
T190224241	FAHAD FAIZAN	19	16	17	10	18	9	10	29
T190224242	GOUTAM MAHAJAN	20	18	18	9	18	9	15	24
T190224248	HARSIMRAT SINGH KAHLON	20	18	18	9	18	9	10	29

Internal CO Attainment					
CO1	CO2	CO3	CO4	CO5	CO6
4	11	2	1	2	1
0	7.5	0	0.6	1.2	0.6
1.7	9.7	1	0.7	1.5	0.8
2.8	8.9	1.3	0.6	1.2	0.6
2.6	8.4	1.2	0.7	1.4	0.7
3.2	8.3	1.4	0.7	1.4	0.7
3.6	10.1	1.4	0.8	1.6	0.8
3.6	10.3	1.6	1	2	1
3.5	10.1	2	0.7	1.4	0.9
3.5	10.9	1.7	0.9	1.8	0.9
3.7	10.8	1.8	0.9	1.8	0.9
3.2	10.7	1.7	1	2	1
2.7	2	2	0	0	0
1.3	8.4	0	0.8	1.9	0.8
3.3	10.7	1.9	0.9	1.8	0.8
2.8	10.4	1.7	0.6	1.3	0.7
3.3	10.1	1.3	1	2	1
2.3	10.4	2	0.9	1.7	0.9
2.1	7.8	1.8	0.8	1.6	0.8
3.2	10.6	1.6	1	2	1
2.9	9.5	2	0.8	1.8	0.9
3.2	9.7	1.6	0.8	1.8	0.9
3.5	10.6	1.6	1	2	1
3.5	10.4	2	1	2	1
3.1	11	2	0.9	1.8	0.9
3	10.7	1.8	1	1.8	0.9
3.4	8.8	1.7	0.9	1.8	0.9
3	10.5	1.8	0.9	1.8	0.9

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

ARMY INSTITUTE OF TECHNOLOGY Dept. of Comp. Engg PUNE-15

Prof. (Dr.) S. R. Dhore
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Army Institute of Technology
Dighi Hill's,Pune - 15.

ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411 015

Department of Computer Engineering

T190224252	HITESH KUMAR	20	18	18	9	18	9	14	30	3.4	10.8	1.8	0.9	1.8	0.9
T190224253	JANVI RATHI	20	20	19	9	19	9	12	30	3.2	10.8	1.8	0.9	1.9	0.9
T190224256	KHUSHI	20	18	18	9	19	9	14	30	3.4	11	1.9	0.9	1.9	0.9
T190224259	MAHIPAL SINGH	20	18	18	9	19	10	12	30	3.2	10.8	1.8	0.9	1.9	1
T190224261	MANISH KALYAN	18	16	16	8	16	8	12	29	3.2	10.5	1.8	0.8	1.6	0.8
T190224262	MANISH KUMAR BHAVRIYA	18	16	16	8	16	8	12	23	3	8.5	1.6	0.8	1.6	0.8
T190224264	MANVAINDER	18	16	16	8	16	8	6	29	2.4	10.3	1.6	0.8	1.6	0.8
T190224265	MEGHA KUMARI	20	20	20	10	20	10	11	30	2.9	10.6	1.6	1	2	1
T190224267	MOHIT RAJ	20	20	20	10	20	10	14	30	3.4	11	2	1	2	1
T190224268	MOHIT SINGH	18	15	15	8	16	7	0	15	2	6.5	2	0.8	1.6	0.7
T190224271	NIKHIL SINGH	19	16	16	8	17	9	0	24	1.8	8.7	1.5	0.8	1.7	0.9
T190224273	NISHA	20	18	16	8	16	8	8	30	2.7	10.6	1.6	0.8	1.6	0.8
T190224276	PRADEEP JOSHI	20	13	13	7	14	7	8	27	2.8	9.9	1.6	0.7	1.4	0.7
T190224277	PRAMOD JYANI	20	14	14	7	14	7	12	28	3.2	9.7	1.3	0.7	1.4	0.7
T190224279	RAVAL PRATAP SINGH	20	16	16	8	16	8	11	25	3.1	8.9	1.4	0.8	1.6	0.8
T190224280	PRIYANK PRAKASH PATIL	18	12	14	7	13	7	3	23	2.3	8.5	1.6	0.7	1.3	0.7
T190224281	PRIYANSHU PRIYAM	20	16	16	8	17	9	8	30	2.6	10.2	1.4	0.8	1.7	0.9
T190224282	PUJA	20	20	20	10	20	10	16	30	3.6	10.6	1.6	1	2	1
T190224284	RAHUL KUMAR	19	16	16	8	17	9	10	29	3	10.7	2	0.8	1.7	0.9
T190224288	RAJVARDHAN SINGH INDA	20	14	14	7	14	8	13	29	3.2	10.3	1.6	0.7	1.4	0.8
T190224291	RITIKA PANDEY	20	14	14	7	14	7	11	29	3.1	10.1	1.4	0.7	1.4	0.7
T190224296	SACHIN KUMAR	14	12	12	7	13	6	0	29	2	10.1	1.4	0.7	1.3	0.6
T190224299	SATYAM KUMAR TRIPATHY	20	16	16	7	15	8	11	30	2.5	10.2	1.2	0.7	1.5	0.8
T190224300	SAURABH JOSHI	20	16	16	7	15	8	11	28	3.1	10	1.6	0.7	1.5	0.8
T190224301	SHIVAM KUMAR	16	12	13	7	13	6	8	30	2.8	10.6	1.6	0.7	1.3	0.6
T190224302	SHIVANSHU SINGH	20	20	18	9	18	9	15	30	3.1	10.2	1.3	0.9	1.8	0.9
T190224303	SHIVANSHU TIWARI	20	16	16	8	16	8	13	30	3.3	11	1.8	0.8	1.6	0.8
T190224307	SUNIL	14	16	14	7	16	8	6	30	2.6	10.6	1.6	0.7	1.6	0.8
T190224311	TUSHAR DUTTA	10	10	10	5	10	5	5	23	1.9	8.2	1.4	0.5	1	0.5
T190224314	UMANG KUMAR	20	18	18	9	18	9	4	30	1.4	10	1	0.9	1.8	0.9
T190224317	VENKATA SAI NARENDRA G	20	18	17	8	16	8	4	27	2.4	9.9	1.8	0.8	1.6	0.8
T190224318	VIDUSHI SINGH	20	16	16	8	16	8	9	24	2.9	9	1.7	0.8	1.6	0.8
T190224321	VIRENDRA KUMAR	20	16	16	8	17	9	6	29	2.6	10.3	1.6	0.8	1.7	0.9
T190224322	VISHAL CHOUDHARY	20	16	15	7	15	8	7	29	2.7	10.3	1.6	0.7	1.5	0.8
T190224324	yASH BHANDARI	20	16	16	8	16	8	3	25	2.3	9.1	1.5	0.8	1.6	0.8
T190224326	YOGESH	20	20	18	9	18	9	15	30	3.5	10.6	1.6	0.9	1.8	0.9
									Attain	51	61	59	61	61	61
									Not Attain	12	2	4	2	2	2
									Total Students	63	63	63	63	63	63
									Attainment (%)	80.95	96.83	93.65	96.83	96.83	96.83

ARMY INSTITUTE OF TECHNOLOGY Dept. of Comp. Engg PUNE-15

Prof. (Dr.) S. R. Dhore
Head of Computer Department
Army Institute of Technology
Dighi Hill's,Pune - 15.

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

8. Attainment of Course Outcomes

Army Institute of Technology	ATTAINMENT OF COURSE OUTCOMES	
Dighi Hills, Pune - 411015		
DEPARTMENT OF COMPENGG.	Target Set	60
External and Internal Assessment		

ACADEMIC YEAR	2022-23
TERM	I
CLASS	TE COMP-B
COURSE CODE	310244
COURSE	Computer Networks & Security
FACULTY	Prof Nikita Singhal

Attainment Level	Criteria
3	80% students score more than set target
2	70% students score more than set target
1	60% students score more than set target

Through University Examination

CO Attainment (in Numbers)

Co Attainment	CO1	CO2	CO3	CO4	CO5	CO6
Meeting Requirement	41	42	38	42	38	38
Do Not Meet	22	21	25	21	25	25
Total Students	63	63	63	63	63	63

CO Attainment (in %)

Co Attainment	CO1	CO2	CO3	CO4	CO5	CO6
Meeting Requirement	65.08	66.67	60.32	66.67	60.32	60.32
Do Not Meet	34.92	33.33	39.68	33.33	39.68	39.68
Total Students	63	63	63	63	63	63
Attainment Level	1	1	1	1	1	1

Through Internal Examination

CO Attainment (in Numbers)

Co Attainment	CO1	CO2	CO3	CO4	CO5	CO6
Meeting Requirement	51	61	59	61	61	61
Do Not Meet	12	2	4	2	2	2
Total Students	63	63	63	63	63	63

CO Attainment (in %)

Co Attainment	CO1	CO2	CO3	CO4	CO5	CO6
Meeting Requirement	80.95	96.83	93.65	96.83	96.83	96.83
Do Not Meet	19.05	3.17	6.35	3.17	3.17	3.17
Total Students	63	63	63	63	63	63
Attainment Level	3	3	3	3	3	3

Course Outcome Attainment (in%)

Co Attainment	CO1	CO2	CO3	CO4	CO5	CO6
Meeting Requirement 70% University	45.56	46.67	42.22	46.67	42.22	42.22
30% Internal Assessment	24.29	29.05	28.1	29.05	29.05	29.05
Meeting Requirement	69.85	75.72	70.32	75.72	71.27	71.27
Do not Meet	30.15	24.28	29.68	24.28	28.73	28.73

Course Outcome Attainment (in level)

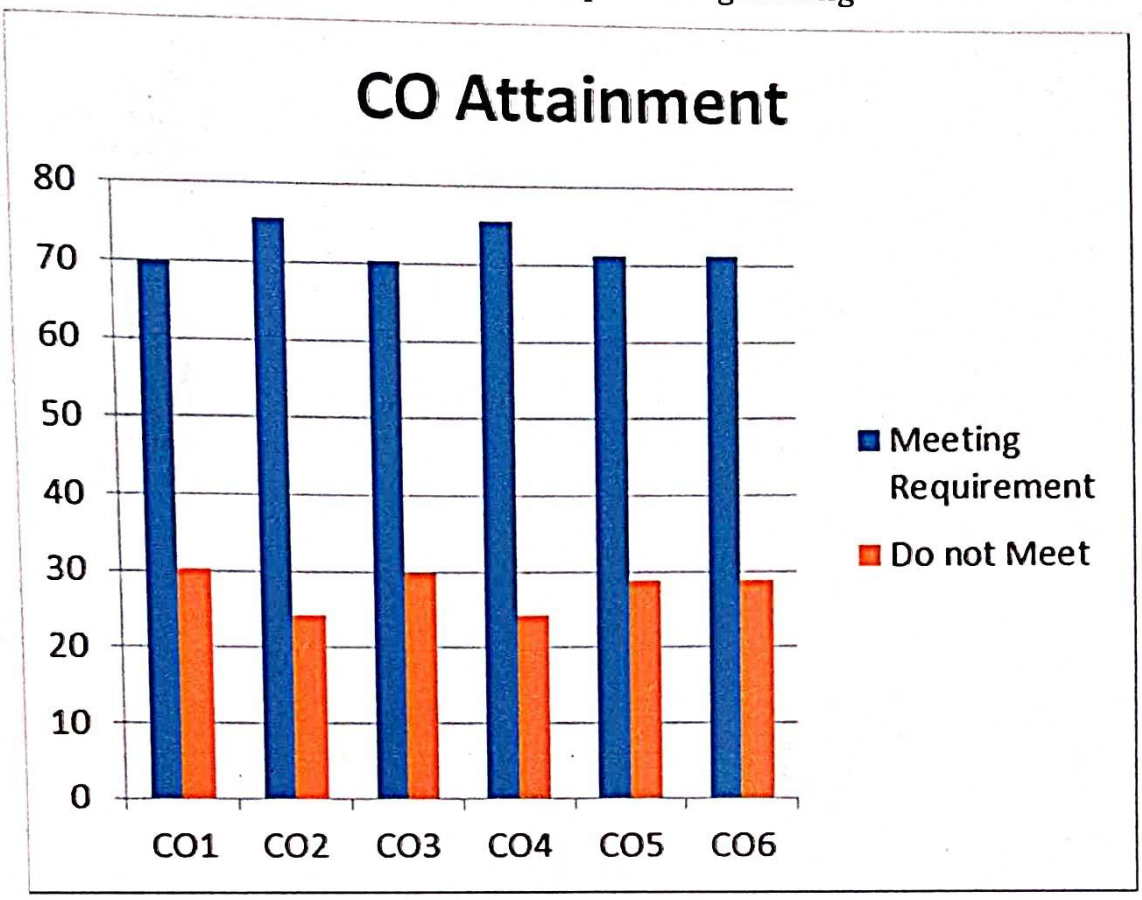
Co Attainment	CO1	CO2	CO3	CO4	CO5	CO6
Meeting Requirement 70% University	0.7	0.7	0.7	0.7	0.7	0.7
Meeting Requirement 30% Internal Assessment	0.9	0.9	0.9	0.9	0.9	0.9
Total	1.6	1.6	1.6	1.6	1.6	1.6

Couse Outcome Attainment (Average of CO1-CO6)	1.6

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

ARMY INSTITUTE OF TECHNOLOGY * Dept. of Comp. Engg * PUNE-15

Prof. (Dr.) S. R. Dhore
Head of Computer Department
Army Institute of Technology
Dighi Hill's,Pune - 15.



ARMY INSTITUTE OF TECHNOLOGY
Dept. of Comp. Engg
PUNE-15

Prof. (Dr.) S. R. Dhore
Head of Computer Department
Army Institute of Technology
Dighi Hill's,Pune - 15.

9. Attainment of CO-PO-PSO

Army Institute of Technology	ATTAINMENT OF PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES	
Dighi Hills, Pune - 411015		
DEPARTMENT OF COMPUTER ENGINEERING	Target Set	60
ACADEMIC YEAR	2022-23	
SEMESTER	I	
CLASS	TE COMP-B	
COURSE CODE	310244	
COURSE	Computer Networks & Security	
FACULTY	Prof Nikita Singhal	

CO Attainment

	CO1	CO2	CO3	CO4	CO5	CO6
CO Attainment (in	69.85	75.72	70.32	75.72	71.27	71.27
CO Attainment (in level)	1.6	1.6	1.6	1.6	1.6	1.6

CO-PO-PSO Mapping

CO	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C310244.1	3	3	1	2	3			1		1		2	3		
C310244.2	3	3	2	2	3			1		1			3		
C310244.3	3	3	1	2	3			1		1		2	3		
C310244.4	3	3	1	2	3			1		1			3		
C310244.5	2	3	1	2	3			1		1		2	3		
C310244.6	2	3	1	2	3			1		1			3		
Average	2.67	3	1.17	2	3			1		1		2	3		

CO-PO-PSO Attainment (in %)

CO	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C310244.1	69.85	69.85	23.28	46.57	69.85			23.28		23.28		46.57	69.85		
C310244.2	75.72	75.72	50.48	50.48	75.72			25.24		25.24			75.72		
C310244.3	70.32	70.32	23.44	46.88	70.32			23.44		23.44		46.88	70.32		
C310244.4	75.72	75.72	25.24	50.48	75.72			25.24		25.24			75.72		
C310244.5	47.51	71.27	23.76	47.51	71.27			23.76		23.76		47.51	71.27		
C310244.6	47.51	71.27	23.76	47.51	71.27			23.76		23.76			71.27		
Average	64.44	72.36	28.33	48.24	72.36			24.12		24.12		46.99	72.36		

CO-PO-PSO Attainment (in Level)

CO	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C310244.1	1.6	1.6	0.53	1.07	1.6			0.53		0.53		1.07	1.6		
C310244.2	1.6	1.6	1.07	1.07	1.6			0.53		0.53			1.6		
C310244.3	1.6	1.6	0.53	1.07	1.6			0.53		0.53		1.07	1.6		
C310244.4	1.6	1.6	0.53	1.07	1.6			0.53		0.53			1.6		
C310244.5	1.07	1.6	0.53	1.07	1.6			0.53		0.53		1.07	1.6		
C310244.6	1.07	1.6	0.53	1.07	1.6			0.53		0.53			1.6		
Average	1.42	1.6	0.62	1.07	1.6			0.53		0.53		1.07	1.6		

Prof Nikita Singhal
CNS Subject Incharge

Prof (Mrs) S. R. Dhore
Head of Computer Engineering Department
Army Institute of Technology
Dighi Hill's, Pune - 15.

Criteria 2.6.2 Attainment of Programme Outcomes and Course Outcomes

Dept of Comp Engg

ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411015

Department of Mechanical Engineering

428. Sample CO and PO Attainment Excel sheet

Course: 202047 Kinematics of Machinery

Class: SE Mech.

AY: 2022-23

Semester: II

Faculty Incharge: Prof M B Phatangare

ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411 015
Department of Mechanical Engineering

Course: 202047 Kinematics of Machinery (KOM)

Class: SE MECH **AY**: 2022-23 Semester: II

Faculty I/C: M B PHATANGARE

LIST OF STUDENTS		
ACADEMIC YEAR		2022-23
CLASS		SE MECH
	Total	59
Sr. No.	**Roll No.**	**Name of the Student**
1	S190220801	YASWANT SINGH
2	S190220802	AAKANSH AVASTHI
3	S190220803	ABHISHEK
4	S190220804	ABHISHEK KULHARI
5	S190220805	ALLAMRAJU ARUNKUMAR
6	S190220806	AMANDEEP SINGH
7	S190220807	ANIL SINGH TOMAR
8	S190220808	ANKIT KUMAR
9	S190220809	ARYAN KUMAR SHARMA
10	S190220810	ASHISH KUMAR
11	S190220811	AVINASH SINGH
12	S190220812	B BHAVANI
13	S190220813	BELAGE SAINATH KASHINATH
14	S190220814	BISHWAJIT DEY
15	S190220815	GANGA
16	S190220816	GAURAV SINGH
17	S190220817	GOURAV KUMAR
18	S190220818	GURLEEN KOUR
19	S190220819	HEMANT YADAV
20	S190220820	HIMANSHU
21	S190220821	HITANSHU RANA
22	S190220822	ISHA RANA
23	S190220823	K SRIKUMAR AYYANAR
24	S190220824	KEVIN VARGHESE
25	S190220825	KRISHNA MOHAN TRIPATHI
26	S190220826	KUMARI SONALI SINGH
27	S190220827	KUTAGOLLA LALITH PAVAN
28	S190220828	MAHENDRA KUMAR VISHNOI
29	S190220829	MAYANK MUDGAL
30	S190220830	MOHAN SINGH
31	S190220831	NEERAJ KUMAR KHANDAGRE
32	S190220832	NIKHEEL KUMAR
33	S190220833	PANKAJ RAI
34	S190220834	PARTHA SARATHI SENA
35	S190220835	PIYUSH KUMAR

Professor & Head
Department of Mechanical Engg.
Army Institute of Tecnology
Pune - 411015.

ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411 015
Department of Mechanical Engineering

Course: 202047 Kinematics of Machinery (KOM)

Class: SE MECH **AY**: 2022-23 Semester: II

Faculty I/C: M B PHATANGARE

LIST OF STUDENTS		
ACADEMIC YEAR		2022-23
CLASS		SE MECH
	Total	59
Sr. No.	**Roll No.**	**Name of the Student**
36	S190220836	POOJA YADAV
37	S190220837	PRASHANT KUMAR CHAUHAN
38	S190220838	R LIKITH KUMAR REDDY
39	S190220839	RAHUL JASPAL
40	S190220840	RAJ SINGH
41	S190220841	RAJ VARDHAN SINGH
42	S190220842	REGU TANUJA
43	S190220843	RITIKA
44	S190220844	ROHIT SINGH TANWAR
45	S190220845	RUTWEEK SOPAN PANSARE
46	S190220846	SAHIL DWIVEDI
47	S190220847	SHIV RAM
48	S190220848	SHIVAM KUMAR
49	S190220849	SIMRAN
50	S190220850	SUMIT KUMAR BHATI
51	S190220851	TANUJA NEGI
52	S190220852	V DINESH
53	S190220853	VIGNESH HARI B
54	S190220854	VIKASH
55	S190220855	VIKASH KUMAR
56	S190220856	VINAY PRATAP GIRI
57	S190220857	VIVEK YADAV
58	S190220858	WAIBHAV KUMAR
59	S190220859	YUVRAJ SINGH

Professor & Head
Department of Mechanical Engg.
Army Institute of Technology
Pune - 411015.

COURSE OUTCOME ASSESSMENT MAP

Army Institute of Technology Onward to Glory	COURSE OUTCOME ASSESSMENT MAP			NO. OF COs
				6
Dighi Hills, Pune - 411015	CLASS	SE MECH	COURSE CODE	202047
DEPARTMENT OF MECH ENGG.	COURSE	Kinematics of Machinery (KOM)		
ACADEMIC YEAR	2022-23	FACULTY	M B PHATANGARE	
TERM	II			

SL. NO.	CO	ASSESSMENT TOOLS	INTERNAL (THEORY)				UNIVERSITY (THEORY)				INT. (LAB)		UNIV. (LAB)		TOTAL
			0	0	0	0				100	25		0	25	150
			T1	T2	A1	A2	O1	O2	IS	ES	TW		TW	PR/OR	
1	CO1	ES,TW,PR/OR											Overall Academic Performance		
2	CO2	ES,TW,PR/OR													
3	CO3	ES,TW,PR/OR													
4	CO4	ES,TW,PR/OR													
5	CO5	ES,TW,PR/OR													
6	CO6	ES,TW,PR/OR													
1	CO1	ES,TW,PR/OR								16	4			4	24
2	CO2	ES,TW,PR/OR								16	4			4	24
3	CO3	ES,TW,PR/OR								16	4			4	24
4	CO4	ES,TW,PR/OR								16	5			5	26
5	CO5	ES,TW,PR/OR								18	4			4	26
6	CO6	ES,TW,PR/OR								18	4			4	26
TOTAL			0	0	0	0				100	25			25	150
1	CO1	ES,TW,PR/OR								16%	16%			16%	
2	CO2	ES,TW,PR/OR								16%	16%			16%	
3	CO3	ES,TW,PR/OR								16%	16%			16%	
4	CO4	ES,TW,PR/OR								16%	16%			20%	
5	CO5	ES,TW,PR/OR								18%	18%			16%	
6	CO6	ES,TW,PR/OR								18%	18%			16%	
										100%	100%			100%	

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Professor & Head
Department of Mechanical Engg.
Army Institute of Technology
Pune - 411015.

ARMY INSTITUTE OF TECHNOLOGY
Dighi Hills, Alandi Road, Pune 411 015
Department of Mechanical Engineering

Army Institute of Technology
Onward to Glory

RECORD OF STUDENT ASSESSMENT – INTERNAL AND EXTERNAL

Dighi Hills, Pune - 411015		CLASS	SE MECH	COURSE CODE	202047
DEPARTMENT OF MECH ENGG.		COURSE	Kinematics of Machinery (KOM)		
ACADEMIC YEAR	2022-23	FACULTY	M B PHATANGARE		
TERM	II				

SL. NO.	ROLL NO.	NAME OF STUDENT	INTERNAL (THEORY)				UNIVERSITY (THEORY)				INT. (LAB)		UNIV. (LAB)		Internal	University
			0	0	0	0				100	25			25	25	125
			T1	T2	A1	A2	O1	O2	IS	ES	TW	IOR	TW	PR/OR	TOTAL	TOTAL
1	S190220801	YASWANT SINGH								53	19			16	76.00	55.20
2	S190220802	AAKANSH AVASTHI								39	20			17	80.00	44.80
3	S190220803	ABHISHEK								54	21			18	84.00	57.60
4	S190220804	ABHISHEK KULHARI								55	19			16	76.00	56.80
5	S190220805	ALLAMRAJU ARUNKUMAR								55	23			20	92.00	60.00
6	S190220806	AMANDEEP SINGH								61	23			23	92.00	67.20
7	S190220807	ANIL SINGH TOMAR								66	23			23	92.00	71.20
8	S190220808	ANKIT KUMAR								43	16			13	64.00	44.80
9	S190220809	ARYAN KUMAR SHARMA								34	23			23	92.00	45.60
10	S190220810	ASHISH KUMAR								23	19			0	76.00	18.40
11	S190220811	AVINASH SINGH								44	23			20	92.00	51.20
12	S190220812	B BHAVANI								52	23			22	92.00	59.20
13	S190220813	BELAGE SAINATH KASHINATH								55	23			20	92.00	60.00
14	S190220814	BISHWAJIT DEY								40	19			0	76.00	32.00
15	S190220815	GANGA								51	23			23	92.00	59.20
16	S190220816	GAURAV SINGH								39	21			18	84.00	45.60
17	S190220817	GOURAV KUMAR								56	23			20	92.00	60.80
18	S190220818	GURLEEN KOUR								49	25			22	100.00	56.80
19	S190220819	HEMANT YADAV								44	19			16	76.00	48.00
20	S190220820	HIMANSHU								56	21			18	84.00	59.20
21	S190220821	HITANSHU RANA								38	22			19	88.00	45.60
22	S190220822	ISHA RANA								71	26			23	104.00	75.20
23	S190220823	K SRIKUMAR AYYANAR								56	23			20	92.00	60.80
24	S190220824	KEVIN VARGHESE								34	23			20	92.00	43.20
25	S190220825	KRISHNA MOHAN TRIPATHI								57	23			23	92.00	64.00
26	S190220826	KUMARI SONALI SINGH								53	23			22	92.00	60.00
27	S190220827	KUTAGOLLA LALITH PAVAN								55	23			21	92.00	61.60
28	S190220828	MAHENDRA KUMAR VISHNOI								67	23			24	92.00	72.00
29	S190220829	MAYANK MUDGAL								54	21			18	84.00	60.80
30	S190220830	MOHAN SINGH								60	23			22	92.00	64.00
31	S190220831	NEERAJ KUMAR KHANDAGRE								59	23			23	92.00	61.60
32	S190220832	NIKHEEL KUMAR								52	23			22	92.00	58.40
33	S190220833	PANKAJ RAI								54	23			20	92.00	57.60
34	S190220834	PARTHA SARATHI SENA								38	21			18	84.00	46.40
35	S190220835	PIYUSH KUMAR								51	23			21	92.00	53.60
36	S190220836	POOJA YADAV								55	21			18	84.00	44.00
37	S190220837	PRASHANT KUMAR CHAUHAN								55	23			20	92.00	58.40
38	S190220838	R LIKITH KUMAR REDDY								37	19			16	76.00	44.00
39	S190220839	RAHUL JASPAL								0	19			0	76.00	13.60

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Professor & Head
Department of Mechanical Engg.
Army Institute of Technology
Pune - 411015.

ARMY INSTITUTE OF TECHNOLOGY
Dighi Hills, Alandi Road, Pune 411 015
Department of Mechanical Engineering

Army Institute of Technology
Onward to Glory

RECORD OF STUDENT ASSESSMENT – INTERNAL AND EXTERNAL

Dighi Hills, Pune - 411015		CLASS	SE MECH	COURSE CODE	202047
DEPARTMENT OF MECH ENGG.		COURSE	Kinematics of Machinery (KOM)		
ACADEMIC YEAR	2022-23	FACULTY	M B PHATANGARE		
TERM	II				

SL. NO.	ROLL NO.	NAME OF STUDENT	INTERNAL (THEORY)				UNIVERSITY (THEORY)				INT. (LAB)		UNIV. (LAB)		Internal	University
			0	0	0	0				100	25			25	25	125
			T1	T2	A1	A2	O1	O2	IS	ES	TW	IOR	TW	PR/OR	TOTAL	TOTAL
40	S190220840	RAJ SINGH								58	21			18	84.00	64.00
41	S190220841	RAJ VARDHAN SINGH								60	21			18	84.00	62.40
42	S190220842	REGU TANUJA								57	20			17	80.00	61.60
43	S190220843	RITIKA								59	23			22	92.00	61.60
44	S190220844	ROHIT SINGH TANWAR								51	21			18	84.00	58.40
45	S190220845	RUTWEEK SOPAN PANSARE								50	23			20	92.00	58.40
46	S190220846	SAHIL DWIVEDI								47	21			18	84.00	54.40
47	S190220847	SHIV RAM								53	23			22	92.00	56.80
48	S190220848	SHIVAM KUMAR								63	23			23	92.00	68.00
49	S190220849	SIMRAN								54	23			21	92.00	60.00
50	S190220850	SUMIT KUMAR BHATI								27	21			18	84.00	39.20
51	S190220851	TANUJA NEGI								55	23			22	92.00	58.40
52	S190220852	V DINESH								44	23			21	92.00	53.60
53	S190220853	VIGNESH HARI B								47	23			22	92.00	56.00
54	S190220854	VIKASH								48	21			18	84.00	56.80
55	S190220855	VIKASH KUMAR								58	23			23	92.00	62.40
56	S190220856	VINAY PRATAP GIRI								63	23			23	92.00	66.40
57	S190220857	VIVEK YADAV								64	23			23	92.00	51.20
58	S190220858	WAIBHAV KUMAR								57	23			20	92.00	45.60
59	S190220859	YUVRAJ SINGH								48	23			20	92.00	38.40

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Professor & Head
Department of Mechanical Engg.
Army Institute of Tecnology
Pune - 411015.

Army Institute of Technology	ASSESSMENT OF COURSE OUTCOMES			TARGET
				60 %
Dighi Hills, Pune - 411015	CLASS	SE MECH	COURSE CODE	202047
DEPARTMENT OF MECH ENGG.	COURSE	Kinematics of Machinery (KOM)		
ACADEMIC YEAR 2022-23	FACULTY	M B PHATANGARE		
TERM II				

SL. NO.	ROLL NO.	24			24			24			26			26			26		
		CO1			CO2			CO3			CO4			CO5			CO6		
		Marks	%	Y/N	Marks	%	Y/N	Marks	%	Y/N	Marks	%	Y/N	Marks	%	Y/N	Marks	%	Y/N
1	S190220801	14.1	58.7%	N	14.1	58.7%	N	14.1	58.7%	N	14.7	56.6%	N	15.5	59.7%	N	15.5	59.7%	N
2	S190220802	12.2	50.7%	N	12.2	50.7%	N	12.2	50.7%	N	12.8	49.4%	N	13.3	51.3%	N	13.3	51.3%	N
3	S190220803	14.9	62.0%	Y	14.9	62.0%	Y	14.9	62.0%	Y	15.6	60.0%	Y	16.4	63.0%	Y	16.4	63.0%	Y
4	S190220804	14.4	60.0%	Y	14.4	60.0%	Y	14.4	60.0%	Y	15.0	57.8%	N	15.9	61.1%	Y	15.9	61.1%	Y
5	S190220805	15.7	65.3%	Y	15.7	65.3%	Y	15.7	65.3%	Y	16.5	63.4%	Y	17.2	66.3%	Y	17.2	66.3%	Y
6	S190220806	17.1	71.3%	Y	17.1	71.3%	Y	17.1	71.3%	Y	18.0	69.4%	Y	18.8	72.3%	Y	18.8	72.3%	Y
7	S190220807	17.9	74.7%	Y	17.9	74.7%	Y	17.9	74.7%	Y	18.8	72.5%	Y	19.7	75.8%	Y	19.7	75.8%	Y
8	S190220808	11.5	48.0%	N	11.5	48.0%	N	11.5	48.0%	N	12.0	46.3%	N	12.7	48.8%	N	12.7	48.8%	N
9	S190220809	12.8	53.3%	N	12.8	53.3%	N	12.8	53.3%	N	13.7	52.8%	N	13.9	53.6%	N	13.9	53.6%	N
10	S190220810	6.7	28.0%	N	6.7	28.0%	N	6.7	28.0%	N	6.7	25.8%	N	7.6	29.1%	N	7.6	29.1%	N
11	S190220811	13.9	58.0%	N	13.9	58.0%	N	13.9	58.0%	N	14.7	56.6%	N	15.3	58.7%	N	15.3	58.7%	N
12	S190220812	15.5	64.7%	Y	15.5	64.7%	Y	15.5	64.7%	Y	16.4	63.1%	Y	17.0	65.5%	Y	17.0	65.5%	Y
13	S190220813	15.7	65.3%	Y	15.7	65.3%	Y	15.7	65.3%	Y	16.5	63.4%	Y	17.2	66.3%	Y	17.2	66.3%	Y
14	S190220814	9.4	39.3%	N	9.4	39.3%	N	9.4	39.3%	N	9.4	36.3%	N	10.6	40.8%	N	10.6	40.8%	N
15	S190220815	15.5	64.7%	Y	15.5	64.7%	Y	15.5	64.7%	Y	16.4	63.2%	Y	17.0	65.4%	Y	17.0	65.4%	Y
16	S190220816	12.5	52.0%	N	12.5	52.0%	N	12.5	52.0%	N	13.2	50.8%	N	13.7	52.6%	N	13.7	52.6%	N
17	S190220817	15.8	66.0%	Y	15.8	66.0%	Y	15.8	66.0%	Y	16.6	64.0%	Y	17.4	67.0%	Y	17.4	67.0%	Y
18	S190220818	15.4	64.0%	Y	15.4	64.0%	Y	15.4	64.0%	Y	16.2	62.5%	Y	16.8	64.8%	Y	16.8	64.8%	Y
19	S190220819	12.6	52.7%	N	12.6	52.7%	N	12.6	52.7%	N	13.3	51.1%	N	13.9	53.5%	N	13.9	53.5%	N
20	S190220820	15.2	63.3%	Y	15.2	63.3%	Y	15.2	63.3%	Y	15.9	61.2%	Y	16.7	64.4%	Y	16.7	64.4%	Y
21	S190220821	12.6	52.7%	N	12.6	52.7%	N	12.6	52.7%	N	13.4	51.5%	N	13.8	53.2%	N	13.8	53.2%	N
22	S190220822	19.2	80.0%	Y	19.2	80.0%	Y	19.2	80.0%	Y	20.1	77.4%	Y	21.1	81.3%	Y	21.1	81.3%	Y
23	S190220823	15.8	66.0%	Y	15.8	66.0%	Y	15.8	66.0%	Y	16.6	64.0%	Y	17.4	67.0%	Y	17.4	67.0%	Y
24	S190220824	12.3	51.3%	N	12.3	51.3%	N	12.3	51.3%	N	13.1	50.5%	N	13.5	51.8%	N	13.5	51.8%	N
25	S190220825	16.5	68.7%	Y	16.5	68.7%	Y	16.5	68.7%	Y	17.4	66.9%	Y	18.1	69.5%	Y	18.1	69.5%	Y
26	S190220826	15.7	65.3%	Y	15.7	65.3%	Y	15.7	65.3%	Y	16.6	63.7%	Y	17.2	66.2%	Y	17.2	66.2%	Y
27	S190220827	15.8	66.0%	Y	15.8	66.0%	Y	15.8	66.0%	Y	16.7	64.2%	Y	17.4	66.9%	Y	17.4	66.9%	Y
28	S190220828	18.2	76.0%	Y	18.2	76.0%	Y	18.2	76.0%	Y	19.2	73.8%	Y	20.0	77.1%	Y	20.0	77.1%	Y
29	S190220829	14.9	62.0%	Y	14.9	62.0%	Y	14.9	62.0%	Y	15.6	60.0%	Y	16.4	63.0%	Y	16.4	63.0%	Y
30	S190220830	16.8	70.0%	Y	16.8	70.0%	Y	16.8	70.0%	Y	17.7	68.0%	Y	18.5	71.0%	Y	18.5	71.0%	Y
31	S190220831	16.8	70.0%	Y	16.8	70.0%	Y	16.8	70.0%	Y	17.7	68.2%	Y	18.4	70.9%	Y	18.4	70.9%	Y
32	S190220832	15.5	64.7%	Y	15.5	64.7%	Y	15.5	64.7%	Y	16.4	63.1%	Y	17.0	65.5%	Y	17.0	65.5%	Y
33	S190220833	15.5	64.7%	Y	15.5	64.7%	Y	15.5	64.7%	Y	16.3	62.8%	Y	17.1	65.6%	Y	17.1	65.6%	Y
34	S190220834	12.3	51.3%	N	12.3	51.3%	N	12.3	51.3%	N	13.0	50.2%	N	13.5	51.9%	N	13.5	51.9%	N
35	S190220835	15.2	63.3%	Y	15.2	63.3%	Y	15.2	63.3%	Y	16.0	61.7%	Y	16.7	64.2%	Y	16.7	64.2%	Y
36	S190220836	15.0	62.7%	Y	15.0	62.7%	Y	15.0	62.7%	Y	15.8	60.6%	Y	16.6	63.7%	Y	16.6	63.7%	Y
37	S190220837	15.7	65.3%	Y	15.7	65.3%	Y	15.7	65.3%	Y	16.5	63.4%	Y	17.2	66.3%	Y	17.2	66.3%	Y
38	S190220838	11.5	48.0%	N	11.5	48.0%	N	11.5	48.0%	N	12.2	46.8%	N	12.6	48.6%	N	12.6	48.6%	N
39	S190220839	3.0	12.7%	N	3.0	12.7%	N	3.0	12.7%	N	3.0	11.7%	N	3.4	13.2%	N	3.4	13.2%	N
40	S190220840	15.5	64.7%	Y	15.5	64.7%	Y	15.5	64.7%	Y	16.2	62.5%	Y	17.1	65.8%	Y	17.1	65.8%	Y
41	S190220841	15.8	66.0%	Y	15.8	66.0%	Y	15.8	66.0%	Y	16.6	63.7%	Y	17.5	67.2%	Y	17.5	67.2%	Y
42	S190220842	15.0	62.7%	Y	15.0	62.7%	Y	15.0	62.7%	Y	15.7	60.5%	Y	16.6	63.8%	Y	16.6	63.8%	Y
43	S190220843	16.6	69.3%	Y	16.6	69.3%	Y	16.6	69.3%	Y	17.5	67.4%	Y	18.3	70.3%	Y	18.3	70.3%	Y
44	S190220844	14.4	60.0%	Y	14.4	60.0%	Y	14.4	60.0%	Y	15.1	58.2%	N	15.8	60.9%	Y	15.8	60.9%	Y
45	S190220845	14.9	62.0%	Y	14.9	62.0%	Y	14.9	62.0%	Y	15.7	60.3%	Y	16.3	62.8%	Y	16.3	62.8%	Y
46	S190220846	13.8	57.3%	N	13.8	57.3%	N	13.8	57.3%	N	14.5	55.7%	N	15.1	58.2%	N	15.1	58.2%	N
47	S190220847	15.7	65.3%	Y	15.7	65.3%	Y	15.7	65.3%	Y	16.6	63.7%	Y	17.2	66.2%	Y	17.2	66.2%	Y
48	S190220848	17.4	72.7%	Y	17.4	72.7%	Y	17.4	72.7%	Y	18.4	70.6%	Y	19.2	73.7%	Y	19.2	73.7%	Y
49	S190220849	15.7	65.3%	Y	15.7	65.3%	Y	15.7	65.3%	Y	16.5	63.5%	Y	17.2	66.2%	Y	17.2	66.2%	Y
50	S190220850	10.6	44.0%	N	10.6	44.0%	N	10.6	44.0%	N	11.3	43.4%	N	11.5	44.3%	N	11.5	44.3%	N
51	S190220851	16.0	66.7%	Y	16.0	66.7%	Y	16.0	66.7%	Y	16.9	64.9%	Y	17.6	67.5%	Y	17.6	67.5%	Y
52	S190220852	14.1	58.7%	N	14.1	58.7%	N	14.1	58.7%	N	14.9	57.4%	N	15.4	59.3%	N	15.4	59.3%	N
53	S190220853	14.7	61.3%	Y	14.7	61.3%	Y	14.7	61.3%	Y	15.6	60.0%	Y	16.1	62.0%	Y	16.1	62.0%	Y
54	S190220854	13.9	58.0%	N	13.9	58.0%	N	13.9	58.0%	N	14.6	56.3%	N	15.3	58.8%	N	15.3	58.8%	N
55	S190220855	16.6	69.3%	Y	16.6	69.3%	Y	16.6	69.3%	Y	17.6	67.5%	Y	18.3	70.2%	Y	18.3	70.2%	Y
56	S190220856	17.4	72.7%	Y	17.4	72.7%	Y	17.4	72.7%	Y	18.4	70.6%	Y	19.2	73.7%	Y	19.2	73.7%	Y
57	S190220857	17.6	73.3%	Y	17.6	73.3%	Y	17.6	73.3%	Y	18.5	71.2%	Y	19.3	74.4%	Y	19.3	74.4%	Y
58	S190220858	16.0	66.7%	Y	16.0	66.7%	Y	16.0	66.7%	Y	16.8	64.6%	Y	17.6	67.7%	Y	17.6	67.7%	Y
59	S190220859	14.6	60.7%	Y	14.6	60.7%	Y	14.6	60.7%	Y	15.4	59.1%	N	16.0	61.5%	Y	16.0	61.5%	Y

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ASSESSMENT OF COURSE OUTCOMES

Army Institute of Technology Onward to Glory Dighi Hills, Pune - 411015	ATTAINMENT OF COURSE OUTCOMES	
DEPARTMENT OF MECH ENGG.	TARGET	60 %

ACADEMIC YEAR	2022-23
TERM	II
CLASS	SE MECH
COURSE CODE	202047
COURSE	Kinematics of Machinery (KOM)
FACULTY	M B PHATANGARE

SL. NO.	CO	COURSE OUTCOMES	% TOTAL	RESULT
1	CO1	APPLY kinematic analysis to simple mechanisms	69.5 %	Y
2	CO2	ANALYZE velocity and acceleration in mechanisms by analytical methods	69.5 %	Y
3	CO3	ANALYZE velocity and acceleration in mechanisms by graphical methods	69.5 %	Y
4	CO4	SYNTHESIZE a four bar mechanism with analytical and graphical methods	64.4 %	Y
5	CO5	APPLY fundamentals of gear theory as a prerequisite for gear design	69.5 %	Y
6	CO6	CONSTRUCT cam profile for given follower motion	69.5 %	Y

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CO Attainment

Army Institute of Technology		CO Attainment			
Dighi Hills, Pune - 411015		CLASS	0	COURSE CODE	0
DEPARTMENT OF MECH ENGG.		COURSE	0		
ACADEMIC YEAR	2022-23	FACULTY	M B PHATANGARE		
TERM	II		Target Percentage Marks		60
		Attainment Level	Criteria		
		3	%Students >=		80
		2	%Students >=		70
		1	%Students >=		60
		0	%Students <		50

Category	Total Students	Number of Stundents Above Target level	% Students above Target level	Attainment Level	Overall Attainment
Internal	59	57	96.61	3	0.90
External	59	22	37.29	0	

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Army Institute of Technology Onward to Glory Dighi Hills, Pune - 411015 DEPARTMENT OF MECH ENGG.	ASSESSMENT AND EVALUATION OF PROGRAM OUTCOMES

ACADEMIC YEAR	2022-23	CLASS	SE MECH
TERM	II	COURSE CODE	202047
COURSE	Kinematics of Machinery (KOM)		
FACULTY	M B Phatangare	MAPPING CORELATION	

HIGH	3	100%
MEDIUM	2	66%
LOW	1	33%
	0	0%

CO-PO CORRELATION MATRIX

CO	CO ATTAINMENT		PROGRAM OUTCOMES											
	%	Y/N	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	69.5 %	Y	3	3	1		2		1		3	3		1
CO2	69.5 %	Y	3	3	2	1	2		1		1	2		1
CO3	69.5 %	Y	3	3	2	1	2		1		1	2		1
CO4	64.4 %	Y	3	3	3	1	2		1		1	3		1
CO5	69.5 %	Y	3	3	1		2		1		1	2		1
CO6	69.5 %	Y	3	3	3	1	2		1		1	3		1
Avg			3.00	3.00	2.00	1.00	2.00		1.00		1.33	2.50		1.00

EVALUATION OF POs BASED ON CORRELATION MATRIX & CO ATTAINMENT

CO	CO ATTAINMENT		PROGRAM OUTCOMES											
	%	Y/N	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	69.5 %	Y	69%	69%	23%		46%		23%		69%	69%		23%
CO2	69.5 %	Y	69%	69%	46%	23%	46%		23%		23%	46%		23%
CO3	69.5 %	Y	69%	69%	46%	23%	46%		23%		23%	46%		23%
CO4	64.4 %	Y	64%	64%	64%	21%	43%		21%		21%	64%		21%
CO5	69.5 %	Y	69%	69%	23%		46%		23%		23%	46%		23%
CO6	69.5 %	Y	69%	69%	69%	23%	46%		23%		23%	69%		23%
OVERALL EVALUATION OF POs			100%	100%	66%	33%	66%		33%		44%	83%		33%
			3.00	3.00	1.98	0.99	1.98		0.99		1.33	2.48		0.99

OVERALL EVALUATION OF POs	EVALUATION OF POs BASED ON CO ATTAINMENT1 AND CORRELATION MATRIX											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	3.00	0.90	0.60	0.30	0.60		0.30		0.40	0.75		0.30

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Army Institute of Technology Onward to Glory Dighi Hills, Pune - 411015 DEPARTMENT OF MECH ENGG.	ASSESSMENT AND EVALUATION OF PROGRAM SPECIFIC OUTCOMES

ACADEMIC YEAR	2022-23	CLASS	SE MECH
TERM	II	COURSE CODE	202047
COURSE	Kinematics of Machinery (KOM)		
FACULTY	M B PHATANGARE	MAPPING CORELATION	

HIGH	3	100%
MEDIUM	2	66%
LOW	1	33%
	0	0%

CO-PSO CORRELATION MATRIX

CO	CO ATTAINMENT		P S OUTCOMES			
	%	Y/N	PSO1	PSO2	PSO3	PSO4
CO1	69.5 %	Y	3	1	1	-
CO2	69.5 %	Y	3	2	1	-
CO3	69.5 %	Y	3	2	1	-
CO4	64.4 %	Y	3	2	1	-
CO5	69.5 %	Y	3	1	1	-
CO6	69.5 %	Y	3	2	1	-
			3.00	1.67	1.00	-

EVALUATION OF PSOs BASED ON CORRELATION MATRIX & CO ATTAINMENT

CO	CO ATTAINMENT		P S OUTCOMES			
	%	Y/N	PSO1	PSO2	PSO3	PSO4
CO1	69.5 %	Y	69%	23%	23%	-
CO2	69.5 %	Y	69%	46%	23%	-
CO3	69.5 %	Y	69%	46%	23%	-
CO4	64.4 %	Y	64%	43%	21%	-
CO5	69.5 %	Y	69%	23%	23%	-
CO6	69.5 %	Y	69%	46%	23%	-
OVERALL EVALUATION OF PSOs			**100%**	**55%**	**33%**	-
			3.00	**1.65**	**0.99**	-

EVALUATION OF PsOs BASED ON CO ATTAINMENT1 AND CORRELATION MATRIX

	PSO1	PSO2	PSO3	PSO4
OVERALL EVALUATION OF PSOs	**0.90**	**0.50**	**0.30**	-

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ARMY INSTITUTE OF TECHNOLOGY

Dighi Hills, Alandi Road, Pune 411015

Department of Applied Science and General Engineering

439. Sample CO and PO Attainment Excel sheet

Course: 107002 Engineering Physics

Class: FE Computer A

AY: 2022-23

Faculty Incharge: Prof Mridula Chandola

Army Institute of Technology, Department of ASGE

Class	First Year	Total Students	59
Branch	Computer-A		
Course	Engineering Physics		
year	2022-23		
Course Instructor	Ms Mridula Chandola		

Program Outcomes	Competancy	Performance Indicators	CO1	CO2	CO3	CO4	CO5	CO6
			Develop understanding of interference, diffraction and polarization; connect it to few engineering applications.	Learn basics of lasers and optical fibers and their use in some applications.	Understand concepts and principles in quantum mechanics. Relate them to some applications.	Understand theory of semiconductors and their applications in some semiconductor devices.	Summarize basics of magnetism and superconductivity. Explore few of their technological applications.	Comprehend use of concepts of physics for Non Destructive Testing. Learn some properties of nanomaterials and their

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PO 01 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex	1.1	Demonstrate competence in mathematical modelling	1.1.1	Apply mathematical techniques such as calculus, linear algebra, and statistics to solve problems	y	y	y	y	y	y
			1.1.2	Apply advanced mathematical techniques to model and solve engineering problems	y		y	y	y	
	1.2	Demonstrate competence in basic sciences	1.2.1	Apply laws of natural science to an engineering problem	y	y	y	y	y	y
	1.3	Demonstrate competence in engineering fundamentals	1.3.1	Apply fundamental engineering concepts to solve engineering problems	y	y	y	y	y	y
	1.4	Demonstrate competence in specialized engineering	1.4.1	Apply engineering concepts to solve engineering problems.	y	y	y	y	y	y

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PO to CO Mapping for PO 1					3	2	3	3	3	2
	2.1	Demonstrate an ability to identify and formulate complex engineering problem	2.1.1	Articulate problem statements and identify objectives	y	y	y	y	y	y
			2.1.2	Identify engineering systems, variables, and parameters to solve the problems	y	y	y	y	y	y
			2.1.3	Identify the mathematical, engineering and other relevant knowledge that applies to a given problem	y	y	y	y	y	y
		Demonstrate an ability to	2.2.1	Reframe complex problems into interconnected sub-problems	y	y	y	y	y	y
			2.2.2	Identify, assemble and evaluate information and resources	y	y	y	y	y	y

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PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	2.2	ability to formulate a solution plan and methodology for an engineering problem	2.2.3	Identify existing processes/solution methods for solving the problem, including forming justified approximations and assumptions	y	y	y	y	y	y
			2.2.4	Compare and contrast alternative solution processes to select the best process.						y
	2.3	Demonstrate an ability to formulate and interpret a model	2.3.1	Combine scientific principles and engineering concepts to formulate model/s (mathematical or otherwise) of a system or process that is appropriate in terms of applicability and required accuracy.	y	y	y	y	y	y

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		2.3.2	Identify assumptions (mathematical and physical) necessary to allow modeling of a	y	y	y	y	y	y
2.4	Demonstrate an ability to execute a solution process and analyze results	2.4.1	Apply engineering mathematics and computations to solve mathematical models	y	y	y	y	y	
		2.4.2	Produce and validate results through skilful use of contemporary engineering tools and models	y	y	y	y	y	y
		2.4.3	Identify sources of error in the solution process, and limitations of the solution.						y

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			2.4.4	Extract desired understanding and conclusions consistent with objectives and limitations of the analysis	y	y	y	y	y	y
PO to CO Mapping for PO 2					3	3	3	3	3	3

			3.1.1	Recognize that need analysis is key to good problem definition	y	y	y	y	y	y
			3.1.2	Elicit and document, engineering requirements from stakeholders						
			3.1.3	Synthesize engineering requirements from a review of the state-of-the-art						y

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PO 3: Design/development of solutions: Design solutions for	3.1	Demonstrate an ability to define a comples open ended problem in engineering terms	3.1.4	Extract engineering requirements from relevant engineering Codes and Standards such as ASME, ASTM, BIS, ISO and ASHRAE.						
			3.1.5	Explore and synthesize engineering requirements considering health, safety risks	y	y	y	y	y	y
			3.1.6	Determine design objectives, functional requirements and arrive at specifications	y	y	y	y	y	y

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complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.	3.2	Demonstrate an ability to generate diverse set of alternative design solutions	3.2.1	Apply formal idea generation tools to develop multiple engineering design solutions	y	y	y	y	y	y
			3.2.2	Build models/prototypes to develop a diverse set of design solutions						
			3.2.3	Identify suitable criteria for the evaluation of alternate design solutions	y	y		y	y	y
		Demonstrate an ability to select an optimal	3.3.1	Apply formal decision-making tools to select optimal engineering design solutions for further development						

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	3.3	optimal design scheme for further developme nt	3.3.2	Consult with domain experts and stakeholders to select candidate engineering design solution for further development						
	3.4	Demonstra te an ability to advance an engineerin g design to a defined end state	3.4.1	Refine a conceptual design into a detailed design within the existing constraints (of the resources)						
			3.4.2	Generate information through appropriate tests to improve or revise the design						
PO to CO Mapping for PO 3					1	1	1	1	1	1

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			4.1.1	Define a problem, its scope and importance for purposes of investigation	y	y	y	y	y	y
	4.1	Demonstrate an ability to conduct investigations of a technical issues consistant with their level of knowledge and understan	4.1.2	Examine the relevant methods, tools and techniques of experiment design, system calibration, data acquisition, analysis and presentation	y	y		y		y
			4.1.3	Apply appropriate instrumentation and/or software tools to make measurements of physical quantities	y	y		y		y

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		ding	4.1.4	Establish a relationship between measured data and underlying physical principles.	y	y		y		y
PO 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.	4.2	Demonstrate an ability to design experiments to solve open ended problem	4.2.1	Design and develop an experimental approach, specify appropriate equipment and procedures	y	y		y		y
			4.2.2	Understand the importance of the statistical design of experiments and choose an appropriate experimental design plan based on the study objectives						

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	4.3	Demonstrate an ability to analyze data and reach a valid conclusion	4.3.1	Use appropriate procedures, tools and techniques to conduct experiments and collect data	y	y		y		y
			4.3.2	Analyze data for trends and correlations, stating possible errors and limitations	y	y		y		y
			4.3.3	Represent data (in tabular and/or graphical forms) so as to facilitate analysis and explanation of the data, and drawing of conclusions	y	y		y		y
			4.3.4	Synthesize information and knowledge about the problem from the raw data to reach	y	y		y		y
PO to CO Mapping for PO 4					3	3	0	3	0	3

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	5.1	Demonstrate an ability to identify/create modern engineering tools, techniques and resources	5.1.1	Identify modern engineering tools such as computer-aided drafting, modeling and analysis; techniques and resources for engineering activities						
			5.1.2	Create/adapt/modify/extend tools and techniques to solve engineering problems	y	y		y		y

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PO 5 : Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	5.2	Demonstrate an ability to select and apply disciplines pecific tools, techniques and resources	5.2.1	Identify the strengths and limitations of tools for (i) acquiring information, (ii)modeling and simulating, (iii) monitoring system performance, and (iv) creating engineering designs.						
			5.2.2	Demonstrate proficiency in using discipline-specific tools	y	y	y	y	y	y
		Demonstrate an ability to evaluate	5.3.1	Discuss limitations and validate tools, techniques and resources	y	y	y	y	y	y

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	5.3	the suitability and limitations of tools used to slve an engineering problem	5.3.2	Verify the credibility of results from tool use with reference to the accuracy and limitations, and the assumptions inherent in their use.						
PO to CO Mapping for PO 5					2	2	1	2	1	2
PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety,	6.1	Demonstrate an ability to describe engineering roles in a broader context, pertaining to environment, health	6.1.1	Identify and describe various engineering roles; particularly as pertains to protection of the public and public interest at the global, regional and local level	y	y			y	y

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legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.	6.2	Demonstrate an understanding of professional engineering regulations, legislation	6.2.1	Interpret legislation, regulations, codes, and standards relevant to your discipline and explain its contribution to the protection of the public							
PO to CO Mapping for PO 6					2	2	0	0	2	2	
PO 7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of,	7.1	Demonstrate an understanding of the impact of engineering and industrial practices on social, environmental and in economic contexts.	7.1.1	Identify risks/impacts in the life-cycle of an engineering product or activity		y				y	
			7.1.2	Understand the relationship between the technical, socio-economic and environmental dimensions of sustainability		y		y		y	
		Demonstrate an ability to	7.2.1	Describe management techniques for sustainable development							

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and need for sustainable development.	7.2	apply principles of sustainable design and development	7.2.2	Apply principles of preventive engineering and sustainable development to an engineering activity or product relevant to the discipline						
PO to CO Mapping for PO 7					0	2	0	1	0	2

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	8.1	Demonstrate an ability to recognize ethical dilemmas	8.1.1	Identify situations of unethical professional conduct and propose ethical alternatives	y	y	y	y	y	y
	8.2	Demonstrate an ability to apply the code of Ethics	8.2.1	Identify tenets of the ASME professional code of ethics						
			8.2.2	Examine and apply moral & ethical principles to known case studies						
PO to CO Mapping for PO 8					1	1	1	1	1	1

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PO 9:Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	9.1	Demonstrate an ability to form a team and define a role for each member	9.1.1	Recognize a variety of working and learning preferences; appreciate the value of diversity on a team	y	y	y	y	y	y
			9.1.2	Implement the norms of practice (e.g. rules, roles, charters, agendas, etc.) of effective team work, to accomplish a goal	y	y	y	y	y	y
	9.2	Demonstrate effective individual and team operations-communication, problem solving, conflict resolving, and	9.2.1	Demonstrate effective communication, problem-solving, conflict resolution and leadership skills	y	y	y	y	y	y
			9.2.2	Treat other team members respectfully	y	y	y	y	y	y
			9.2.3	Listen to other members	y	y	y	y	y	y

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		leadership skills	9.2.4	Maintain composure in difficult situations	y	y	y	y	y	y
	9.3	Demonstrate success in a team based project	9.3.1	Present results as a team, with smooth integration of contributions from all individual efforts	y	y	y	y	y	y
PO to CO Mapping for PO 9					3	3	3	3	3	3

	10.1	Demonstrate an ability to comprehend technical literature and document	10.1.1	Read, understand and interpret technical and non-technical information	y	y	y	y	y	y
			10.1.2	Produce clear, well-constructed, and well-supported written engineering documents	y	y	y	y	y	y

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PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.		project work	10.1.3	Create flow in a document or presentation - a logical progression of ideas so that the main point is clear	y	y	y	y	y	y
	10.2	Demonstrate competance in listening, speaking, and presentation	10.2.1	Listen to and comprehend information, instructions, and viewpoints of others	y	y	y	y	y	y
			10.2.2	Deliver effective oral presentations to technical and non-technical audiences	y	y	y	y	y	y
	10.3	Demonstrate the ability to integrate ...	10.3.1	Create engineering-standard figures, reports and drawings to complement writing and presentations	y	y	y	y	y	y

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		different modes of communication	10.3.2	Use a variety of media effectively to convey a message in a document or a presentation	y	y	y	y	y	y
PO to CO Mapping for PO 10					3	3	3	3	3	3
	11.1	Demonstrate an ability to evaluate the economics and financial performance of an engineering activity	11.1.1	Describe various economic and financial costs/benefits of an engineering activity	y	y	y	y	y	y
			11.1.2	Analyze different forms of financial statements to evaluate the financial status of an engineering project						

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PO 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	11.2	Competancy 11.2: Demonstrate an ability to compare and contrast the costs/benefits of alternate proposals for an engineering activity	11.2.1	Analyze and select the most appropriate proposal based on economic and financial considerations						
	11.3	Demonstrate an ability to plan/manage an engineerin	11.3.1	Identify the tasks required to complete an engineering activity, and the resources required to complete the tasks	y	y		y		y

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		g activity within time and budget constraints	11.3.2	Use project management tools to schedule an engineering project, so it is completed on time and on budget							
PO to CO Mapping for PO 11					1	1	1	1	1	1	
	12.1	Demonstrate an ability to identify gaps in knowledge and a strategy to close these gaps	12.1.1	Describe the rationale for the requirement for continuing professional development	y	y	y	y	y	y	
			12.1.2	Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap	y	y	y	y	y	y	

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PO 12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	12.2	Demonstrate an ability to identify changing trends in engineering knowledge and practice	12.2.1	Identify historic points of technological advance in engineering that required practitioners to seek education in order to stay current	y	y	y		y	
			12.2.2	Recognize the need and be able to clearly explain why it is vitally important to keep current regarding new developments in your field	y	y	y	y	y	y
	12.3	Demonstrate an ability to identify and access	12.3.1	Source and comprehend technical literature and other credible sources of information	y	y	y	y	y	y

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	12.3	and access sources for new informatio n	12.3.2	Analyze sourced technical and popular information for feasibility, viability, sustainability, etc						
PO to CO Mapping for PO 12					3	3	3	2	3	2

PSO 01:Ability to select and apply	13.1	Demonstra te an ability to identify engg problems and a strategy to solve these problems	PI 13.1.1	Describe the rationale for the requirement for solving engineering problems	y	y	y	y	y	y
			PI 13.1.2	Identify and work on strategy to solve engineering problems	y	y	y	y	y	y
		Demonstra te an ability to formulate and	PI 13.2.1	Identify historic points of technological advances and changing trends in CS and IT.			y			

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appropriate hardware and software tools to solve problems that require enhanced programming skills	13.2	identify changing trends in CS and IT engineering knowledge and practice	PI 13.2.2	Recognize the need and be able to celarly explain why it is vitally important to keep current regarding new developments in CS and IT engineering fields			y			
	13.3	Demonstrate an ability to identify and solve engg problems in area of CS and IT	PI 13.3.1	identify and analyze source and comprihend technical literature and other credible sources of information to solve engg problems						
			PI 13.3.2	Analyze and solve engg problems in area of CS and IT						
PSO to CO Mapping forPSO 01					1	1	2	1	1	1

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PSO 02: Ability to develop IoT and cloud-based solutions for emerging societal problems	14.1	Graduate will demonstrate an ability to investigate and design software programs.	PI 14.1.1	Describe the rationale for the requirement, investigation of software programs	y	y	y	y	y	y
			PI 14.1.2	Design software programs and Identify deficiencies or gaps in knowledge						
	14.2	Demonstrate an ability to develop software programs, analyze & interpret the data.	PI 14.2.1	Identify historic points of technological advances in computer science and information Technology to develop software programs	y	y	y	y	y	y
			PI 14.2.2	Analyze and Interpret data while developing software programs						

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	14.3	Demonstrate an ability to work on multidisciplinary projects.	PI 14.3.1	Gaining knowledge of other fields to work on multidisciplinary projects.	y	y	y	y	y	y
			PI 14.3.2	Analyze sourced technical and popular information for feasibility, viability, sustainability for multidisciplinary projects.	y	y	y	y	y	y
PSO to CO Mapping forPSO 02					2	2	2	2	2	2

		Demonstrate an ability to gain wide	PI 15.1.1	Describe the rationale for the requirement for continuing professional development and higher education	y	y	y	y	y	y

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PSO 03: Ability to learn and apply Industry 4.0 standards for solving industrial problems	15.1	Gain wide knowledge to pursue higher studies	PI 15.1.2	Identify historic points of technological advance in CS and IT engineering that required practitionars to seek education in order to stay current						
	15.2	Demonstrate an ability to identify changing trends in CS and IT fields	PI 15.2.1	Identify deficiencies or gaps in knowledge and demonstrate an ability to source information to close this gap	y	y	y	y	y	y
			PI 15.2.2	Recognize the need and be able to celarly explain why it is vitally important to keep current regarding new developments in CS-IT fields	y	y	y	y	y	y

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	15.3	Demonstrate an ability to identify and access sources for new information and able to generate the employability.	PI 15.3.1	Demonstrate an ability to get placed in core industry and an ability to increase the status in professional world.						
			PI 15.3.2	Demonstrate and able to generate employability	y	y	y	y	y	y
PSO to CO Mapping for PSO 03					2	2	2	2	2	2

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Articulation Matrix

CO-PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO-1	PSO-2	PSO-3
CO1	3	3	1	3	2	2	0	1	3	3	1	3	1	2	2
CO2	2	3	1	3	2	2	2	1	3	3	1	3	1	2	2
CO3	3	3	1	0	1	0	0	1	3	3	1	3	2	2	2
CO4	3	3	1	3	2	0	1	1	3	3	1	2	1	2	2
CO5	3	3	1	0	1	2	0	1	3	3	1	3	1	2	2
CO6	2	3	1	3	2	2	2	1	3	0	1	2	1	2	2
Avg	2.67	3.00	1.00	2.00	1.67	1.33	0.83	1.00	3.00	2.50	1.00	2.67	1.17	2.00	2.00

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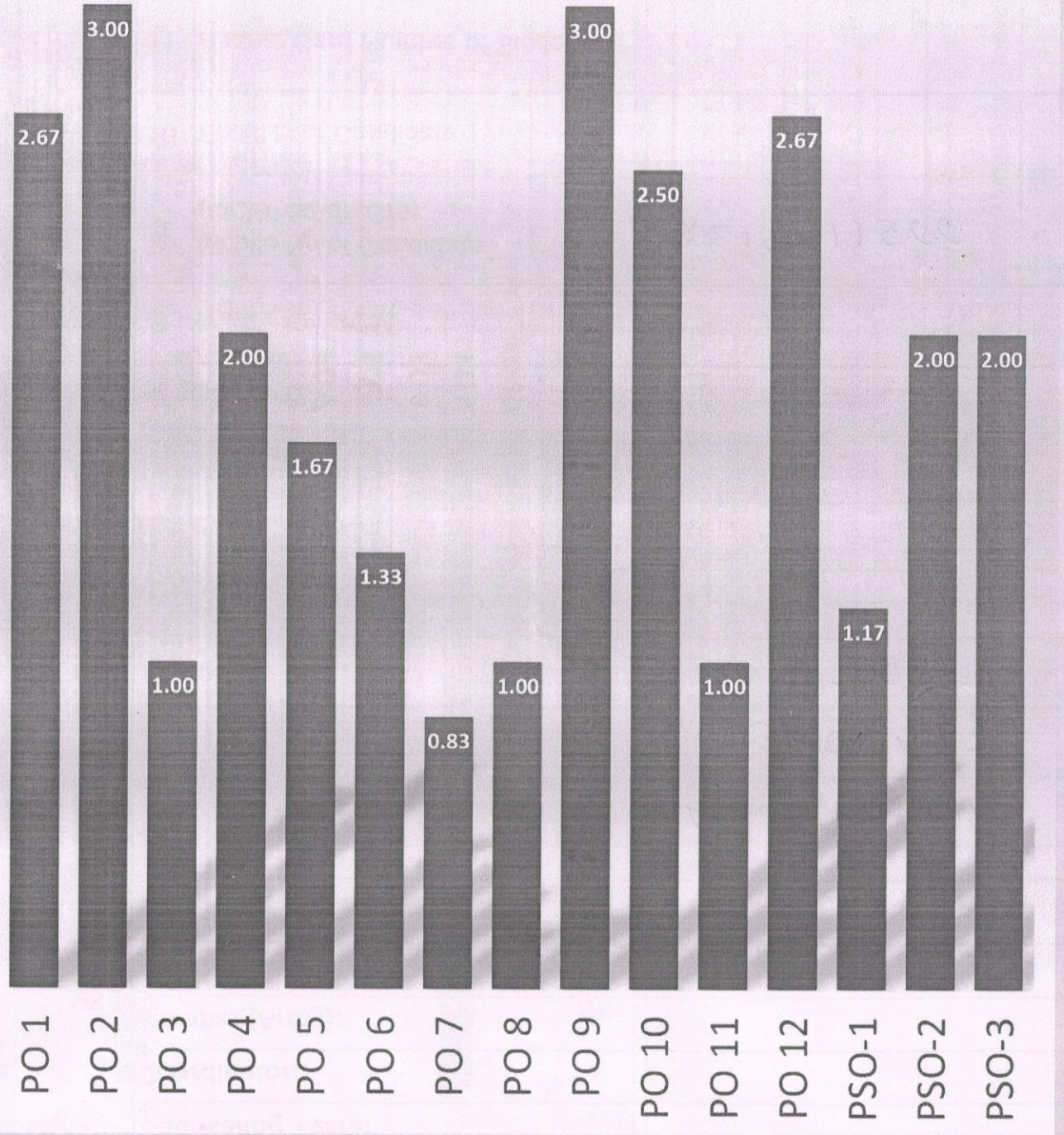
CO-PO Mapping



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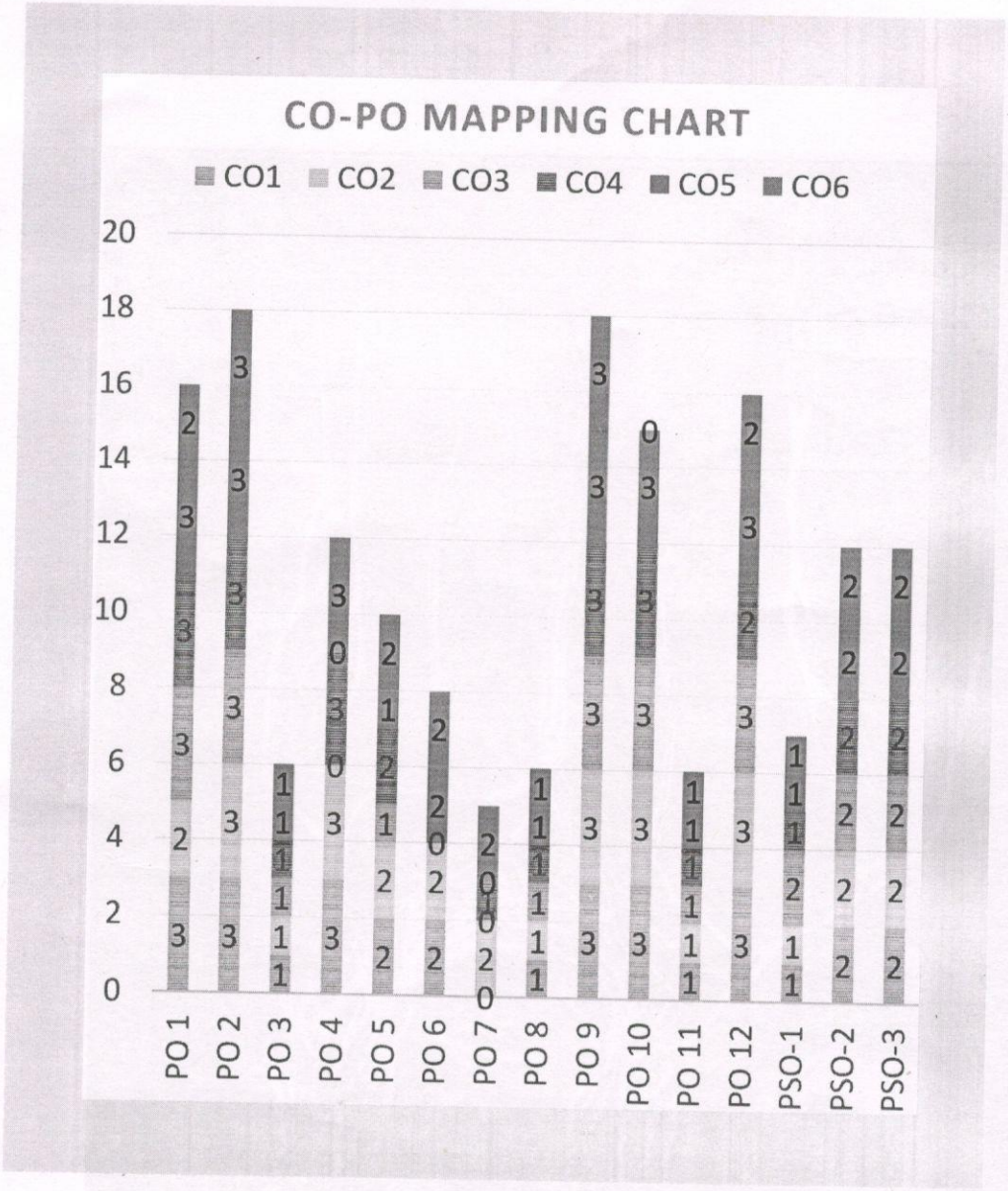

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Course Outcome Calculation Sheet

	Max Marks	TW	Prelim	ESE
		20	20	60
CO 1	Develop understanding of interference, diffraction and polarization; connect it to few engineering applications.	5	3	10
CO 2	Learn basics of lasers and optical fibers and their use in some applications.	5	3	10
CO 3	Understand concepts and principles in quantum mechanics. Relate them to some applications.	0	3	10
CO 4	Understand theory of semiconductors and their applications in some semiconductor devices.	5	3	10
CO5	Summarize basics of magnetism and superconductivity. Explore few of their technological applications.	0	4	10
CO6	Comprehend use of concepts of physics for Non Destructive Testing. Learn some properties of nanomaterials and their application	5	4	10

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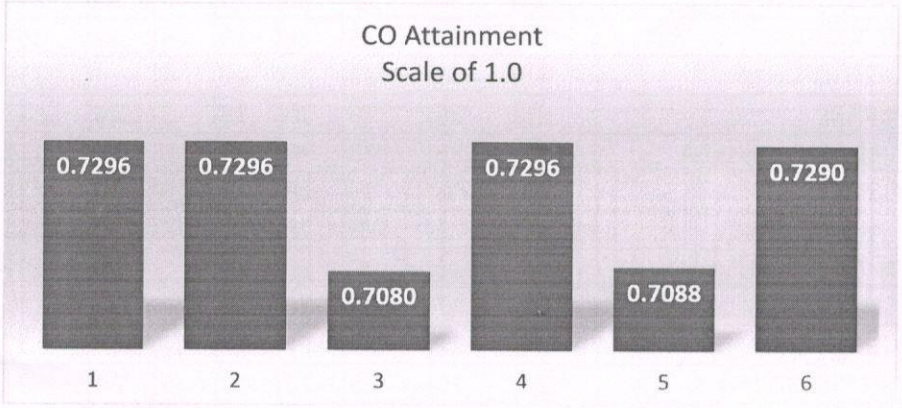

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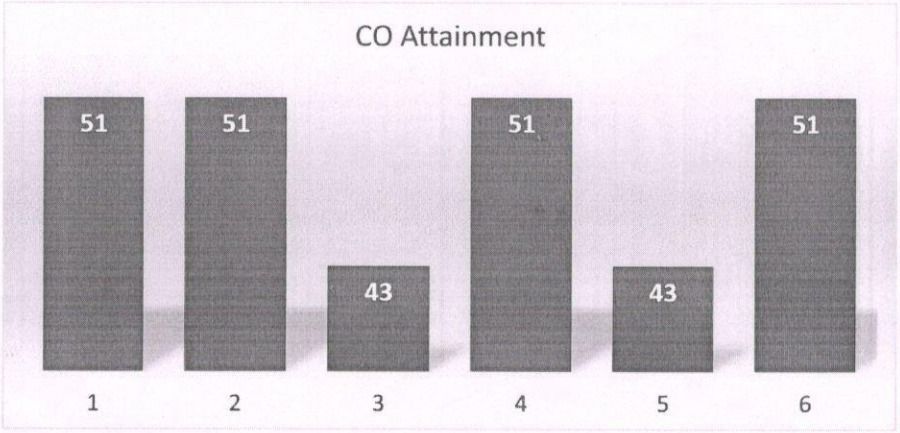

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Sr No	Roll No	Name	Marks (TW)	Marks (Prelim)	Marks (End Sem)
1	3101	ABHISHEK	16	12	32
2	3103	ABHISHEK KUMAR	15	15	46
3	3104	ADARSH VERMA	17	14	40
4	3105	ADESH VITTHAL VEER	17	11	28
5	3106	ADITYA BHARTI	15	17	53
6	3107	ADITYA KUMAR	13	12	35
7	3108	ADITYA KUMAR	13	11	33
8	3109	ADITYA KUMAR SAHU	16	14	42
9	3110	ANKIT KUMAR SINGH	15	12	34
10	3111	ANKIT RAI	17	18	54
11	3112	ANKIT SHARMA	16	18	56
12	3114	ANKUSH KUMAR	15	15	44
13	3115	ANUJ KUMAR	17	17	51
14	3116	ASHWANI KUMAR	16	12	33
15	3117	AWANIT RAJ	16	12	35
16	3118	AYUSH JAYASWAL	0	0	0
17	3119	BHOLENATH SINGH	16	14	41
18	3120	DEVANSH SINGH	14	12	34
19	3121	DEWANSHU JUDGE	16	15	44
20	3122	DIVYAM SHARMA	18	18	55
21	3123	DIVYANSHU RAI	18	17	51
22	3125	GOURAV	17	16	49
23	3126	HIMANSHU	17	11	29
24	3127	JOSES RAI	13	10	28
25	3128	KAUSHAL VYAS	17	15	44
26	3129	KHAIRNAR DARSHAN GORAKH	18	19	58
27	3130	KHUSBU	15	16	49
28	3131	KINTHADA BALA VEERA KISHORE	17	13	36
29	3132	MANISH KUMAR	14	13	38
30	3133	MOHIT KUMAR	16	13	37
31	3134	NABAJIT DAS	17	18	55

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32	3135	NAVNEET KUMAR	15	15	46
33	3136	58	18	17	50
34	3137	NISHANT KUMAR	16	16	48
35	3138	NITESH SINGH	14	15	44
36	3139	NITIN MAHALA	18	16	45
37	3140	NITIN PATHAK	16	14	41
38	3141	PALLAV KUMAR	16	15	43
39	3142	PALLAVI SHIRSATH	15	12	34
40	3143	PARTHIB MONDAL	16	14	41
41	3144	PRABHAT SINGH	18	18	56
42	3145	PRADEEP KUMAR	18	17	52
43	3146	PRIYANSHU VASHISHTHA	16	18	55
44	3147	RACHAMREDDY CHENNAKESAVA REDDY	16	18	54
46	3149	RITESH KADIAN	16	14	39
47	3151	SABIR	16	15	46
48	3152	SAIRAJ GORAKSHANATH ADHAV	16	16	48
49	3154	SHIVAM	14	11	31
50	3155	INDALKAR SHREYAS SANDEEP	14	7	16
51	3156	SIMRANDEEP SINGH	17	18	54
52	3157	SUDESH PURI	15	12	35
53	3158	SUNDRAM KUMAR	17	16	47
54	3159	SWET SINGH	14	10	29
55	3160	TANISHK SOAM	16	15	43
56	3161	SYED TAUFEEQ	16	16	49
57	3162	VISHAL SUTHAR	15	15	46
58	3164	PRATHAM KUMAR	16	13	37
59	3165	SUMIT KUMAR	18	18	53
60	3166	AARUSH BISHT	18	17	49

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Course Feedback (Indirect Attainment)	7.0197
Final Course Attainment	

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Assessment (on the scale of 1.0)

CO 1	CO 2	CO 3	CO 4	CO5	CO6
0.6185	0.6185	0.5487	0.6185	0.5524	0.6175
0.7593	0.7593	0.7628	0.7593	0.7619	0.7588
0.7231	0.7231	0.6744	0.7231	0.6762	0.7219
0.5870	0.5870	0.4859	0.5870	0.4905	0.5851
0.8407	0.8407	0.8756	0.8407	0.8738	0.8412
0.6046	0.6046	0.5872	0.6046	0.5881	0.6044
0.5778	0.5778	0.5500	0.5778	0.5500	0.5763
0.7278	0.7278	0.7000	0.7278	0.7000	0.7263
0.6231	0.6231	0.5744	0.6231	0.5762	0.6219
0.8861	0.8861	0.9000	0.8861	0.9000	0.8868
0.8907	0.8907	0.9256	0.8907	0.9238	0.8912
0.7407	0.7407	0.7372	0.7407	0.7381	0.7412
0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
0.6278	0.6278	0.5615	0.6278	0.5643	0.6263
0.6463	0.6463	0.5872	0.6463	0.5881	0.6439
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.7185	0.7185	0.6872	0.7185	0.6881	0.7175
0.6093	0.6093	0.5744	0.6093	0.5762	0.6088
0.7546	0.7546	0.7372	0.7546	0.7381	0.7544
0.9093	0.9093	0.9128	0.9093	0.9119	0.9088
0.8639	0.8639	0.8500	0.8639	0.8500	0.8632
0.8231	0.8231	0.8128	0.8231	0.8119	0.8219
0.5963	0.5963	0.4987	0.5963	0.5024	0.5939
0.5231	0.5231	0.4744	0.5231	0.4762	0.5219
0.7685	0.7685	0.7372	0.7685	0.7381	0.7675
0.9454	0.9454	0.9628	0.9454	0.9619	0.9456
0.7954	0.7954	0.8128	0.7954	0.8119	0.7956
0.6778	0.6778	0.6115	0.6778	0.6143	0.6763
0.6546	0.6546	0.6372	0.6546	0.6381	0.6544
0.6731	0.6731	0.6244	0.6731	0.6262	0.6719
0.8954	0.8954	0.9128	0.8954	0.9119	0.8956

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0.7593	0.7593	0.7628	0.7593	0.7619	0.7588
0.8546	0.8546	0.8372	0.8546	0.8381	0.8544
0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
0.7269	0.7269	0.7372	0.7269	0.7381	0.7281
0.8000	0.8000	0.7615	0.8000	0.7643	0.8000
0.7185	0.7185	0.6872	0.7185	0.6881	0.7175
0.7454	0.7454	0.7244	0.7454	0.7262	0.7456
0.6231	0.6231	0.5744	0.6231	0.5762	0.6219
0.7185	0.7185	0.6872	0.7185	0.6881	0.7175
0.9185	0.9185	0.9256	0.9185	0.9238	0.9175
0.8731	0.8731	0.8628	0.8731	0.8619	0.8719
0.8815	0.8815	0.9128	0.8815	0.9119	0.8825
0.8722	0.8722	0.9000	0.8722	0.9000	0.8737
0.7000	0.7000	0.6615	0.7000	0.6643	0.7000
0.7731	0.7731	0.7628	0.7731	0.7619	0.7719
0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
0.5731	0.5731	0.5244	0.5731	0.5262	0.5719
0.4009	0.4009	0.2859	0.4009	0.2905	0.3982
0.8861	0.8861	0.9000	0.8861	0.9000	0.8868
0.6324	0.6324	0.5872	0.6324	0.5881	0.6307
0.8046	0.8046	0.7872	0.8046	0.7881	0.8044
0.5463	0.5463	0.4872	0.5463	0.4881	0.5439
0.7454	0.7454	0.7244	0.7454	0.7262	0.7456
0.8093	0.8093	0.8128	0.8093	0.8119	0.8088
0.7593	0.7593	0.7628	0.7593	0.7619	0.7588
0.6731	0.6731	0.6244	0.6731	0.6262	0.6719
0.8907	0.8907	0.8872	0.8907	0.8881	0.8912
0.8454	0.8454	0.8244	0.8454	0.8262	0.8456
0.7296	**0.7296**	**0.7080**	**0.7296**	**0.7088**	**0.7290**

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Attainment

CO 1	CO 2	CO 3	CO 4	CO5	CO6
1	1	0	1	0	1
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1	1	1	1	1	1
0	0	0	0	0	0
1	1	1	1	1	1
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0	0	0	0	0	0
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1	1	0	1	0	1
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1	1	1	1	1	1
1	1	1	1	1	1

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1	1	1	1	1	1
1	1	1	1	1	1
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1	1	1	1	1	1

51	51	43	51	43	51

86	86	73	86	73	86
3	3	2	3	2	3

2.10591	2.10591	2.10591	2.10591	2.10591	2.10591
2.91	**2.91**	**2.01**	**2.91**	**2.01**	**2.91**

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PO Attainment for Course (Engineering Physics)
PSO Attainment for Course (Engineering Physics)

CO-PO	CO Attainment	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO-1	PSO-2	PSO-3
CO1	2.91	3	3	1	3	2	2	0	1	3	3	1	3	1	2	2
CO2	2.91	2	3	1	3	2	2	2	1	3	3	1	3	1	2	2
CO3	2.01	3	3	1	0	1	0	0	1	3	3	1	3	2	2	2
CO4	2.91	3	3	1	3	2	0	1	1	3	3	1	2	1	2	2
CO5	2.01	3	3	1	0	1	2	0	1	3	3	1	3	1	2	2
CO6	2.91	2	3	1	3	2	2	2	1	3	0	1	2	1	2	2

PO Attainment	2.29	2.61	0.87	2.91	1.52	1.79	1.62	0.87	2.61	2.55	0.87	2.29	0.98	1.74	1.74
	6.00	6.00	6.00	4.00	6.00	4.00	3.00	6.00	6.00	5.00	6.00	6.00	6.00	6.00	6.00

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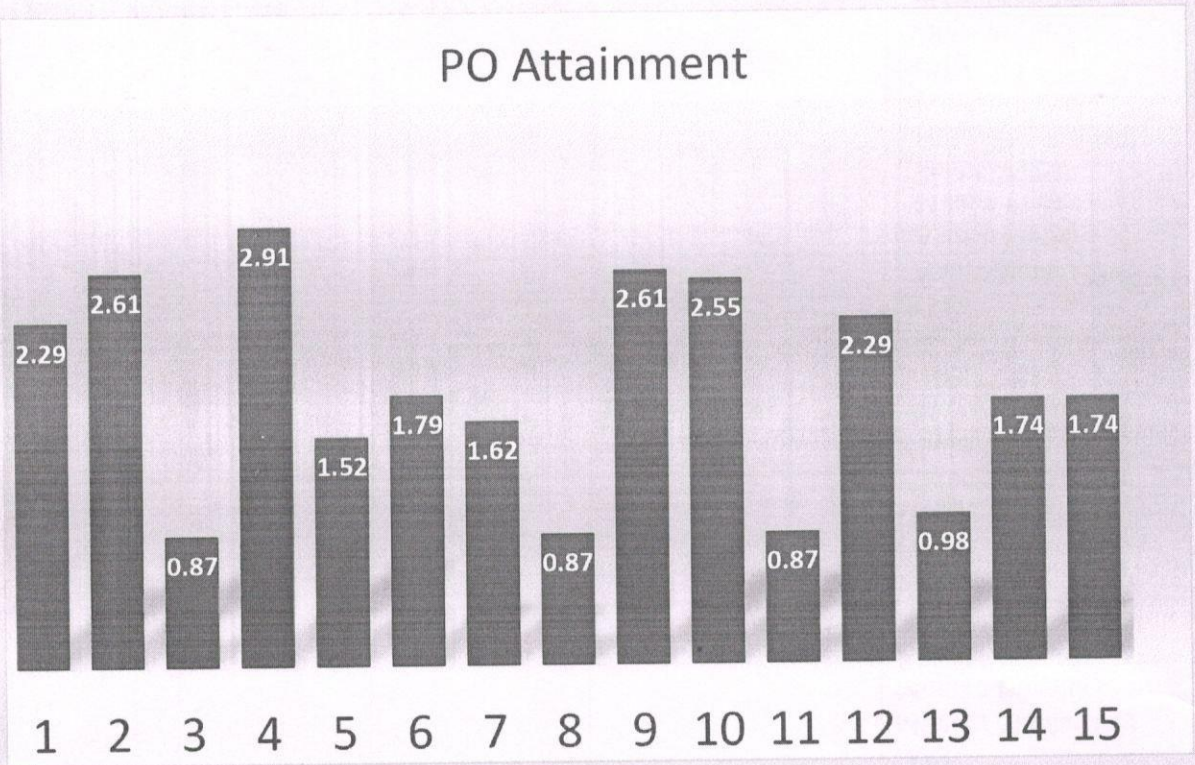

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