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AIT/0079/PPlan/2015-20

AIT 5 YEAR GROWTH PLAN

1. Refer HQ AWES letter No B/45897/Budget/AWES dt 30 Dec 2014.

PART I :INTRODUCTION

2. AIT has an approved 10 year Perspective Plan: 2013 – 2023(AIT/0079/PPlan – 2013-23/Adm) which was prepared based on following guidelines :-

(a) Build excellence in quality of education and administrative arrangements
(b) Optimisation of existing AIT set-up,
(c) Realistic assessment of future needs and visualization of expansion plans accordingly,
(d) Need of additional infrastructure and funds,
(e) Need to build corpus and generate funds from AIT's integral resources,
(f) Work out recurring maintenance expenditure.

3. HQ AWES vide their letter mentioned above has directed a five year detailed Growth Plan 2015-2020 be submitted under following heads with respect to requirement of funds in AGs Branch :-

(a) **Infrastructure.** To include Maintenance, Renovation and New construction.

(b) **Academic.** To include upgradation of academic infrastructure, introduction of additional courses, streams and post graduation.

(c) **Faculty Development.** Faculty empowerment, upgrading teaching practices. Focus to be on quality teaching staff and improved curriculum.

4. AIT Pune was also directed to emphasise on :-

(a) Introduction of PhD programme.

(b) Introduction of Civil Engg dept.

5. Besides following a/m guidelines for preparation of this 5 year Growth Plan, this Institute has also incorporated other funding sources i.e. AIT College Fund, and UGC / AICTE also to present a holistic picture of the college requirement.

PART II - VISION, MISSION, CORE VALUES, GOALS, &OBJECTIVES

6. **Vision for AIT.** Strive for excellence in providing the right environment for development of physical, intellectual, emotional and spiritual quotients with a view to produce total quality engineers preparing them to face challenges of modern information society.

7. **AIT Mission.** To achieve National ranking amongst the top 20 private engineering colleges in India by AY 2019-20.

8. **AIT Tenet.** I shall be truthful, honest, forthright and trustworthy under all circumstances. I shall always uphold the honour, dignity and values of my parents, teachers, institution and my country.

9. **Core Values.**

- Excellence
- Innovation
- Commitment
- Honesty, Integrity and Truthfulness
- Ethics
- Continuous Learning and Development.

10. **Goals.**

- To work together, striving for excellence in a free and supportive learning environment, enabling both students & staff to become sensitive, reflective, intelligent, confident and responsible.
- To establish a premier Institute for imparting high quality engineering education through student centered learning in a conducive working environment.
- To augment all available avenues for providing a healthy environment for physical, intellectual, emotional and spiritual growth of students and staff.
- To produce competent engineers by imparting knowledge and skills, imbibed with the spirit of professionalism and responsible citizenship in a competitive global modern information society.

11. **Challenges of Modern Engineering Education**. Engineering education is at an important juncture more than ever before, where engineers need to play an important role in development and creative solving of global and complex challenges in industry. Future engineers need to work with an understanding of multiple disciplines in collaborative teams that are culturally and philosophically diverse, cultivate complex communication and social skills. In today's challenges of the 21st century global economy, sharing of information, collaborative team work, innovative thinking, problem solving and decision making are key competencies necessary for an engineer. There has been a significant shift, from merely mastering manufacturing skills, to emphasizing informational knowledge services. The increased use of technology is also transforming how students work and build new social practices. Adaptability to complex communication skills, non routine problem solving skills, self management or self development are extremely important.

12. **Short Term Objectives (2 years) by AY 2016-17.**

- Attract high merit UG students with last cut-off at 600 AIT merit (750 at present) for 300 vacancies.
- Achieve excellent teaching-learning environment to achieve:
  - Less than 5 % failures in each year,
  - 50% and 80 % first class in 3rd and 4th years respectively,
  - One University rank holder in at least two Departments,
  - 100% faculty with PG degree,
  - 25% Faculty with PhD degree.
- Achieve placement of 35% students in core high-end companies and maintain an overall placement of 90% students.
- Initiate Post-graduate courses and enhance Industry – Institute interaction and R & D activities to a score of 60% NBA score (from 40 % at present).
- Achieve 5 % placement in the Armed Forces.
- Introduce Civil Engineering UG department with hostel facilities to exploit inevitable infrastructure boom in the coming years.
- Establish Entrepreneurship Development Cell.
- Achieve NBA accreditation for all Departments for 5 years.

13. **Long-term Objectives (5 years) by AY 2019-20**.

- Attract high merit UG students with last cut-off at 500 AIT merit for 360 vacancies.
- Maintain excellence in teaching-learning environment to achieve:
  - Zero failures in each year,
  - 60% and 85 % first class in 3rd and 4th years respectively,
  - One University rank holder in each Department.

- 35% faculty with PhD degree.
- Achieve placement of 60 % students in core high-end companies and an overall placement of 100% students.
- Introduce second Post-graduate course and enhance Industry-Institute interaction and R&D activities to a NBA score of 80%.
- Receive consultancies and research grants up to Rs 1 crore from firms and AICTE/ Pune University.
- Introduce foreign exchange programs in AIT.
- Achieve autonomous status under Pune University and introduce continuous assessment system and industry-friendly syllabus in AIT.
- Achieve at least one Patent per Department.

14. **UG Education.**

(a) **Goal:** Create a collegiate experience that encourages intellectual rigour and productive teamwork, and results in the graduation of total quality engineers who are well prepared to succeed in the global workspace.

(b) **Strategies and Tasks :**

- **Strategy 1**: Attract high AIT merit students and provide a campus environment for producing highly motivated and successful engineers:
  - Interactive classes and TDs
  - Superior infrastructure with knowledge facilities like MOODLE etc.
  - Well equipped labs: supervised projects from SE onwards
  - Technical seminars and workshops
  - Participation in national competitions and conferences
  - Credit based system of continuous performance evaluation
  - Meaningful industry interaction and internships
  - Soft skills development through peer pressure
  - Motivational talks by eminent personalities
  - Stimulating hostel environment – flank in-charges , student mentors; Responsive administration

- Feedback mechanism for better governance.
- Wide publicity amongst Army wards.
- Zero tolerance for ragging.

- **Strategy 2**: Maintain excellent teaching, learning environment to achieve Zero failures, 80% and 90% First class in 3rd and 4th years respectively and two University rank holders in each Department by AY 2019 - 20:
  - 100% Faculty should be with PG degree.
  - 50% Faculty should be PhD holders by AY 2019 - 20.
  - Reward and Recognition Awards for excellence in teaching.
  - Continuous evaluation of the effectiveness of Faculty and each course content.
  - Integration of written and oral communication skills throughout curricula.
  - Empower faculty members to deliver high class teaching to AIT students.

- **Strategy 3**:Ensure that all AIT students graduate with strong core engineering knowledge enriched by a broad education to ensure that 20% students obtain post graduation, 100% registered students get placement, and 60% placements are in core engineering and consultancy firms with salary package of Rs6 lakh and above.
  - Prepare students with the ability to use the techniques, skills, and modern engineering tools necessary for modern engineering practice – Value Addition Courses as evening classes, and certifications.
  - Prepare students for ethical and professional leadership.
  - Prepare students to communicate effectively among diverse audiences.
  - Prepare students for lifelong learning and professional improvement.

- **Strategy 4**: Introduce core engineering domain of Civil Engineering by AY 2017-18 :
  - Exploit the infrastructure boom
  - Offer UES candidates for recruitment to Corps of Engineers.
- **Strategy 5**. Achieve good branding for AIT:
  - NBA and NAAC accreditation for all Departments in 'A' grade by AY 2016-17.
  - Ranking by recognized rating agencies within first 20 private engineering colleges by AY 2019 - 20.
  - Implement exchange programs with Foreign Universities by AY 2018.
- **Strategy 6**. Obtain Autonomous status under Pune University:
  - Submit proposal for Autonomous status by AY 2018-19.

15. **PG Education and Research.**

(a) **Goal**: Build and sustain nationally recognised engineering research and PG programs of relevance to industry.

(b) **Strategies and Tasks :**

- **Strategy 1**. Advance research and scholarly enterprise:
  - Recruit and retain Faculty with good research and scholarship potential.
  - Introduce PG courses in a phased manner for 4 Departments by AY 2019 - 20.
  - Identify and support programs and areas of emerging distinction (AY 2019 - 20 target: 1 of 4 PG programs ranked amongst top 20 private research colleges).
  - Support mid-career Faculty in pursuing new research programs.
- **Strategy 2**: Initiate research culture in AIT UG students:
  - Introduce 5 years Integrated ME Course and integrated PhD course in at least one Dept by AY 2019 - 20.

- Provide opportunities for UG research experience, technical paper presentations in National and International conferences.

- **Strategy 3**. Improve research synergies with Industry:
  - Stimulate long-term, mutually beneficial industrial collaborations (AY 2019 - 20 target : 50% Faculty with at least one industry research / consultancy project per year).
  - Increase appreciation of entrepreneurship among students and Faculty (Establish Entrepreneurship Cell).
  - Encourage registration of patents (AY 2019 - 20 target: one patent per Department).
  - Exploit NKN facilities to tie up research interaction with premier technical institutions in India and abroad.

- **Strategy 4**: Advance the reputation of research and PG programs in industry and outside:
  - Accept Army Technology Board (ATB) projects.
  - Form Research Groups led by Faculty members with student members for inter-disciplinary research eg. Embedded Systems Group with Electronics and Computer, Mechatronics with Mechanical and Electronics, Big Data with Computer and IT, Wireless sensors with Electronics and Computers, Computational Fluid Dynamics with Computers and Mechanical.
  - Initiate MOUs with DRDO establishments of Pune and affiliation with research labs of Pune like TIFR, IUCAA, NCL, ARAI, CDAC etc.
  - Aggressively market, at the state and national levels, the college's research enterprise and PG programs.
  - Stimulate public involvement in conferences, lectures and seminars.
  - Utilise emerging technologies and activities, such as electronic mail and electronic distance learning, MOOC, and NKN facilities.

- **Strategy 5**. Obtain AICTE/DST/TEQIP grants from Government sources.
    - Modernise and remove obsolescence in lab equipment – RPS and MODROBS scheme of AICTE
    - Apply for MODROBS grants for promoting Continuing Education Programmes for own students and for establishing Learning Resource Centres (LRC) for local industry and consultancies.
    - Research Promotion Scheme (RPS) for innovation in established and newer technologies :-
        - Rs 5 to 10 lakh for one or more Faculty members for development of end products which encourage further research activity.
        - Rs 10 -12 lakh for young Faculty under 30 yrs doing PhD.
        - Rs 20 lakh to one or more Faculty members who aim to develop new research facilities at the parent institute.
    - Entrepreneurship Development Cell (EDC).
    - TAPTEC projects – Rs 20 lakh for research in Thrust Areas for national development.
    - Seminar Grants (SG), Staff Development Programme (SDP), Visiting Professorship (VP) etc.
    - UGC 2f and 12b grants up to Rs 20 lakh per annum.

16. **Value Addition Courses / Internal Revenue Generation (IRG) Scheme.**

(a) **Goals**: Impart industry specific beyond-syllabus learning for own students and generate income from open-to-all market friendly programmes for sustaining AIT's growth plan on a No-Profit basis.

(b) **Strategies and Tasks :**

- **Strategy 1**. Introduce 20 hour/month value addition technical courses (CEPs) using AITs infrastructure in evening sessions after regular college hours:

- IT Courses on C, C++, Data structures, Open Source C Programming, JAVA and .Net using current lab set-up and industry experts initially and own trained Faculty thereafter.
- Electronics & Telecommunication Engineering Courses on VLSI embedded systems techniques, Visual instrumentation using Lab-view software.
- Mechanical Engineering Courses on Auto-CAD, CAM, CAE, 6 SIGMA, CNC training, CATIA
- Android technology course.
- Other customised modular courses on Big Data, Data Analytics and Information Security as expertise develops in own Faculty.

- **Strategy 2.** Introduce SSB Coaching with ex-SSB coaches to achieve 10% placement of AIT- ians in Armed Forces.
- **Strategy 3.** Organise CAT and GATE classes by recognised agencies for AIT students and open to all.
- **Strategy 4.** Introduce Finishing School in conjunction with CII / MCCIA:
  - 20 hour per month courses on Soft Skills development for all streams of graduation under TPO for revenue generation.
- **Strategy 5**. Offer IT lab facilities, projects and product development for other institutes and industry:
  - Cloud computing online courses and services .
  - Generate revenue of Rs 1 lakh and above on each product module developed for industry.
- **Strategy 6.** Offer consultancies in Civil, Mechanical and E&TC Engineering to Pune's infrastructure firms, auto industry and other SMEs in PCMC and surrounding areas:
  - For Faculty development and revenue generation for AIT and Faculty.

PART III : COLLEGE GROWTH PLAN

Infrastructure Development

17. The infrastructure development plan has been formulated by incorporating measures already included in the existing 10 year Growth Plan 2013-23 as well as freshly assessed requirements. New works and academic up-gradation projects have been classified under Priorities I and II to assist in systematic allocation of funds. Cost estimates for future works have been derived from current prices by applying an annual inflation rate of 10%.

18. **Infrastructure Annual Maintenance Plan**. This includes routine maintenance of various infrastructural facilities: both civil works and IT. The periodicity and cost estimates of these maintenance tasks have been obtained from local MES authorities, suitably modified downwards as per AIT experience. Rentals for broadband 75 Mbps connectivity (being upgraded to 100 Mbps this year), software and antivirus license renewals have also been included.

19. **Infrastructural Annual Maintenance Template.**

Ser No	Item of Work	Life Cycle	Rate	Amount per annum (Rs in lakh)
(a)	Roads (2.0 km)	5yrs	Rs 1.5 lakh / 100 rm	6.0
(b)	Terrace water proofing	10 yrs	Rs 400 / sq m	10.0
(c)	Seepages through bathroom blockages etc.	As required	Lump Sum (LS)	3.0
(d)	Whitewash (cookhouse, stores, toilets)	6 monthly	Rs 25 /sq m	3.0
(e)	Whitewash & Dry distemper (Rooms)	1 yr	Rs 50 / sq m	10.0
(f)	OB Distemper (Class-rooms & labs)	2 years	Rs 100/sq m	3.0
(g)	External paint (acrylic) for Academic Block front face & Hostels	5 yrs	Rs 130 / sq m	2.5

(h)	External paint (cement based for balance surfaces)	2 yrs	Rs 90 / sq m	4.0
(j)	Painting (steel & woodwork)	2 yrs	Rs 100 / sq m	1.5
(k)	Wire mesh(windows & hostel corridors) with material	5 yrs	Rs 500 / sq m	1.5
(l)	Drainage	As required	LS	2.0
(m)	Plumbing (external & internal) including pumps & sumps	As required	LS	3.0 (external) & 1.5 (internal)
(n)	Overhead Water Tanks	As required	LS	2.0
(o)	STP & Septic Tanks	As required	LS	3.0
(p)	Termite treatment (Selective)	5 years	Rs 200 / sq m	1.0
(q)	Plastering repair work (Selective)	As required	Rs 400 / sq m	2.0
(r)	Solar water heater maintenance	As required	LS	3.0
(s)	Electrical maintenance	As required	LS	5.0
(t)	Water coolers & water filters	As required	LS	2.0
(u)	Window panes, floor tiles etc.	As required	LS	1.0
(v)	AC repairs	As required	LS	1.0
(w)	IT, Tele & CCTV repairs	As required	LS	2.0
(x)	IT leased line & telephone rentals	Annual	LS	20.0
(y)	Software and anti-virus license renewals	Annual	LS	11.0
(z)	Library e-journals & e-books	Annual	LS	18.0
	Total			**122.0**

20. **Overall Annual Maintenance Estimates (Rs in Lakh).**

SerNo	AY	AIT	UGC/AICTE	AG
(a)	2015 – 16	122.0	-	-
(b)	2016 – 17	133.0	-	-
(c)	2017 – 18	146.0	-	-
(d)	2018 – 19	160.0	-	-
(e)	2019 – 20	176.0	-	-

21. **Infrastructure Renovation Plan (Rs in Lakh).**

(a)	**AY 2015 - 16**	**AIT**	**UGC/AICTE**	**ARF AWES**	**AG**	**Priority**
	(i) Cookhouse (blower for smoke removal, wiring, repair of tiles).	3.0	-	-	-	I
	(ii) Replacement of drainage pipelines near Boys Mess.	3.0	-	-	-	I
	(iii) Replacement of all wi-fi switches with manageable switches.	4.0	-	-	-	I
	Total	**10.0**	**-**	**-**	**-**	

(b)	**AY 2016 - 17**					
	(i) Renovation of 2nd squash court	5.0	-	-	-	I
	(ii) Cricket ground	5.0	-	-	-	II
	(iii) Bore-well re-activation	5.0	-	-	-	I
	(iv) Girls Hostel Dining Hall	-	-	15.0	-	I
	Total	**15.0**	**-**	**15.0**	-	**I**

(c)	**AY 2017 - 18**	**AIT**	**UGC/AICTE**	**ARF AWES**	**AG**	**Priority**
	(i) All Toilets with concealed chlorinated PVC pipelines and more efficient faucets	-	-	50.0	-	I
	(ii) Relaying of football ground soil	10.0	-	-	-	II
	(iii) Raman Theatre sheets replacement	-	-	10.0	-	II
	Total	**10.0**	**-**	**50.0** **10.0**	**-**	**I** **II**

(d)	**AY 2018 - 19**					
	(i) Replacement of projection systems and smart boards	-	-	20.0	-	I
	(ii) Badminton court renovation	2.0	-		-	I
	(iii) Replacement of old generator	-	-	20.0	-	II
	Total	**2.0**	**-**	**20.0** **20.0**	**-** **-**	**I** **II**

(e)	**AY 2019 - 20**					
	Replacement of 25 year old septic tanks (4 Nos)	-	-	80.0	-	II
	Total	**-**	**-**	**80.0**	**-**	**II**

22. **New Works (Rs in Lakh).** These include new civil wks which could be visualized presently, but there could be more depending on circumstances.

(a)	**AY 2015 - 16**	**AIT**	**UGC/AICTE**	**AG**	**Priority**
	(i) Recreation Hall (420 sq m) for 600 senior students of OBH including accessories.	5.0	-	65.0 (CG)	I
	(ii) Modification of existing class-rooms & labs for PG computers.	-	-	20.0 (CG)	I
	(iii) Solar street lights.	5.0	-	-	II
	(iv)CCTVs in Campus for security.	-	-	20.0 (TG)	II
	(v) Provision of additional staircase in New Library Bldg (NLB).	8.0	-	-	II
	(vi) Storm water drain near New Library Bldg (NLB)	5.0	-	-	I
	(vii) Furniture for New H flank in NBH	15.0	-	-	I
	Total	**38.0**	**-**	**85.0(CG) 20.0(TG)**	**I II**

(b)	**AY 2016 - 17**				
	(i) New Conference Hall (130 sq m) including furniture & accessories.	-	-	25.0 (CG)	I
	(ii) Additional 2 labs, staff rooms and 2 class rooms and furniture for PG E &TC (220 sq m).	5.0	-	40.0 (CG)	I
	(iii) Security staff cabin, Reception room & toilet	10.0	-	-	I

	AY 2016 - 17	AIT	UGC/AICTE	AG	Priority
	(iv) New Girls Hostel (450 sq m) for 30 strength	7.5	50.0	25.0 (CG)	II
	(v) New Pumps & Valves with hydro-pneumatic system	15.0	-	-	I
	(vi) Vertical extension of New H Flank with 3 additional floors including furniture (80 strength).	-	-	300.0 (CG)	II
	(vii) Parking shed for two wheelers near Main Gate.	2.5	-	-	I
	(viii) Boundary wall (1.6 km) if not included in MWP.	-	-	160.0 (CG)	I
	(ix) Additional cafeteria (120 sq m) including furniture	-	-	25.0 (CG)	III
	TOTAL	**40.0**	**50.0**	**225.0(CG) 325.0(CG) 25.0(CG)**	**I II III**

(c)	**AY 2017 - 18**				
	(i) 15Guest rooms for foreign exchange students and eminent guest speakers/research scholars with dining facility on top of Girls Hostel (450 sq m) including furniture.	10.0	-	80.0 (CG)	I
	(ii) New Civil Engineering block (2300 sq m) including furniture.	-	-	550.0 (CG)	II
	(iii) Construction of 6 additional floors on New Recreation Hall (2520 sq m) including furniture (160 strength).	-	-	600.0 (CG)	II

	AY 2017 - 18	AIT	UGC/AICTE	AG	Priority
	(iv) Separate water supply connection from PCMC (if required due to MAPS completion in Dighi)	-	-	20.0 (CG)	II
	(v) UG cabling HT & LT	-	-	30.0 (CG)	II
	TOTAL	**10.0**	**-**	**80.0(CG) 1200.0(CG)**	**I II**

(d)	AY 2018 - 19				
	(i) PhD Research Centre (200 sq m) on top of New Conf Hall in PG Block including furniture & accessories.	10.0	-	40.0 (CG)	I
	(ii) Civil Engineering PG (220 sq m) including furniture	5.0	-	45.0 (CG)	II
	(iii) New Quarters for 8 Faculty (80 sq m)	-	-	250.0 (CG)	II
	TOTAL	**15.0**	**-**	**40.0(CG) 295.0(CG)**	**I II**

(e)	AY 2019 - 20				
	Convention Centre in PG Block (450 sq m)	10.0	10.0	80.0 (CG)	I
	TOTAL	**10.0**	**10.0**	**80.0(CG)**	**I**

Academic Measures

23. **Major Academic Initiatives**. Following academic initiatives are planned for AY 2015-20 period:-

(a) **Accreditation**.

- **2015-16**. Re-accreditation by both NAAC and NBA.

- **2018-19**. Autonomous status under Savitribai Phule Pune University.

(b) **Vertical Expansion**.

- **2015-16**. Introduction of PG course in Mechanical Engineering (Machine Design) with 18 seats PG course to be expanded later to full strength of 24 seats if response from army wards is good.
- **2016-17**. Introduction of PG course in Computer Department.
- **2017-18**. Introduction of PG course in E&TC Department.
- **2019-20**. Introduction of PhD Research Centre with provision to opt for ME with PhD, and PG in Civil Engineering.

(c) **Horizontal Expansion**.

- **2017-18**. Introduction of Civil Engineering UG Course (if funds available)
- **2018-19**. Explore introduction of multi-disciplinary course as per market survey.

(d) **Research and Consultancy / MOUs with Industry/ Faculty Empowerment.**

- **AY 2013-14.** Continuation of AICTE / DST / UGC / TEQIP research promotion schemes and best practices to obtain Rs 20 lakh for college.
- **AY 2015-16 onwards.** Continuation of R&D and MOUs with Industry in a phased manner along with introduction of PG courses.
- **AY 2014 – 15 onwards**. FDPs, seminars and international conferences.
- **AY 2015 -16 onwards**. Research affiliation with Research labs in Pune.

(e) **Exchange Programs with Foreign Universities.**

- **AY 2016-17.** Explore possibilities of exchange programs in Mechanical and E&TC Branches.
- **AY 2017 -18.** Implement pilot projects.
- **AY 2018 -19 onwards.** Implement exchange programs.

(f) **Value Addition Courses / Internal Revenue Generation(IRG) Schemes.**

- **IT Courses.** C,C++, Data Structures, Open Source C Programming, JAVA, .NET, Android technology, Software testing, Cloud Computing Courses and Services, Modular Courses, Saleable projects, Product Development
- **E&TC Engg Courses.** VLSI Embedded Systems Techniques, Visual instrumentation using Lab-View S/W
- **MechEngg Courses.** 6 SIGMA, CAD, CAM, CAE, CNC Trg.
- **Soft Skills Course**. By Professional coaching agencies in GD, PI, English and Foreign languages, Logical reasoning, Personality Development etc.
- **CAT/GATE/GRE/SSB Preparation Courses.** In conjunction with training orgs like IMS, Career Launcher, TIME, private SSB coaches etc.
- **Project Mgmt Courses**. For working professionals.

(g) **Alumni Contribution.**

- **2012-13.** AIT Alumni Coordination Cell of 40 student members formed to coordinate with Alumni Association.
- **2013-14 onwards.** Organise Alumni interaction for students in formal class-room environment.
- **2014-15 onwards.** Develop alumni special interest and "friends" groups for appropriate Departmentsand entrust them with mentorship programmes, project guidance, internship and placement opportunities.
- **2015 – 16 onwards.** Form Regional Alumni bodies in metro-cities NCR, Secunderabad, Bengaluru and Mumbai.

24. **Up-gradation of Academic Infrastructure (Rs in Lakh).** This would involve up-gradation of IT infrastructure, ICT class room facilities, procurement of new lab equipment and software as well as library facilities.

(a)	**2015 - 16**	**AIT**	**UGC/AICTE**	**AG**	**Priority**
	(i) Lab equipment & software for PG Mech	30.0	-	-	I
	(ii) Revision of E & TC 4th year curriculum	5.0	5.0	-	I
	(iii) ERP package	10.0	-	-	II
	(iv) PA address system in Academic Block	5.0	-	-	II
	(v) Controllers, switches & access pts in server room, all classrooms, New Library Bldg	10.0	-	-	I
	(vi) 1000 lumens daylight projection system with operator cabin in Raman Theater	12.0	-	-	I
	TOTAL	**72.0**	**5.0**	**-**	

(b)	**2016 - 17**	**AIT**	**UGC/AICTE**	**AG**	**Priority**
	(i) PG Comp Lab equipment and software	-	-	20.0 (TG)	I
	(ii) Cloud computing & server virtualization Phase I	5.0	-	-	I
	(iii) Virtual class room accessories	-	-	20.0 (TG)	II
	(iv) Replacement of old PCs in all Depts	10.0	5.0	-	I
	(v) Data Acquisition for CNC machine	6.0	-	-	I
	TOTAL	**21.0**	**5.0**	**20.0(TG) 20.0(TG)**	**I II**

(c)	**2017 – 18**	**AIT**	**UGC/AICTE**	**AG**	**Priority**
	(i) Software up-gradation & new equipment in all Depts	40.0	10.0	-	I
	(ii) PG E & TC lab equipment & accessories.	5.0	5.0	25.0 (TG)	I
	(iii) RFID for 28,000 Library books and journals.	-	-	28.0 (TG)	II
	TOTAL	**45.0**	**15.0**	**25.0(TG) 28.0(TG)**	**I II**

(d)	**2018 – 19**				
	(i) Lab equipment for UG Civil Engineering Dept Ph I.	-	10.0	50.0 (TG)	II
(d)	**2018 – 19**				
	(ii) Equipment & software in all Depts.	50.0	20.0	-	I
	(iii) Cloud computing & server virtualization Phase II.	15.0	-	-	I
	(iv) Language lab software	8.0	-	-	II
	TOTAL	**73.0**	**30.0**	**50.0(TG)**	**II**

(e)	**2019 – 20**				
	(i) Lab equipment for UG & PG Civil Engineering (Ph II).	-	-	50.0 (TG)	II
	(ii) New equipment & software for PhD Research Centre.	-	20.0	20.0 (TG)	I

	(iii) New equipment & software for all Departments	30.0	30.0	30.0 (TG)	I
	TOTAL	**30.0**	**50.0**	**50.0(TG)** **50.0(TG)**	**I** **II**

Faculty Development

25. **Faculty Empowerment**.It is a function of improved status, increased knowledge and access to decision making. Faculty would be empowered not only through knowledge of their subjects but also in the current trends, application methods and above all they need to be motivated to teach well. Faculty empowerment involves five areas: Decision-making, Professional growth, Employment status, Self efficacy and Motivation.

(a) **Decision making**. Faculties should have freedom to take critical decisions on student related matter, actions taken on disciplinary ground and delivery of course curriculum. The process involves the following:

i. A faculty would be empowered by knowing the students profile beforehand just before joining their regular classes.
ii. It gives an idea about students' strength and weaknesses.
iii. Faculty's are informed about the students through proper documentation and his/her own progress in academic session.
iv. Institute gives opportunity for industry visit and corporate interaction.

(b) **Professional growth**. Institute should give opportunities to the faculties to grow and develop professionally, to continue to learn, and expand their skills. Management must encourage faculty to publish articles in referred journals which has high impact factor. Through faculty exchange programmes knowledge and skills can be improved. Employee retention policy gives a sense of belongingness to the organization.

(c) **Employment status**. Organization can empower faculties by giving them positive terms of employment. Reasonable compensation packages give a positive encouragement to the faculty members. A sense of belongingness with the organization should be developed by involving them in decision-making and by investing in their career growth.

(d) **Self efficacy**. Faculty members should be equipped with the skills and ability to help students learn, and feel they are master in both knowledge and practice of the subject. They must remain familiar with latest changes in their field of study by continuous up-gradation of knowledge. Emphasis should be on deploying modern tools and techniques of teaching and learning in institutes like material from e - journals, MATLAB techniques, Advanced Excel etc.

(e) **Maintain High Motivation**. Following measures can maintain a high level of motivation in faculty members:

- Responsibility with authority should be given.
- Meaningful and challenging work with variation in assignments.
- Performance must be measured.
- Two way communication should be maintained so that trust prevails.
- Flexible and clear policies.
- Faculty should be equipped with adequate knowledge, skills, and resources to impart meaningful teaching.
- Continuous support, coaching, and feedback should be provided.
- Career Advancement Scheme (CAS) for ensuring internal promotion of deserving faculty members.

26. **Implementation of Faculty Development Measures**. Besides other practices mentioned above, Faculty Development Programmes (FDPs) will be conducted religiously.

(a) FDPs will be conducted for three levels according to their experience:

- JFDP for Junior faculty (0 - 5 years service)
- MFDP for Mid-level faculty (5 - 15 years service), and
- SFDP for Senior level faculty (more than 15 years service).

(b) These FDPs should cover the following aspects:

- Academic development
- Research & development
- General awareness

(c) Some of the measures which require funding are as follows:-

- Organisation of International Conferences involving professional bodies like IEEE etc on an annual basis involving two departments each year : Rs 3.0 lakh per year (payment to keynote speakers, publication of seminar proceedings, hospitality costs etc).

- Publication of a technical journal annually - Rs 1.0 lakh.
- Subsidise travel and registration costs of faculty members for attending seminars and conferences - Rs 1.5 lakh annually.

27. **Changes in Teaching-Learning Process**. It is widely felt that traditional engineering education in preparing for lectures and lab sessions, are inadequate in preparing engineering students for being effective professionals. This is more so when the lectures turn out to be monologues and the laboratories are recipe driven rather than inquiry driven. Traditional classroom and lab practices encourage a passive form of learning within a compartmentalized curriculum. Therefore it is important for engineering education to rebuild a curriculum that focuses strongly on collaborative and interdisciplinary projects, tasks and assignments. Such activities would require students to be involved in active learning strategies, be engaged in high level problem solving skills and to be able to participate in team building activities in multidisciplinary teams.

28. **Technology Assisted Learning**. Hardware components of learning environment also influence learning significantly. They are important for both individual work and team activities. AIT should be well positioned in infrastructure and expertise to provide technology integrated learning. Advances in IT and Telecom technologies are bringing in a paradigm shift in the way a student can learn more effectively. Multimedia can help the student to learn concepts more clearly. Simulation models can enable more students to work on virtual prototypes and gain practical skills. Besides, the student can learn flexibly as per his convenience and pace. Recently MIT and Harvard announced launch of free online courses in five disciplines including engineering. A few months earlier, a Consortium of Stanford, Princeton, University of Pennsylvania and University of Michigan announced online programs. Going by the excellent response they received, it appears that future of engineering colleges will be a blend of class room teaching and technology enhanced to self learning. Online presentations and video lectures by professionally trained presenters, will supplement the class room lectures and tutorial sessions. Already in some Institutions abroad, both learning and assessment are increasingly through peer to peer via social networks. AIT also needs to gear up for these breath taking developments. In a way, technology can be advantageously used in all locations to address the shortage of competent teachers, by supplementing the existing resources and by minimizing the gap between the Industry/Corporate requirements and present University syllabus. This will result in employable engineers to suit industry/corporate requirement. There is a great need of campus wide high speed network, which links all computing resources on campus such as email web based online applications, applicable software, libraries online, catalogues, web cast facilities and computer clusters. Lecture halls, Seminar rooms and tutorial

rooms should be well equipped with necessary technology knowledge base. AIT has obtained connectivity to the National Knowledge Network (NKN) to achieve this purpose. Virtual classrooms, coupled with wi-fi campus are major enablers for facilitating student learning.

29. **Industry Collaborations.** In order to make graduating students more employable, it is critical that AIT should build close collaboration with industry through MoUs. This type of collaboration can help in updating the curriculum and arranging guest lectures by experienced professionals. It can also help in organizing for internships and projects for the students so as to impart hands on skills. MNCs like IBM Microsoft, SAP, Oracle, Infosys, Intel, and Nokia have worked out a range of Industry academic collaboration programs which will be leveraged by AIT.

PART IV : CONCLUSION

30. In the next five years a number of Post Graduate (PG) courses and a Research Centre will be introduced to inculcate a research & consultancy culture in AIT. Initially the first PG course would have to depend on civilians and possibly Army officers on study leave to fill up the PG vacancy. But after the initial years, students passing out of AIT would definitely fill bulk of the vacancies as future trend suggests that industry would be recruiting greater number of post graduates in attractive jobs. Students undergoing Post-graduation would also be available for taking lectures for UG classes. These would also enable AIT to attract AICTE and University grants and consultancies from the industry.

31. Introduction of a number of certification courses and market friendly soft skills and SSB / CAT courses and AICTE schemes, ATB and DRDO projects would definitely improve the employability of AIT graduates besides generating revenue for sustaining AIT's infrastructural growth and maintenance plans. Simultaneously, implementation of MOUs with foreign universities would be necessary to improve AIT's branding at the national level.

32. Technical higher education system in India is likely to undergo rapid transformation in the coming decade to keep pace with the imperatives of a booming national economy which necessarily has to ride on a sound technological foundation. There is likely to be much greater competition amongst the premier educational institutions to be counted amongst the first twenty. Corporate and foreign universities are likely to enter this field introducing their corporate governance norms and practices with fast decision-making systems. Adoption of corporate norms and

practices are likely to enable a more incentive oriented governance system which would allow incentives to the performers and harsher deterrents for non-performers.

33. AIT would have to adapt to these systems and practices to implement all the recommended measures in a highly competitive environment. It would necessitate granting greater functional autonomy to the local college management in terms of faster decision-making as done in premier professional educational institutions.

34 Summary of proposed financial outlay by AG's Branch for AIT is attached as Appendix.

(SK Lahiri)
Brig (Retd)
Director

Date : Feb 2015

Place : Pune

Appx

Summary : Proposed Outlay by HQ AWES for AIT (Rs in lakh)

Ser No	Academic Year and Description of Work	Type of Work	ARF AWES	AG	Priority
	AY 2015-16				
1	Recreation Hall (420 sqm) for 600 senior students of OBH including accessories.	NW	-	65.0 (CG)	I
2.	Modification of existing classrooms & labs for PG Comp.	NW	-	20.0 (CG)	I
3.	CCTVs in Campus for security.	NW	-	20.0 (TG)	II
	TOTAL		**-**	**85.0 (CG)**	**I**
			-	**20.0 (TG)**	**II**

	AY 2016-17				
1.	New Conference Hall (130 sqm) incl furniture & accessories.	NW	-	25.0 (CG)	I
2.	Additional 2 labs, staff rooms & 2 class rooms with furniture for PG E & TC (220 sqm).	NW	-	40.0 (CG)	I
3.	New Girls Hostel (450 sqm) for 30 strength (with UGC).	NW	-	25.0 (CG)	II
4.	Boundary wall (1.6 km) if not included in MWP.	NW	-	160.0 (CG)	I
5.	Vertical extn of New H flank with 3 addl floors incl furniture (80 strength).	NW	-	300.0 (CG)	II

	AY 2016-17 (Contd…)	**Type of Work**	**ARF AWES**	**AG**	**Priority**
6.	Second café (120 sqm) incl furniture.	NW	-	25.0 (CG)	III
7.	PG Comp Lab equipment & software.	AUG	-	20.0 (TG)	I
8.	Virtual class-room accessories.	AUG	-	20.0 (TG)	II
9.	Girls Hostel Dining Hall.	IS Reno	15.0	-	I
	TOTAL	**-** **-**	**15.0 - I**	**225.0 (CG)** **325.0 (CG)** **25.0(CG)** **20 (TG)** **20 (TG)**	**I** **II** **III** **I** **II**

	AY 2017-18				
1.	15 Guest Rooms and dining hall for foreign exchange students and eminent guest speakers / research scholars (on top of New Girls Hostel) (450 sqm) incl furniture.	NW	-	80.0 (CG)	I
2.	New UG cabling (HT & LT).	NW	-	30.0 (CG)	II
3.	New Civil Engg Aca Block (2300 sqm) incl furniture.	NW	-	550.0 (CG)	II
4.	Construction of 6 addl floors on New Recreation Hall (2520 sqm) including furniture (160 strength).	NW	-	600.0 (CG)	II
5.	Separate water supply connection from PCMC (if reqd due to MAPS completion in Dighi).	NW	-	20.0 (CG)	II

	AY 2017-18 (Contd……)	**Type of Work**	**ARF AWES**	**AG**	**Priority**
6.	PG E & TC lab equipment & accessories.	AUG	-	25.0 (TG)	I
7.	RFID for 30,000 library books and journals.	AUG	-	28.0 (TG)	II
8.	All Toilets with concealed chlorinated PVC pipelines and more efficient faucets.	IS Reno	50.0	-	I
9	Raman Theatre sheets replacement.	IS Reno	10.0	-	II
	TOTAL	**-** **-**	**50.0 – I** **10.0 - II**	**80.0 (CG)** **1200.0(CG)** **25.0(TG)** **28.0 (TG)**	**I** **II** **I** **II**

	AY 2018-19				
1.	PhD Research Centre (200 sqm) on top of New Conf Hall in PG Block incl furniture & accessories.	NW	-	40.0 (CG)	I
2.	PG Civil engg (220 sqm) incl furniture.	NW	-	45.0 (CG)	II
3.	New Quarters for 8 faculty (80 sqm).	NW	-	250.0 (CG)	II
4.	Lab eqpt for UG Civil Engg Dept Ph I.	NW	-	50.0 (TG)	II
5.	Replacement of projection system and smart boards.	IS Reno	20.0	-	I
6.	Replacement of old generator.	IS Reno	20.0	-	II
	TOTAL	**-** **-** **-**	**20.0 - I** **20.0 - II**	**40.0(CG)** **295.0(CG)** **50.0 (TG)**	**I** **II** **II**

	AY 2019-20	**Type of Work**	**ARF AWES**	**AG**	**Priority**
1.	Convention Centre in PG Block (450 sqm).	NW	-	80.0 (CG)	I
2.	New Eqpt & software for all Depts.	AUG	-	30.0 (TG)	I
3.	New Eqpt & software for PhD Research Centre.	AUG	-	20.0 (TG)	I
4.	Lab Eqpt for UG and PG Civil Engg (Ph II).	AUG	-	50.0 (TG)	II
5.	Replacement of 25 yr old septic tks	IS Reno	80.0	-	II
	TOTAL	**- -**	**80.0 - II**	**80.0(CG) 50.0(TG) 50.0(TG)**	**I I II**

Legend :

IS Reno : Infrastructure Renovation

NW : New Works

AUG : Academic Up-gradation

CG : Construction Grant

TG : Technical Grant