



## **Army Institute Of Technology (AIT), Dighi Camp, Pune - 15.**

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**2.6.2.: Attainment of Programme outcomes and course outcomes are evaluated by the institution.**

<b>Sr. No.</b>	<b>Documents</b>	<b>Page No.</b>
<b>1.</b>	Sample CO and PO Attainment sheet (one from each class)	<b>2-14</b>
<b>2.</b>	Additional information	<b>15-25</b>



## **2.6 - Student Performance and Learning Outcomes**

### **2.6.2 Attainment of Course Outcomes and Program Outcomes**

#### **2.6.2.1 Course Outcomes**

<b>Course Outcome Assessment Method Description</b>	
These assessment methods are used by faculty for judging students' work and progress.	
<b>Internal Assessment</b>	
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.
<b>University Assessment</b>	
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





**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





## **2.6 - Student Performance and Learning Outcomes**

### **2.6.2.2 Attainment of Program Outcomes and Program Specific Outcomes**

<b>Program Outcome/Program Specific Outcome Attainment Method Description</b>	
<b>Direct Attainment methods</b>	
These assessment methods can be used by faculty for judging students' work and progress.	
<b>Internal Assessment</b>	
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.
<b>University Assessment</b>	
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.
<b>Indirect Attainment Method</b>	
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.





**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: <ul style="list-style-type: none"><li>• English Comprehension</li><li>• Quantitative Ability</li><li>• Logical Ability</li><li>• Computer Programming</li><li>• Aspiring Minds Personality Inventory (AMPI)</li></ul>
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**

**1. 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	2.63	2.4		2.55
	SE Comp-B								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															2
	SE Comp-B	2	1	1	1															2
C210258: Project Based Learning II	SE Comp A	2	2.67	3	2.17	3	2	3	1	3										2
	SE Comp-B	2	2.67	3	2.17	3	2	3	1	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														2.25
	TE Comp-B	2.85	2.85	2.52	1.7	2.85														
C310243: Software Engineering & Project Management (SEPM)	TE Comp-A	1.8	2.42	1.18	1.68	2.7														2.8
	TE Comp-B	2.9	2.9	1.13	1.77	2.9														0.95
C310244: Information Systems & Engineering Economics (ISEE)	TE Comp-A	3	3	1.17	1.83	3														0.9
	TE Comp-B	3	3	1.17	1.83	3														2.7
C310245: Computer Networks & C310248: CN LAB	TE Comp-A	2.6	2.6	1	1.6	2.6														1.93
	TE Comp-B	2.6	2.6	1	1.6	2.6														2.9
C310246: Skills Development Lab (SDL)	TE Comp-A	2.17	3	1.33	1.83	3														0.87
	TE Comp-B	2.17	3	1.33	1.83	3														0.87
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



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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	3	
	BE Comp-B	2	3	3	1.5	2						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**

**2. 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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**2.6 - Student Performance and Learning Outcomes**

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





**2.6 - Student Performance and Learning Outcomes**

	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
<b>Direct Attainment</b>		<b>2.33</b>	<b>1.49</b>	<b>2.11</b>
<b>Indirect Attainment</b>		<b>2.62</b>	<b>2.33</b>	<b>2.41</b>
<b>Direct Attainment 80%</b>		<b>1.86</b>	<b>1.19</b>	<b>1.69</b>
<b>Indirect Attainment 20%</b>		<b>0.52</b>	<b>0.47</b>	<b>0.48</b>

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



**2.6 - Student Performance and Learning Outcomes**

PO Attainment =80% of direct assessment + 20% of indirect assessment	2.38	1.66	2.17
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**Prof (Dr) SR Dhore**  
HoD Computer Engineering





## 2.6 - Student Performance and Learning Outcomes

### 2.6.2 Attainment of Course Outcomes and Program Outcomes

#### 2.6.2.1 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) =  $0.7 \times \text{University Examination Class Average} + 0.3 \times \text{Internal Assessment Class Average}$
3. Total CO Attainment (% age) =  $0.9 \times \text{Direct CO Attainment} + 0.1 \times \text{Indirect CO Attainment}$

CO Attainment Gap (% age) = Target – Attainment







**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





**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





**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





**2.6 - Student Performance and Learning Outcomes**

**2.6.2.2 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
<b>Direct Assessment Tools</b>		
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
<b>In-Direct Assessment Tools</b>		
7	Exit Students Feedback	Once in Year
8	Employer Feedback	Once in Year
9	Placement	Throughout year





1. PO Attainment

Academic Year 2021-22

Course	Class	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	POI 2
	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





**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	--	--	--	--	--	--





**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





**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
<b>Direct Attainment</b>		<b>0.09</b>	<b>0.10</b>	<b>0.09</b>	<b>0.05</b>	<b>0.05</b>	<b>0.09</b>	<b>0.16</b>	<b>0.19</b>	<b>0.08</b>	<b>0.09</b>	<b>0.15</b>	<b>0.12</b>
<b>Indirect Attainment</b>		<b>2.17</b>	<b>2.48</b>	<b>2.47</b>	<b>2.17</b>	<b>2.23</b>	<b>1.99</b>	<b>2.00</b>	<b>2.45</b>	<b>2.44</b>	<b>2.48</b>	<b>1.99</b>	<b>2.40</b>
<b>Direct Attainment 80%</b>		<b>0.07</b>	<b>0.08</b>	<b>0.07</b>	<b>0.04</b>	<b>0.04</b>	<b>0.08</b>	<b>0.13</b>	<b>0.15</b>	<b>0.06</b>	<b>0.07</b>	<b>0.12</b>	<b>0.10</b>
<b>Indirect Attainment 20%</b>		<b>0.43</b>	<b>0.50</b>	<b>0.49</b>	<b>0.43</b>	<b>0.45</b>	<b>0.40</b>	<b>0.40</b>	<b>0.49</b>	<b>0.49</b>	<b>0.50</b>	<b>0.40</b>	<b>0.48</b>
<b>PO Attainment =80% of direct assessment + 20% of indirect assessment</b>		<b>0.51</b>	<b>0.58</b>	<b>0.57</b>	<b>0.47</b>	<b>0.48</b>	<b>0.47</b>	<b>0.53</b>	<b>0.64</b>	<b>0.55</b>	<b>0.56</b>	<b>0.52</b>	<b>0.58</b>







**2.6 - Student Performance and Learning Outcomes**

**2. 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





**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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## 2.6 - Student Performance and Learning Outcomes

Course	Class	PSO1	PSO2
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
<b>AVERAGE</b>		<b>1.83</b>	<b>1.60</b>
<b>Direct Attainment</b>		<b>1.83</b>	<b>1.60</b>
<b>Indirect Attainment</b>		<b>2.51</b>	<b>2.50</b>
<b>Direct Attainment 80%</b>		<b>1.46</b>	<b>1.29</b>
<b>Indirect Attainment 20%</b>		<b>0.50</b>	<b>0.50</b>
<b>PO Attainment =80% of direct assessment + 20% of indirect assessment</b>		<b>1.96</b>	<b>1.78</b>

*SPP*  
Dr. Rajashree Suryawanshi

Criteria Incharge

*DR*  
Prof (Dr) G R Patil

HoD E&TcEngineering





**2.6 - Student Performance and Learning Outcomes**

**2.6.2 Attainment of Course Outcomes and Program Outcomes**

**2.6.2.1 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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**2.6 - Student Performance and Learning Outcomes**

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
C214448 Object 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
C207003 Engineering Mathematics-III	SE IT	2.97	2.96	0.56	0.55	1.35	1.35	1.63
C214451 Processor Architecture	SE IT	2.92	2.90	0.48	0.51	0.48	0.50	1.30
C214452 Database 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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**2.6 - Student Performance and Learning Outcomes**

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
C314458 Laboratory 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 414462 Distributed Computing System	BE IT	2.98	2.97	2.97	2.97			2.98
C414463 Ubiquitous Computing	BE IT	2.96	2.96	2.96	2.96	2.96	2.96	2.96
C414466 Computer Laboratory-IX	BE IT	2.98	2.97	2.97				2.97



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**2.6 - Student Performance and Learning Outcomes**

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**

**2.6.2.2 Attainment of Program Outcomes and Program Specific Outcomes**

<b>Program Outcome/Program Specific Outcome Attainment Method Description</b>	
<b>Direct Attainment methods</b>	
These assessment methods can be used by faculty for judging students' work and progress.	
<b>Internal Assessment</b>	
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.
<b>University Assessment</b>	
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.
<b>Indirect Attainment Method</b>	
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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**2.6 - Student Performance and Learning Outcomes**

	quality and their employability in the industry on the basis of following: <ul style="list-style-type: none"><li>• English Comprehension</li><li>• Quantitative Ability</li><li>• Logical Ability</li><li>• Computer Programming</li><li>• Aspiring Minds Personality Inventory (AMPI)</li></ul>
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

### 1. 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
214448 Object 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
207003 Engineering 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
214451 Processor 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
214452 Database 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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**2.6 - Student Performance and Learning Outcomes**

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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**2.6 - Student Performance and Learning Outcomes**

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
314458 Laboratory 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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**2.6 - Student Performance and Learning Outcomes**

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
414462 Distributed 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
414463 Ubiquitous 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
414466 Computer Laboratory-IX	BE IT	0.99	0.99	0.99	0.99	1.65	2.97	0.99	0.99	-	-	-	1.98
414467 Computer 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
414468 Project 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
414464B Elective-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
414464B Elective-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
<b>Direct Attainment</b>		1.91	2.18	1.78	1.97	2.02	1.72	1.47	1.61	1.16	1.46	1.36	1.79
<b>Indirect Attainment</b>		2.38	2.37	2.39	2.37	2.47	2.47	2.51	2.54	2.57	2.39	2.52	2.56
<b>Direct Attainment 80%</b>		1.53	1.74	1.42	1.58	1.61	1.37	1.17	1.28	0.92	1.16	1.08	1.43
<b>Indirect Attainment 20%</b>		0.48	0.47	0.47	0.47	0.49	0.49	0.50	0.50	0.51	0.47	0.50	0.51
<b>PO Attainment =80% of direct assessment + 20% of indirect assessment</b>		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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**2.6 - Student Performance and Learning Outcomes**

**2. 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
214448 Object Oriented Programming Laboratory	SE IT	1.64	1.25	1.57
214449: Soft Skills Lab	SE IT	1.39	1.98	0.99
207003 Engineering Mathematics-III	SE IT	1.63	1.46	1.63
214451 Processor Architecture	SE IT	0.89	0.87	1.05
214452 Database 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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**2.6 - Student Performance and Learning Outcomes**

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
314458 Laboratory 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
414462 Distributed Computing System	BE IT	2.73	1.98	2.23
414463 Ubiquitous Computing	BE IT	2.96	2.80	2.47
414466 Computer Laboratory-IX	BE IT	1.98	2.31	1.98
414467 Computer Laboratory-X	BE IT	2.96	2.80	2.47
414468 Project 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
<b>Direct Attainment</b>		<b>2.16</b>	<b>1.88</b>	<b>2.05</b>
<b>Indirect Attainment</b>		<b>2.43</b>	<b>2.43</b>	<b>2.41</b>



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**2.6 - Student Performance and Learning Outcomes**

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







## 2.6 - Student Performance and Learning Outcomes

### 2.6.2 Attainment of Course Outcomes

#### 2.6.2.1 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
<b>University Examination/External Assessment Tools</b>		
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
<b>Internal Assessment Tools</b>		
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 %.

#### 2.6.2.2 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	<i>External Assessment</i> 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	<i>Internal Assessment</i> 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





**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	0.93	0.81	0.81	0.87



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### 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
<b>BE MECH</b>								
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

#### 2.6.2.3 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):

#### 2.6.2.4 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
<b>Direct Assessment Tools</b>		
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
<b>Indirect Assessment Tools</b>		





**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

**(B) 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

**(C) 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





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Department of Mechanical Engineering



**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
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**2.6 - Student Performance and Learning Outcomes**

**2.6.2.5 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	3.00	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  
Dighi Hills, Alandi Road, Pune 411 015  
Department of Mechanical Engineering



**2.6 - Student Performance and Learning Outcomes**

Subject	code	TE(Mech)											
		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





**2.6 - Student Performance and Learning Outcomes**

Subject	code	BE(Mech)											
		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
<b>Direct Attainment</b>		1.59	1.38	1.36	1.22	1.18	1.01	0.96	0.80	1.03	1.04	0.86	1.07
<b>Indirect Attainment</b>		2.33	2.33	2.83	2.83	2.33	2.67	2.33	2.33	2.33	2.33	2.17	2.33
<b>Direct Attainment 80%</b>		1.27	1.10	1.09	0.97	0.94	0.81	0.77	0.64	0.82	0.83	0.68	0.85
<b>Indirect Attainment 20%</b>		0.47	0.47	0.57	0.57	0.47	0.53	0.47	0.47	0.47	0.47	0.43	0.47
<b>PO Attainment ~80% of direct assessment + 20% of indirect assessment</b>		1.74	1.57	1.66	1.54	1.41	1.34	1.24	1.11	1.29	1.3	1.11	1.32







**2.6 - Student Performance and Learning Outcomes**

**2.6.2.6 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
<b>TE MECH</b>					
Design of Machine Elements	C301	1.75	1.75	1.54	1.58



**2.6 - Student Performance and Learning Outcomes**

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





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**2.6 - Student Performance and Learning Outcomes**

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

Dr UV Wasarmol  
HOD MECH  
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