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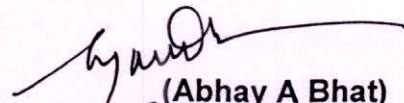
AIT/0023/AWES Expn/Adm

19 Oct 2022

HQ Southern Command (Sigs)  
PIN – 908541  
C/o 56 APO

**ACAD GROWTH PLAN REPORT : AIT**

1. Ref your letter No 444315/Sigs/AIT dated 27 Sep 2022.
2. The Academic Growth Plan proposal has been reviewed based on directions by Patron during pn on 14 Dec 2022 and directions during GBM held on 23 Sep 2022 on the subject.
3. Due to forthcoming implementation of the NEP, rapid changes in technologies, the environment of Higher Education, is likely to remain fluid. In view of the above it is recommended that the plan be reviewed every two years for possible course corrections. However, for developing necessary infrastructure; advance "in principle approvals" of BoA and HQ AWES will be required.
4. For necessary action please.

  
(Abhay A Bhat)  
Brig (Retd)  
Director

**Encl** : As stated

**Copy to** :-

HQ Southern Command (AWES)  
Pune - 411001

**ARMY INSTITUTE OF TECHNOLOGY**  
**ACADEMIC GROWTH PLAN**

**Reference**

- (a) HQ AWES letter No B/45840/Min/AWES dt 25 Mar 2022, Collegiate meet with AG dt 08 Feb 2022 (Sr No (8))
- (b) MoM of AG's Annual Conf held on 09 and 10 Mar 2022
- (c) HQ AWES letter No B/45840/Dir Conf/AWES dt 16 Mar 2022, Priority follow-up action on AG's Annual Conf held on 09 and 10 Mar 2022 (Ser No 2(c))

**INTRODUCTION**

**Background**

1. AIT was established in 1994, with initial intake of 180. Three programs (Comp, Mech and E&TC), of Bachelor of Engineering, all had intakes of 60. AIT expanded horizontally by adding IT Program in 2001 with the intake of 60 and increasing the intake in Computer stream to 120 in 2016 and of E & TC to 120 in AY 2020. AIT also attempted for vertical growth by introducing PG in Design Engineering (Mech Dept) from 2015-16. It is also already obtained approval for starting ME Program in Data Science with the intake of 24 from academic year 2022-23.

2. The primary objective of AWES is to provide quality education at affordable cost to the wards of Army Personnel. AIT fulfils this objective and also ensures excellent career opportunities for its students. Based on the success of current programs various road maps for future growth evolved post 2013 (ref to growth plan 2013-23). A five-year vision document was issued duly approved by HQ Southern Command in 2019 (13 May 2019). Some of the proposals have as part of growth plan have been implemented and some of the proposals were shelved due to change in market dynamics as well as lack of adequate support from wards of Army Personnel. Post the recent COVID Pandemic and the churn in industry demand, as well as subsequent to issue of comprehensive Higher Education Policy NEP 2020 by the government, there is a requirement of rethink on these road maps and as also detailed deliberations with all stake holders and HQ AWES.

**Decisions Taken During AGs Conference and Reasons Thereof**

3. During the AG's Conference, collegiate meetings were held between the Heads of Higher Education Institutions of AWES and functionaries at HQ AWES. During these deliberations it emerged that AWES higher education foot print is extremely low (approx. 3000 students in 12 HEIs) as compared to the strength of Army wards appearing in 12<sup>th</sup> standard/ other qualifying examinations each year. This strength could be up to 1 lakh. It was felt that the intake of students in AWES HEIs needs to be increased substantially to provide good career opportunities to the wards.

4. **Guidelines in NEP.** The Higher Education scenario in India too has changed in last few years. Govt has come out with a comprehensive and revolutionary National Education Policy. The Main thrust of this policy regarding higher education is to end the fragmentation of higher education, by transforming higher education institutions into large multidisciplinary universities, colleges, and HEI clusters/ Knowledge Hubs, each of which aims to have **3,000 or more students**. This would help build vibrant communities of scholars and peers, break down harmful silos, enable students to become well – rounded across disciplines including artistic, creative, and analytic subjects as well as sports, develop active research communities across disciplines including cross - disciplinary research, and increase resource efficiency, both material and human, across higher education. Considering the fact that AIT is already the largest, oldest and most sought after HEI of AWES, AIT needs to take the lead amongst AWES institutions.

5. During the deliberation it emerged that AIT is the most preferred Institute as it has demand to intake ratio consistently of around 1:10, has excellent placement record of its students and has the capability to introduce industry 4.0 technology courses in near future. It also has adequate infrastructure and human resources to be able to carry out such expansion.

6. AIT had prepared a tentative Academic Growth Plan covering short term (upto 2024) and medium term proposals (upto 2028). This plan was approved in principle and following decisions in this respect were accorded.

(a) AIT to prepare comprehensive plan of action to increase intake to 500+ in next 2-3 years. Detailed proposal including manpower and infrastructure to be processed at the earliest (refer Para 26 (a) of Minutes of AG's Conference).

(b) Revision of PE if required and increase construction of additional 3 stories of hostel to be linked and dovetailed along with the proposal of Academic Growth Plan (ref Para 14 (b) & (c)).

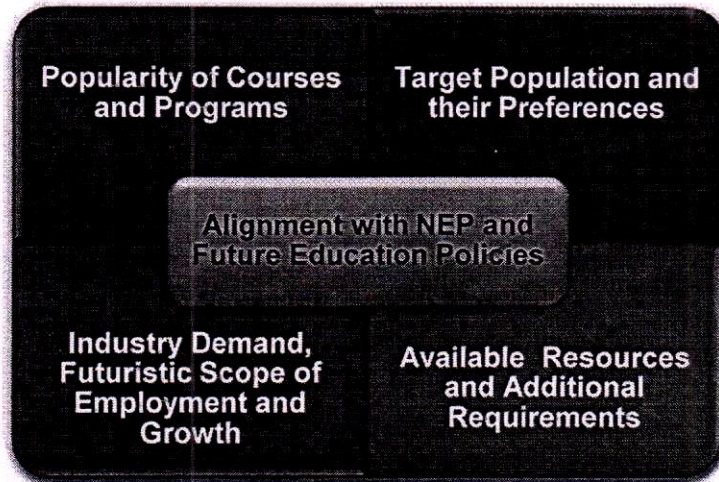
7. Based on the above decisions a comprehensive Academic Growth Plan is now being submitted.

#### **AIM**

8. To propose a comprehensive academic growth plan for AIT, with the aim to double the AIT intake in next 2-3 years, while maintaining the quality and effectiveness of Higher Education.

## DETAILED PROPOSAL

### Factors to be Considered for Increase Intake Or Starting New UG/ PG Program



9. **Popularity of Course and Program.** Market is ruled by technology and creating the new jobs opportunities in upcoming fields like AI & ML, Data Science, VLSI, Electrical Vehicles and robotics. The companies are looking for trained and skilled talents. Keeping this in mind institution needs to start relevant courses.

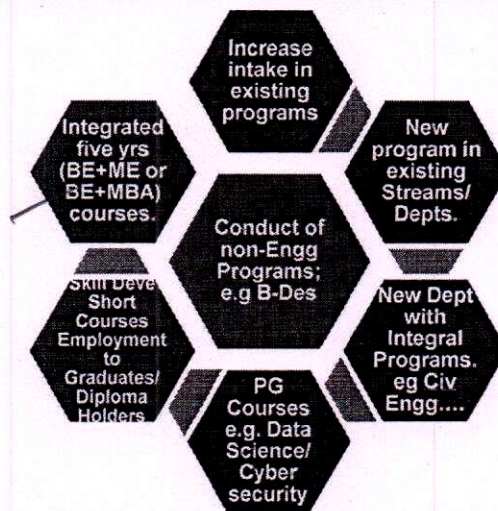
10. **Target Population and Their Preferences.** Engineering is one of the preferred course in India and across globe. This field has ensured job security in the population. Students and parents are keen to take up courses related to market demands and accordingly students are choosing the popular courses.

11. **Industry Demand, Futuristic Scope of Employment and Growth.** Industry is forced to change and adapt new technologies because of global market scenario and demand. Many ventures and start-ups are looking young talents pool. Digital transformation has forced many industries to change for keeping the pace with technology. IoT is one of the essential part and parcel of automation process to yield better output, which required skilled manpower and is not available. Cyber security is one of most demanded field and India is particularly looking for experts in this domain. It is said that data is one of the important treasure and skilled manpower create wonder out of it. This one of the promising area and institute needs to start courses in this field. Each and every industry expecting day one ready manpower and cut down cost or man hours on training. Expectation from organization is that the required skills and knowledge is imparted in regular education only. If institute meets such demand by adapting and imparting required skill set during the course work, employability enhances multiply times along with handsome salary packages.

12. **Available Resources and Additional Requirements.** At present AIT is having intake of 360. Its current real estate has the capacity to handle additional 180 – 200 student at UG and PG level. Developing classrooms and labs in existing building will be help in utilizing the existing setup to its fullest extent.

13. **Alignment with NEP and Future Education Policies.** AIT is one of the premier institution in India and well established self-financial engineering college. As per NEP policy such institutes need to grow into "Higher Educational, multi-disciplinary hubs with minimum 3000 students. For this purpose, AIT needs to grow both horizontally and vertically. It should also integrate institutes like ALC Kanhe, dwell into multidisciplinary areas to meet the requirements of NEP-2020.

#### Various Options for Horizontal and vertical Growth of AIT



14. **Increase in Intake in Existing programs.** AIT has 120 intakes each in its Comp and E&TC UG programs. Based on choices of the students, it is seen that Comp Engg remains the most popular program followed by Information Technology, while E&TC is the third most popular program. Based on our survey, there may not be much additional demand for E&TC program in near future, as also adequate industry uptake. There is a scope for increasing intake of IT program and in addition, there is likelihood of higher demand for engineers pre-trained in industry 4.0 skills; which include

- (a) Artificial Intelligence / Machine learning.
- (b) IoT.
- (c) Electrical Vehicle.
- (d) Robotics and automation
- (e) Cyber Security.
- (f) Automotive Electronics.
- (g) Data Science

15. **New Programs in Existing Departments/ Stream.** At present Dept of Information Technology is having the 60 intake and has the appetite to absorb additional intake of 60 for optimal utilization of existing infrastructure with few additional classrooms/ labs. Trend towards Mechanical engineering is declining and there is a need to make them attractive by starting program related to automation and robotics/ Mechatronics/ Electrical Vehicle/ Green Energy or Automotive Electronics.

16. **Establish a New Department and Start New Core Program.** As an engineering college AIT does not cover the entire spectrum of engineering. Important core engineering branches such as Civil, Electrical and Chemical have not been established in AIT since its inception. In AIT's growth plan start of Civil/ Electrical engineering course was proposed, but the current demand by industry (wrt salary offered and popularity) has prevented us not to start such courses in AIT. Moreover, establishing such department will be extremely capital and space intensive.

17. **PG Courses and PhD Research Centre in Existing Streams.** For any technical institute of a reasonable stature, vertical growth is a very important facet. Activities related to research, development and innovation cannot gain momentum and maturity in absence of post graduate students and research fellow. Such courses can also help aspirations of some of the wards of army personnel, who want to pursue higher education in niche areas but could not get admissions in some of the reputed institutions.

18. R&D is one of the important aspect and plays vital role of countries development. All well-developed institute must also focus on research. All accreditation bodies, ranking agencies are giving very good weightages to this parameter and institution which are ranked in top are doing better and better in this field. Running PG program and research centre also help institutes to fetch research grants.

19. PG and PhD program will bring lot of quality publications and patents to institute. AIT must have at least one PG program and start research centre in each department. In world QS ranking outcome of research has given lot of importance and weightage. If AWES expect AIT to be globally recognized, institute need give attention on R&D aspect and need to start PG as well as research program. Small step towards this is that AIT applied for PG program in Data Science in computer engineering. Recent announcement by Govt. of India to be leader in the domain of Semiconductor can be fulfilled by starting PG program in VLSI and Embedded specialization by dept of E&TC. This is being planned and E&TC. In AIT growth plan start of research centre is projected.

20. **Short Duration Certificate Courses.** Every technical institution possesses adequate infrastructure and human resource to run short term, job oriented skill courses. To run such courses institute, need not to create additional infrastructure and existing facilities can be utilised after class hours and on Saturday and Sundays. Such courses will help enhancing the industry required skill of Army wards and will be able to fetch better salary. Such short term courses do not require any approval from AICTE/ DTE/ University. Infact this courses will help institute to earn additional revenue. As these courses can be designed base on specific requirement of industry. So agile approach will upskill the manpower and helps in supplying the required manpower to market. For

running courses tie-up with well-known expert/ organization/ alumni is required. Such kind of courses also helps our faculty and will help in updating the existing labs of Depts.

21. **Integrated ME/ MTech/ BE+MBA Courses.** This one of the option offered by few of institute/ universities. In this direction AIT can also pay attention. New options are to offer MBA degree after engineering graduation can be introduced, for example BE + MBA in Data analytics/Machine learning. Such composition helps the aspirant to get engineering and management degree in 5 years of duration. 5 years integrated PG program in engineering is still not much popular among young aspirants. But in future it may become popular if such necessity is demanded by industry particularly who required highly specialised pool in some particular niche areas. One of the problem is these courses is that student can leave course after 4 years.

22. **Starting Non Engineering Courses.** One of the popular programs like B Design or B Arch have a lot of demand in industry. Many educational groups have has started such programs. With introduction of such courses in AIT, we can plan for a **multi-disciplinary** approach and offering electives and credit subjects from a wider canvas. This would be in line with NEP guidelines. However, it is felt that introduction of such courses may be done after thorough deliberation and consultancy.

### **SELECTED OPTIONS: SHORT TERM ROADMAP (UPTO AY 2024-25)**

#### **Short Term Options UG Courses. (Till Academic Year 2024-25)**

23. AIT proposes to start two courses by AY 2024-25, viz additional increment of 60 in BE (IT) and BE (Automation and Robotics/ Electrical Vehicles), with intake of 60 each. With introduction of these two programs, intake at UG level in AIT will increase to 480 by 2024. Details of these courses are given in succeeding paras.

24. **BE(IT).** Existing intake of IT branch is 60 and has the capacity to increase by another 60 seats. IT is the second most popular choice of the students currently. As such there is very little difference in the syllabus of IT vis a vis Comp Engg. IT course has higher emphasis on interaction of computer systems with real world requirements. Many new Industry 4.0 technologies fall under the ambit of this program which include Artificial Intelligence, Machine Learning, Augmented Reality / Virtual Reality, Cyber Physical Systems, Metaverse, Web Based Technologies etc. There is likely to be huge demand for such skills in near future. Introducing another division of BE(IT) will help in utilizing in present infrastructure optimally. Only, two additional labs, three class room and one tutorial will be required to cater the additional intake. It is proposed to start this course in AIT with additional intake of 60 from AY 2023-24. Details of faculty and non-teaching staff and the expenditure on their salaries is tabulated at **Appx 'A' & 'B'** respectively. Same is summarized below: -

(a) **Additional Infrastructure and Human Resources Required.** AIT has built substantial capacity in terms of high tech labs and networks over last few years, which will enable smooth delivery of such course. AIT also has trained faculty in these subjects and deficiency if any can be met by recruiting locally. Three class

rooms, three labs and two tutorial rooms are required next three years, which can be easily constructed in same academic block.

(b) **Infrastructure Cost.** Details are given at Appx 'C'.

25. **BE (Robotics & Automation)/ BE (Electric Vehicles).** AIT has explored both these options as there is a lot of interest in the industry related to both these futuristic fields. However, as of now BE (Electric Vehicles) course is not approved by SPPU, though it is available in the list of courses of AICTE. As AIT as an affiliated college, it cannot apply for a course not listed by SPPU, introducing such course may be postponed. Hence, AIT should focus on BE (Robotics and Automation). It is an interdisciplinary course that deals with the design and development of robots and their use in areas of manufacturing, defense, marine, medical and service industries. It also covers areas of automation and autonomous transportation. The course is a mix of mathematics, science, mechanical engineering, electrical / electronic engineering, and Computer Science engineering. The graduates of this course can find jobs in private manufacturing & design companies, public organizations, military & defense, education, agriculture, healthcare, etc. They can work as Robotics Engineer, Robotics Designer & Analyst, Robotics Sales Engineer, Robotic Research Scientist, Autonomous vehicle engineer, autonomous systems engineer etc. Pune is a hub of automobile industry. In addition to this, Pune has famous R&D institute like ARAI. By closely collaborating with local automotive companies and R&D organizations, it will be possible explore real world opportunities for the students and graduates. It is proposed to start this course in AIT with intake of 60 from AY 2024-25. Details of additional infrastructure, HR and finances required is as follows: -

(a) **Additional Infrastructure and Human Resources Required.** At the time of commencement of the course (i.e AY 2024-25), only one addl classroom will be required. In AY (2025-26) i.e. second year since launch of this course, additional one classroom, one tutorial room, two labs and three staff rooms will be required. As per our projection this infrastructure can be created in existing Academic Block in addition to infrastructure required for BE (IT). However, future requirements post AY 2025-26 including one classroom, two labs and five staff rooms, will have to be created in the "new academic building" proposed subsequently in this document.-Details of infrastructure in existing building and new building are at Appx 'C' and 'D'.

(b) **Financial Requirements.** Details are included in Appx 'C' and 'D'.

### **Short Duration Certificate Courses**

26. It is proposed to start certificate courses in AIT to assist skill enhancement of army wards, who are non-engineering graduates/ diploma holders or even 12<sup>th</sup> pass candidates with aptitude and industry experience and who would like to enhance their skills for better jobs and careers. In addition, such courses will also aid AIT as an



additional revenue stream. These courses will involve hands on training and project based learning and aim at employability enhancement and early career excellence for participants. Reputed institutes like Govt College of Engineering and IITs conduct such courses in collaboration with Industry. These courses are having good response based on the reputation of collaborating agency. Some reputed organizations like CDAC can be approached for the same. Maratha Chamber of Commerce, Industries and Agriculture (MCCIA) is approached to find the demand for different courses and they also feel that above mentioned two courses have demand in terms of trained manpower in industries around Pune. AIT had identified at least 8-10 such skill based courses which included fields such as IoT, Business analytics, AI & ML, Data Security, 3D printing and AR/VR. However, considering the immediate industry demand and availability of resources with AIT, it is proposed to start two such course in immediate time frame as given in succeeding paras.

27. **Internet of Things (IoT)**. This is one of the emerging technologies which is going to drive most of the requirements of future industry automation, smart cities, smart homes etc. There is going to be huge requirement of manpower in this area. Hence it is proposed to start a course in IoT. Tentative details are as follows: -

- (a) Name of Course : Certificate course in Internet of Things
- (b) Industry Partner : CopperCloud IOTech Pvt Ltd
- (c) Course Duration : 24 weeks or six months (100 to 120 Hrs) 24 weeks theory lectures and practical (2 hrs theory and 3 hrs practical in every week).
- (d) Batch Size : 30 Seats,
- (e) Fees per student : Rs. 10,000/-
- (f) Expenses towards remuneration: Rs 1,60,000/-
- (g) Income from this course: Rs 1,40,000/- per course
- (h) Commencement : from Nov/ Dec 2022.
- (j) Infrastructure required: Nil

28. **Certificate Course in Business Computing & Analytics**. Business analytics takes a data-driven approach to the world of business, using statistics and data modelling to develop new business insights. This blend of technology and business makes it an ideal study option for anyone with an interest in programming or working with big data. Typically, students will be trained in data analysis and business intelligence tools, so they're able to do things such as predictive modelling. This involves analysing data about a business's past performance to predict how it will perform in the future and make business decisions accordingly. For example, a chain of restaurants may use data to decide where to open their next branch. Similarly, there is huge demand of software professionals. Good programming skill is required with good understanding of various tools for business computing & analytics. Tentative details are as follows: -

- (a) Name of Course : Certificate course in Business Computing & Analytics.
- (b) Industry Partner : To be identified.
- (c) Course Duration : 25 weeks or six months (300 hrs) (4 hrs theory and 8 hrs practical in every week).
- (d) Batch Size : 30 Seats.
- (e) Fees per Student : Rs. 20,000/-
- (f) Expenses towards remuneration : Rs 4,10,000/-
- (g) Income from this course : Rs 1,90,000/-
- (h) Commencement : from Jan/ Feb 2023.
- (j) Infrastructure required : Nil

### **SELECTED OPTIONS : MID TERM ROADMAP (UPTO AY 2027-28)**

29. Some proposed options till AY 2027-28 are as follows :-

- (a) ME (VLSI & Embedded System) – commencing 2025-26.
- (b) PhD Research Centres in Computer & E & TC Depts (2026-27).
- (c) Two new UG Courses wef AY 2027-28.

### **ME VLSI & Embedded Systems in E & TC Dept.**

30. This is a two years regular ME course available in the list of approved courses of SPPU and AICTE. It is proposed to start with an intake of 24 wef AY 2025-26.

31. With fast developing Industry 4.0 technologies such as IoT, Electrical and Autonomous Vehicles, Robotics and Autonomous, there will be huge demand for VLSI & Embedded Systems experts to design and develop, chips, circuits, microcontrollers and other Systems on Chips, for such technologies. With the thrust on “Atmanirbhar Bharat”, Make in India and indigenous defence manufacturing, such demand is likely to grow very fast in India, in near future. This is a niche field already in great demand in US and other developed countries.

32. During the discussion on academic Growth Plan, during AIT GBM (held on 23 Oct 2022) it was suggested that an integrated BE+ME program instead of a separate PG program (5-year duration, BE+ME) would be more popular and attractive for students. Students will not only save one year but also will not need to appear for separate GATE or equivalent exams before their admission to an ME / PG program. Such integrated programs with multi-disciplinary flavours can also be designed. Such proposal can be studied in detail and proposed separately.

33. **Infrastructure and Resources.** AIT already has well equipped labs in E & TC Dept. Some equipment augmentation will be required. An addl classroom (33 sqm) will be required which can be created in existing academic block. ME requires recruitment of addl Prof, Associate Prof and Assistant Prof. Details of year wise requirements is at **Appx A, B and C.**

**Ph D in Computer and E & TC (AY 2026-27).**

34. For any institute having a PhD research center is a matter of pride. Having such a centre also provides boost to research and innovation foot print as also provides, boost to rankings at national level. For a dept to have a Ph D Centre, it has to meet two criteria. Firstly, there should be a full time PG program in that dept/ stream and secondly at least two faculties should be University approved PhD guides. It is expected that with launch of ME (Data Science) in 2022-23, ME (VLSI/ Embedded Systems) in AY 2025-26, the PG course criterion will be full filled. E & TC stream already has four approved PhD guides in AIT, while it is expected that Comp Dept too will have two such guides by AY 2026-27.

35 It is hence proposed to start PhD research centres in these depts. Such research centres do not require addl infrastructure or any addl HR revenue outflow. On the other hand, the centre earns through annual fees of PhD candidates, which could be fixed between Rs. 80,000/- to Rs. 1.2 Lakh/ year, as per University norms.

**New UG Courses.**

36. It is proposed to start two additional divisions at UG level, by AY 2027-28. However commencement of these courses, will be dependent on completion of **new academic block and enhanced 'Hostel Infrastructure'**. These two UG divisions will add intake of another 120 thus taking the UG intake to over 600.

37. **BE (Artificial Intelligence and Machine Learning).** Artificial Intelligence is considered to be the "technology of the century". It is often heard that AI is all set to replace a lot of jobs that humans do. On the other hand, it is also creating more than 130 million roles in all major sectors. Artificial Intelligence is one of the emerging technologies making its mark in every industry ranging from fashion to finance. In fact, AI jobs account for an average of 18% of jobs in most technology enabled companies. Though foundations of Computer Engineering are essential, this course prepares a student to specialise in applications of AI, Machine Learning (ML) and Deep Learning (DL). BE in (AI & ML) is an approved course in AICTE list and has been introduced by the BoS of SPPU. Many colleges and institutes under SPPU have started this course in last two years. Some of the institutes included Dr DY Patil College, Pimpri, Modern Engineering College, Pune. All these courses have received excellent response with more than 95 percent seats filled. AIT can consider starting this course after study of industry demand and overall popularity.

38. **Cyber Security and Forensics.** This is an extremely critical and emerging field. There will be much higher demand of such professionals in coming years, with introduction of IoT in every sphere of life, digitization of Governance and even in defence

sector. Many IITs, pvt colleges and specialized Universities like the Rashtriya Raksha University (RRU) and National Forensic Science University (NFSU) have started PG diploma/ PG, or integrated UG-PG courses in this field. BTech (Computer Science with specialization in Cyber Security) is also one such flavour. It is proposed to start one such division with intake of 60. As the course is currently not available in the list of UG courses with SPPU, further details cannot be given. However, it is expected that such course will soon be introduced by SPPU.

39 **Addl Infrastructure and Human Resources Required.** Standard “bricks” of labs, classrooms, staffrooms and HR resources, as per AICTE norms will need to be added as for other UG courses. Both courses proposed require computer based labs and hence require minimal investment in lab and testing eqpt. Details of HR resources infrastructure required are at Appx ‘B’ and Appx ‘D’.

### **LONG TERM OPTIONS**

40. Long term options i.e. proposed growth plan beyond 2028-29, are also discussed briefly and generically. These options are more aligned to NEP 2020 philosophy and designed to introduce more flexibility and opportunities for prospective students. In case infrastructure is available some of these may also be taken up before 2028. These options based on current popularity and future industry demand are given in succeeding paras.

41. **Integrated BE + ME or BE + MBA Courses, or Duel Degree Courses.** Many IITs, RRU and Pvt colleges such as VIT have introduced either integrated courses or “dual degree” courses. Such programs are gaining popularity and can compensate for lack of interest of students in conventional PG programs. Such programs offer many advantages as follows: -

- (a) Being five years' programs (UG 3+PG 2), one year is clearly saved. Minimum required credits for UG are earned in 3 yrs only. This will also save educational expenditure for students.
- (b) Students have flexibility and opportunity to undertake UG and PG programs in two independent but related disciplines. IIT Kanpur has many such interesting combinations BTech - MBA, BS (Bachelor in Science)- MTech, BTech- MS (Master of Science), BTech – MDES (Master of Designs) etc. For students who want to pursue the same specialization throughout, integrates BTech – MTech option is also available.
- (c) Students acquire more versatility from long term career prospects.
- (d) No need to appear for exams such as GATE prior to admission to PG.
- (e) In case of tie up with foreign Universities, PG programs can be conducted abroad. SRM, VIT and some other reputed pvt universities have such tie ups with reputed foreign universities.

42. **Establishment of another Campus.** There could be an opportunity to est a wing of AIT, in another location/ campus, where similar Engg UG/ PG courses could be conducted. In case adequate land is acquired in AIL, Kanhe, such wing can be established at the earliest. This will also reduce pressure on AIT Campus and lead to introduction of multidisciplinary courses / contents.

43. **Non Engg Disciplines.** AIT may also strive to become a multidisciplinary education node by industry a few non-technical UG/ PG programs. As per current demand and availability of Teachers resources in Pune, programs in Architecture (B Arch) or Design (B Design) (which include Product Designs, Commercial Design, User Exposure Design etc), may be started in due course. This will develop a conducive interdisciplinary environment as desired in NEP 2020 policy.

44. With a view to start working on any of the "long Term Options", decisions need to be taken at the highest level in AWES. Any such implementation in existing AIT campus, will also mandate availability of a new academic block, which has been referred to earlier. Appx D contains approx. details of infrastructure required, assuming at least two new divisions to be added as part of Long Term Plan. In case new campus / wing of AIT is established in a new location, exhaustive planning needs to be done for the same.

45. **Infrastructure Required.** The summary of infra required will be different at different time and will be dovetailed to increase as per growth plan. The reqd infra have to be constructed well before the start of new courses.

(a) **Short Term Infra Requirements.** The infrastructure required for short term growth plan will be constructed on existing buildings. This includes 05 Classrooms, 03 Tutorial Rooms, 08 Nos of Labs, 15 no of staff rooms and other administrative infra. The total area of Construction on existing building will be 1613 Sq mtr. The area available for future expansion is 1650 Sq mtr. The tentative cost of construction will be 4.72 Cr as on date. Speedy sanction will be required from CFA for start of construction. The cost of constr of hostel on existing Homi Bhabha Hostel will be Rs 4.50 Cr. The total cost for infra-structure incl hostel will be Rs 9.22 Cr i.e approx. Rs 10 Cr.

(b) **Mid Term Infra Requirements.** The Mid Term growth plan will require additional infrastructure and same is divided in two parts. The infrastructure which can be rehashing in existing infrastructure in Academic Block and the infrastructure required in New Academic Building. 02 class rooms will be constructed / adjusted in existing buildings. Remaining 02 class rooms, 03 Tutorial Rooms, 09 labs and 20 staff rooms will be constructed as part of new academic block. Extra Administrative areas like Common Room for Girls and Boys, Seminar Hall, Departmental Library, Adm Offices etc can be constructed in New Academic Building. The total area of Construction in New Academic Building will be 3000 Sq mtr.

(c) **Long Term Infra Requirements.** The long term plan for academic growth includes 03 Classroom, 02 Tutorial rooms, 07 Labs, 15 Staff Rooms can be constructed extension above New Academic Building. The total area of Construction extension above New Academic Building will be 1200 Sq mtr. The tentative cost of construction will be 4.20 Cr. This will become part of future expansion of newly constructed academic block or it can be constructed in one go as per availability of financial health at that time. The total cost of new academic block will be approx. Rs. 14.4 Cr. The detailed are given at Appx D.

### FINANCIAL OUTLAY

46. Details of expenditures required each year upto FY 2029-30, based on short and medium term proposals, on HR augmentation as well as basic infrastructure development is given in Appces A to D. For working out such details for long Term options, clear decisions will be required to be taken separately. Financial Summary for Short Term and Medium term proposals is given in succeeding paras.

47. **Expenditures.** As summarized below:-

AY	Cost of Equipment in Rs. Lakh					Cost towards HR In Rs Lakh (6)	Cost of \$ Infra In Rs. Lakh (7)	Total Amount in Rs Lakh (1+2+3+4+5+6+7) (8)
	IT (1)	Robotics and Automati on/ EV (2)	VLSI & ESD (3)	Cyber securi ty (4)	New UG Div/(AI& ML) (60 Intake) (5)			
2023-24	20					17.64	40.07	77.71
2024-25	19	20				56.65	136.41	232.06
2025-26	19	50	29			139.42	224.19	461.61
2026-27	19	50	19			207.58	451.60	747.18
2027-28		50		23	50	272.2	394.02	789.22
2028-29				22	50	344.8	195.86	612.66
2029-30				22	50	425.2	144.63	641.83
2030-31				22	50	509.6		581.6

\$ will be spent from accumulated Development Fund

48. Income due to increased intake is summarized below:-.

AY	Student Strength (1)					Total No. of students (2)	Cumulative Students (3)	Fees per student in Rs. Lakh (4)	Total Income in Rs Lakh (5)=(3)x(4)
	IT	Mech	E&TC	Comp	New UG Div/(AI&ML) (60 Intake)				
2023-24	60					60	60	1.75	105.00
2024-25	120	60				180	180	1.84	331.20
2025-26	180	120	24			324	324	1.93	625.32
2026-27	240	180	48			468	468	2.03	936.00
2027-28		240		60	60	360	648	2.13	1380.24
2028-29				120	120	240	828	2.24	1854.72
2029-30				180	180	360	1068	2.35	2509.80
2030-31				240	240	480	1368	2.47	3378.96

- Note:** (i) Assuming Fees for every year will increase by 5% (Approx.)  
(ii) Income from certificate courses are not considered  
(iii) Expenses & Income of Short term courses are not considered in this table  
(iv) Fees for UG and PG courses are considered as same

49. Income over Expenses summary based on details at paras 47 and 48 above is given below

AY	Total Income in Rs Lakh (from para 48) (1)	Total Expenditure in Rs Lakh (from para 47) (2)	Running Expenses in Rs Lakh (2) x 0.30 (3)	Income in Rs Lakh [1-(2+3)]
2023-24	105.00	77.71	23.32	3.97
2024-25	331.20	232.06	69.62	29.52
2025-26	625.32	461.61	134.95	28.76
2026-27	936.00	747.18	208.25	-19.43
2027-28	1380.24	789.22	292.99	298.03
2028-29	1854.72	612.66	183.74	1058.32
2029-30	2509.80	64.83	194.97	2250.00
2030-31	3378.96	581.6	174.47	2622.89

**Note:** Running expenses = 30% (Approx.) of total expenditure.  
Expenses & income of Short term courses are not considered in this table

50. It is clear from the above table that growth plan is self-sustainable from financial point of view. In AY 2026-27 there is a sudden spike in expenditure due to construction of new academic block. While it is reflected to be expended based on revenue income, in actual practice portion of the investment in "Infrastructure Development Fund" will be utilized. Also as the intake further increases, this temporary shortfall gets covered up within a year (in other words the capital expenditure also will be recouped). The initial

requirements of Capital fund expdr of Rs 10 Cr for short term and Rs 15 Cr for Mid-term and long term can be met from existing FDs of Rs 61.27 Cr against College Fund. Infrastructure Development fund and hostel fund. It is proposed to expend Rs 10 Cr against Development fund and Rs 15 Cr from College fund after taking sanction from competent financial authorities. The FDs states of AIT are attached as Appx "E". It is submitted here that these funds will be recouped on similar level after higher collection from the students due to incr in intake in next seven years i.e. AY 2029-30.

### RECOMMENDATIONS

51. The Academic Growth Plan as proposed in this proposal is sustainable financially even if the increase in fees for students is limited to only 5%. It will also help generate substantial additional revenue after 3-4 years for further expansion.
52. In the above calculations, revenue generated from certificate courses has not been taken into account as it will be trivial in longer scheme of things, unless the volume of such courses increases substantially.
53. All the courses chosen are based in industry demand and futuristic technology growth.
54. It is recommended that Academic Growth Plan as summarized as follows:

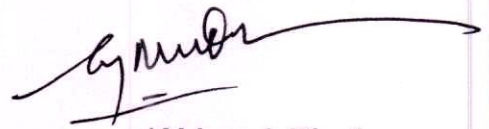
AY	UG/PG/PhD	Course	Intake
2023-24	UG	IT	60
2024-25	UG	Robotics & Automation/EV	60
2025-26	PG	VLSI & Embedded System	24
2027-28	UG	Cyber Security	60
	UG	New UG Division / AI & ML	60
	PhD	Computer and E&TC	NA

55. Planning for creation of infrastructure viz classrooms, labs, faculty room and hostel facilities (incl dinning/ kitchen expansion), will be required to put into motion immediately, considering 01 to 02 yrs of gestation period for plg and construction.

56. **Mid Term review of this plan will be carried out after every 2 yrs.**

File No. : AIT/0023/AWES Expn/Adm

Date : 19 Oct 2022



**(Abhay A Bhat)**  
Brig (Retd)  
Director, AIT



**SUMMARY OF FACULTY AND STAFF REQUIRED**

Academic Year	Staff Required	Nos required/ Dept					Total Numbers required	Cumulative Requirement
		IT	Robotics and Automation/ EV	VLSI & ESD	Cyber security	New UG Div/(AI&ML) (60 Intake)		
2023-24	Professor	00					00	00
	Asso Prof	00					00	00
	Asst. Prof	03					03	03
	Lab Asst	00					00	00
	Peon	01					01	01
2024-25	Professor	00	00				00	00
	Asso Prof	00	00				00	00
	Asst. Prof	03	03				06	09
	Lab Asst	02	00				02	02
	Admin Staff	01	00				01	02
2025-26	Professor	01	00	00			01	01
	Asso Prof	01	01	01			03	03
	Asst. Prof	02	02	01			05	14
	Lab Asst	02	02	01			05	07
	Peon	00	01	00			01	03
2026-27	Professor	00	00	01			01	02
	Asso Prof	01	01	00			02	05
	Asst. Prof	01	02	00			03	17
	Lab Asst	02	02	00			04	11
	Admin Staff	00	01	00			01	01
2027-28	Professor		01		00	00	01	03
	Asso Prof		00		00	00	00	05
	Asst. Prof		00		03	03	06	23
	Lab Asst		02		00	00	02	13
2028-29	Professor				00	00	00	03
	Asso Prof				01	01	02	07
	Asst. Prof				02	02	04	24
	Lab Asst				02	02	04	17
2029-30	Peon				01	01	02	05
	Professor				00	00	00	03
	Asso Prof				01	01	02	08
	Asst. Prof				02	02	04	26
	Lab Asst				02	02	04	19
2030-31	Admin Staff				01	01	02	03
	Professor				01	01	02	05
	Asso Prof				00	00	00	07
	Asst. Prof				02	02	04	28
	Lab Asst				02	02	04	21

**EXPENSES ON FACULTY AND STAFF**

AY	Staff Required	Nos Required/ Dept					Total No. reqd	Salary pm per staff in Rs	Total Salary in Lakh	Cost for AY in Lakh	Cumulative cost in Rs Lakh
		IT	Robotics, Automati on/ EV	VLSI & ESD	Cyber security	New UG Div/(AI& ML) (60 Intake)					
2023-24	Professor	00					00	100000	00	17.64	17.64
	Asso Prof	00					00	80000	00		
	Asst. Prof	03					03	45000	16.2		
	Lab Asst	00					00	15000	00		
	Peon	01					01	12000	1.44		
2024-25	Professor	00	00				00	100000	00	37.6	37.6 + (17.64x1.08) = 56.65
	Asso Prof	00	00				00	80000	00		
	Asst. Prof	03	03				06	45000	32.4		
	Lab Asst	02	00				02	15000	2.80		
	Admin Staff	01	00				01	20000	2.40		
2025-26	Professor	01	00	00			01	100000	12.00	78.24	78.24 + (56.65x1.08) = 139.42
	Asso Prof	01	01	01			03	80000	28.80		
	Asst. Prof	02	02	01			05	45000	27.00		
	Lab Asst	02	02	01			05	15000	9.00		
	Peon	00	01	00			01	12000	1.44		
2026-27	Professor	00	00	01			01	100000	12.00	57	57 + (139.42x1.08) = 207.58
	Asso Prof	01	01	00			02	80000	19.20		
	Asst. Prof	01	02	00			03	45000	16.20		
	Lab Asst	02	02	00			04	15000	7.20		
	Admin Staff	00	01	00			01	20000	2.40		
2027-28	Professor		01		00	00	01	100000	12.00	48	48 + (207.58x1.08) = 272.2
	Asso Prof		00		00	00	00	80000	00		
	Asst. Prof		00		03	03	06	45000	32.4		
	Lab Asst		02		00	00	02	15000	3.60		
2028-29	Professor				00	00	00	100000	00	50.8	50.8+ (272.2x1.08) = 344.8
	Asso Prof				01	01	02	80000	19.2		
	Asst. Prof				02	02	04	45000	21.6		
	Lab Asst				02	02	04	15000	7.12		
	Peon				01	01	02	12000	2.88		
2029-30	Professor				00	00	00	100000	00	52.8	52.8+ (344.8x1.08) = 425.2
	Asso Prof				01	01	02	80000	19.2		
	Asst. Prof				02	02	04	45000	21.6		
	Lab Asst				02	02	04	15000	7.2		
	Admin Staff				01	01	02	20000	2.40		
2030-31	Professor				01	01	02	100000	24	50.4	50.4+ (425.2x1.08) = 509.6
	Asso Prof				00	00	00	80000	00		
	Asst. Prof				02	02	04	45000	19.2		
	Lab Asst				02	02	04	15000	7.2		

(aa) Professor : Rs 100000/- (ab) Assoc. Prof : Rs 80000/-  
(ac) Asst Prof : Rs 45000/- (ad) Lab Asst : Rs 15000/-  
(ae) Peon : Rs 12000/- (af) Admin Staff : Rs 20000/-

- (ii) Salary for every year will increase by 3%.  
(iii) Expenses of short term courses are not considered here.

**INFRASTRUCTURE IN EXISTING BUILDING****Appx 'C'**

AY	Name of Facility (Area Required/Unit)	Dept		Req Carpet Area (SqM)	Req Built Up Area as per AICTE (SqM)	Super Built Up Area as per Construction Practice (SqM)	Construction Rate per SqM (Incl of 7% Inflation after two years)	Rate after addition for Furniture & Fixture/Lift & Electricals/Fire Fighting cost/External Services (25%) per SqM	Total Cost in Rs	Yearly Cost for Infrastructure in Rs
		IT	Robotics, Automation / EV							
2023-24	Classroom (66 Sqm)	1		66	83	103	18000	22500	2320313	4007813
	Tutorial Room (33 Sqm)	1		33	41	52	18000	22500	1160156	
	Laboratory (66 Sqm)	0		0	0	0	18000	22500	0	
	Staff Room (05 Sqm)	3		15	19	23	18000	22500	527344	
	Classroom (66 Sqm)	1	1	132	165	206	18000	22500	4640625	
	Tutorial Room (33 Sqm)	1	0	33	41	52	18000	22500	1160156	
2024-25	Laboratory (66 Sqm)	3	0	198	248	309	18000	22500	6960938	13640625
	Staff Room (05 Sqm)	5	0	25	31	39	18000	22500	878906	
	Classroom (66 Sqm)	1	1	132	165	206	19260	24075	4965469	
	Tutorial Room (33 Sqm)	0	1	33	41	52	19260	24075	1241367	
	Laboratory (66 Sqm)	0	2	132	165	206	19260	24075	4965469	
2025-26	Staff Room (05 Sqm)	4	3	35	44	55	19260	24075	1316602	22419844
	Seminar Hall	0	1	264	330	413	19260	24075	9930938	
	<b>Total</b>			<b>834</b>	<b>1043</b>	<b>1303</b>				

**Total Sum**

40068281

**Consultancy (3%)**

41270330

**Total Cost incl GST (18%)**

48698989

**Total Cost in Cr**

4.86 Cr

## APPX "D"

INFRASTRUCTURE IN NEW ACADEMIC BUILDING

AY	Name of Facility (Area Required/ Unit)	Dept			Reqd Carpet Area (SqM)	Reqd Built Up Area as per AICTE (SqM)	Super Built Up Area as per Constr Practice (SqM)	Constr Rate per SqM (Incl of 7% inflation after two years)	Rate after addn for Furniture, Lift, Elec, FF, Ext Ser (25%)	Total Cost in Rs	Yearly Cost for Infrastructure in Rs
		Robotics, Automation/ EV	VLSI & ESD	Cyber Security							
2026-27	Classroom (66 Sqm)	1	0	1	198	248	309.38	22000	27500	8507813	27328125 +17832032 (Expdr for Adm Area) = 45160157
	Tutorial Room (33 Sqm)	0	1	1	99	124	154.69	22000	27500	4253906	
	Laboratory (66 Sqm)	2	0	1	264	330	412.50	22000	27500	11343750	
	Staff Room (05 Sqm)	3	0	6	75	94	117.19	22000	27500	3222656	
	Classroom (66 Sqm)	0		1	132	165	206.25	22000	27500	5671875	
	Tutorial Room (33 Sqm)	0		1	66	83	103.13	22000	27500	2835938	
2027-28	Laboratory (66 Sqm)	0		2	264	330	412.50	22000	27500	11343750	21570313+ 17832032 (Expdr for Adm Area) =39402345
	Staff Room (05 Sqm)	2		3	40	50	62.50	22000	27500	1718750	

## APPX "D" Contd.....

AY	Name of Facility (Area Required/ Unit)	Dept			Reqd Carpet Area (SqM)	Reqd Built Up Area as per AICTE (SqM)	Super Built Up Area as per Constr Practice (SqM)	Constr Rate per SqM (Incl of 7% inflation after two years)	Rate after addn for Furniture, Lift, Elec, FF, Ext Ser (25%)	Total Cost in Rs	Yearly Cost for Infrastructure in Rs	
		Robotic s, Automa tion/ EV	VLSI & ESD	Cyber Security								New UG/ (AI & ML)
Extra Adm Area (Incl in AY 2026 to 2028)	Boys Common Room				150	188	234.38	22000	27500	6445313	35664063 (1783204 for AY 2026-27 and 2027-28)	
	Seminar Hall				264	330	412.50	22000	27500	11343750		
	Dept Library				66	83	103.13	22000	27500	2835938		
	Adm Area (HOD Offc, Staff Room, Store etc)				200	250	312.50	22000	27500	8593750		
	Girls Common Room				150	188	234.38	22000	27500	6445313		
2028-29	Classroom (66 Sqm)			1	132	165	206.25	23540	29425	6068906	19586016	
	Tutorial Room (33 Sqm)			0	0	0	0.00	23540	29425	0		
	Laboratory (66 Sqm)			2	264	330	412.50	23540	29425	12137813		
	Staff Room (05 Sqm)			3	30	38	46.88	23540	29425	1379297		
	Classroom (66 Sqm)			0	0	0	0.00	25188	31485	0		
2029-30	Tutorial Room (33 Sqm)			0	0	0	0.00	25188	31485	0	14463307	
	Laboratory (66 Sqm)			2	264	330	412.50	25188	31485	12987459		
	Staff Room (05 Sqm)			3	30	38	46.88	25188	31485	1475848		
	<b>Total</b>				<b>2688</b>		<b>4200</b>					
	<b>Area calculation formula = Total req Carpet area X 25% Built up Area X 25 % Super Built up Area</b>											
<b>Total Sum</b>										<b>118611823</b>		
<b>Consultancy (3%)</b>										<b>122170177</b>		
<b>Total Cost incl GST (18 %)</b>										<b>144160809</b>		
<b>Total Cost in Cr</b>										<b>14.41 Cr</b>		