



Minutes of the 37th Meeting of Senate

The 37th Meeting of the Senate was held on 30.04.2026 from 10:00 AM onwards in hybrid mode (physical / online) in the Senate Hall of the Institute. The members in attendance were as follows:

Members who attended in Physical Mode:

Sr. No.	Name	Role in Senate
1.	Prof. Mukul S. Sutaone, Director IIITA	Chairperson
2.	Prof. Pavan Chakraborty, Dean-Academic Affairs	Member
3.	Prof. Krishna Pratap Singh, Dean-Students' Affairs	Member
4.	Prof. Satish Kumar Singh, Dean-Planning & Development	Member
5.	Prof. Akhilesh Tiwari - Dean-Faculty Affairs	Member
6.	Prof. Ashutosh Mishra - Dean-IT & Digital Infrastructure	Member
7.	Prof. Pramod Kumar - Dean-Research & Innovations Affairs	Member
8.	Prof. Manish Kumar, HoD (IT)	Member
9.	Dr. Ashutosh Kumar Singh, HoD (ECE)	Member
10.	Dr. Srijit Bhattacharjee, HoD (AS)	Member
11.	Prof. Shailendra Kumar, HoD (MS)	Member
12.	Prof. Sonali Agrawal, Head of Centre of Intelligent Robotics	Member
13.	Prof. Vijay Kumar Chaurasiya, Head of Centre for Science of Happiness	Member
14.	Lt. Dr. Pragya Singh, Head of Centre for Continuing Education & Outreach Programs	Member
15.	Prof. Shekhar Verma, Professor	Member
16.	Prof. Tapobrata Lahiri, Professor	Member
17.	Prof. Madhvendra Misra, Professor	Member
18.	Prof. Manish Goswami, Professor	Member
19.	Prof. Vrijendra Singh, Professor	Member
20.	Prof. Vijaishri Tewari, Professor	Member
21.	Prof. Ranjit Singh, Professor	Member
22.	Prof. Anurika Vaish, Professor	Member
23.	Prof. Venkatesan Subramanian, Professor	Member

24.	Prof. Rajat Kumar Singh, Professor	Member
25.	Prof. Sanjai Singh, Professor	Member
26.	Prof. Ratan K Saha, Professor	Member
27.	Prof. Nidhi Mishra, Professor	Member
28.	Prof. Vikram Gadre, Professor, IIT Bombay	Member
29.	Sh. Prakash Kajave, Principal Specialist, Training & Capability Development, Tech Mahindra, Pune	Member
30.	Prof. Mandar S Karyakarte, Secretary Senate & Registrar IIIT- Allahabad	Member Secretary

Members who attended online:

31.	Prof. Abhay Gandhi, Professor, Dept. of Electronic Engr. VNIT Nagpur	Member
32.	Dr. P. S. Sathidevi, Professor (HAG), ECE Dept., Former Deputy Director & Director in Charge, NIT Calicut	Member
33.	Sh. Niranjana A. Pol, Sr. Engineering Director, Seagate Technology HDD(India) Pvt Ltd, Pune	Member
34.	Prof. Anupam, Dean-Alumni & External Relations	Member

Members who were absent for the meeting:

35.	Prof. Pritish Varadwaj, Head of Centre of Cognitive Computing (Granted Leave of Absence)	Member
36.	Prof. Amit Prabhakar, Professor	Member
37.	Dr. Upendra Kumar Singh, Distinguished Scientist and Director General Life Sciences, DRDO, Govt. of India (Granted Leave of Absence)	Member

At the outset, the Secretary, Senate greeted the members and sought permission from the Chairperson, Senate to commence the meeting. The Chairman, Senate welcomed the members present at the 37th Meeting of the Senate and introduced the newly elected members, who were warmly received with applause.

The Chairman, Senate then invited the Secretary, Senate to present the agenda items for the meeting, as detailed below:

Item no. 37.01	To receive the Minutes of the 36th Senate meeting held on 10.12.2025
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Resolution:S-37/01: The Senate formally received the Minutes of the 36th Senate meeting held on 10.12.2025.

Item no. 37.02	To receive the Action Taken Report on the 36 th Senate meeting held on 10.12.2025
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Resolution: S-37/02: The Senate received the Action Taken Report on the Minutes of the 36th Senate meeting held on 10.12.2026.

Item no. 37.03	To Consider and Approve the reduction of Academic Load in the B.Tech 1 st Semester by Offering either Engineering Physics or Linear Algebra course in first semester and the other one in second semester.
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The Senate considered the proposal to restructure the curriculum for First Year B.Tech students by reducing the academic load in Semester I and redistributing courses across Semesters I and II.

The proposal was necessitated by the following factors:

- B.Tech Semester I classes commence approximately one month after higher semesters (III, V, VII), resulting in a compressed schedule. To maintain synchronization with subsequent semesters, the institution implements extended Saturday and Sunday classes and substantially reduces the winter vacation period.
- This accelerated schedule places considerable strain on first-year students, leading to elevated failure and dropout rates, particularly in Engineering Physics and Linear Algebra courses.
- The Engineering Physics laboratory infrastructure is insufficient to accommodate the large volume of first-year students in a single semester.

Proposed Changes

- Academic Load Restructuring:
 - Semester I: Reduction from 20 credits to 16 credits
 - Semester II: Increase from standard load to 25 credits
- Course Distribution Strategy:
 - Engineering Physics and Linear Algebra will be offered in both Semester I and Semester II

- B.Tech (IT) students: Will take Linear Algebra in Semester I and Engineering Physics in Semester II
- B.Tech (IT-BIn), Dual Degree, and B.Tech (ECE) students: Will take Engineering Physics in Semester I and Linear Algebra in Semester II
- Courses will be swapped in Semester II (students take the course not completed in Semester I)
- Branch Change Policy:
 - Students changing branches after Semester I completion must opt for the course they did not take in Semester I
 - Branch changes permitted only between programs of the same duration (Four-Year to Four-Year programs; Five-Year to Five-Year programs)
- Timetable Management
 - Engineering Physics and Linear Algebra will be assigned to the same time slot across both semesters, as student cohorts will not overlap.

Resolution: S-37/03: The Senate APPROVED the following:

- a. Curriculum Restructuring: The restructured curriculum for Semesters I and II of First Year B.Tech (IT, IT-BIn, and ECE) programs, with the proposed swapped arrangement for Engineering Physics and Linear Algebra courses across the two semesters, as detailed in **Annexure 37.03 [Page No. 1 to 2]**
- b. Branch/Program Change Policy: The Branch/Program Change provision shall be based on an index calculated from grades/scores earned in common courses only, in the context of the accepted curriculum changes. (Swapping arrangements of Engineering Physics and Linear Algebra).
- c. The branch change policy shall apply among equivalent candidates i.e. students admitted to Four-Year B.Tech programs (IT, IT-Bin & ECE) shall be eligible for branch/ program change to other four-year B.Tech programs only. Students in Five-Year B.Tech-M.Tech Dual Degree programs may seek branch or program change only among other Five-Year B.Tech-M.Tech Dual Degree programs.
- d. Students in Five-Year B.Tech (IT-BIn)-MBA Dual Degree programs shall have no provision for branch or program change.
- e. Implementation: The changes shall be implemented for the admissions of fresh First Year B.Tech students, w.e.f. AY 2026-27, Semester-I. Academic departments shall coordinate the timetable scheduling accordingly, whereas, Dean (Academic Affairs) and AAA section shall revise the branch/program change criteria based on scores/grades of common courses only.

Item 37.04	no. To Consider and Approve the Curriculum Structures of i) ELEVEN M-Tech programs with changed titles (i.e. new nomenclatures, as approved in 36 th Senate) ii) NINE Dual degree B.Tech-M.Tech programs iii) ONE Dual degree B.Tech (IT-BIn)-MBA program iv) Direct admissions through CCMT in all ELEVEN M.Tech programmes as in (i) above.
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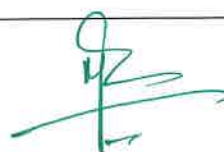
The Senate, in its 36th meeting (Resolution S-36/03(A1)), had previously approved revised titles for Eleven M.Tech programs (2-year duration), Nine Dual Degree B.Tech-M.Tech programs (5-year duration) and One Dual Degree B.Tech (IT-BIn)-MBA program (5-year duration). The Senate in the same meeting had approved 2-year duration M.Tech in Quantum Information & Technologies program.

At that time, PG Program Review Committee chaired by Prof. Gadre directed the departments to prepare the Curriculum structure and submit the relevant comprehensive documentation including Program objectives, Program-wise curriculum structures, Course titles and curricula, Faculty (departments) involved in course delivery, Inter-departmental and inter-institutional collaborations, explicit statements of roles, responsibilities, and resources.

Subsequent to the 36th Senate approval, multiple intra-departments, inter-department meetings were convened by the HoDs and institutional overview meetings by the Director with the Dean (Academic Affairs) and HoDs to review and finalize the program-wise curriculum structures. This iterative process ensured alignment, consistency, and institutional standards across all programs.

Prof Gadre in the capacity of Chairperson, PG program review committee gave the following recommendations: -

1. Each Department should evolve the details of the courses to be offered in each of these Postgraduate and Dual Degree programs. The details should include well-articulated syllabi of the courses, LTPS structure with credits, suggested textbooks and references, some guidelines on assessment and evaluation wherever it is non-standard and where there are deviations from traditional practices.
2. The Department/s (and possibly faculty member(s) therein), who will take the responsibility of conducting these courses, should be clearly identified. This is in consonance with repeated concerns expressed by the departments during their meetings with the committee in August 2025, pertaining to occasional abandonment of ownership of teaching responsibilities by departments, after a course has been made essential to a program.
3. The Heads of the departments and Dean-Academic Affairs immediately need to identify a common template comprising of table of contents, course codes, relevant terms/ terminologies/ symbols/ abbreviations, etc. for the Curriculum



Structures/ detailed course-wise Syllabi (which is to be finally printed in the form of booklet and to be uploaded on the Institute's website), based on the approval in the 37th Senate Meeting, for all these programs. This common template for the Masters and Dual Degree programs (as well as B.Tech programs) shall be formalized before the next Senate meeting, would be presented in the next Senate meeting, towards its approval and subsequent dissemination in print copies and on the Institute's website.

4. Detailed Brochures for these Masters programs, being offered with new titles and new Dual Degree programs of IIITA, as brand document, should also be prepared and notified among aspirants, using possible media/channels.

Resolution: S-37/04: The Senate APPROVED the following:

- a. The program-wise curriculum structures of all ELEVEN M.Tech Programmes (with their new titles as approved in the 36th Senate), all NINE Dual Degree B.Tech-M.Tech Programmes (5-year programs), ONE Dual Degree B.Tech (IT-BIn)-MBA Program (5-year program) and ONE MBA Program as detailed in **Annexure 37.04(A) [Page No. 03 to 112]**
- b. The Institute shall admit students in all TWELVE M.Tech Programmes through the CCMT (Central Counseling for M.Tech Admissions) channel with the seat distribution matrix at **Annexure 37.04(B) [Page No. 113]**
- c. The Senate further resolved that multiple schemes/ options/ tracks for Semester IV (in addition to the course titled "Thesis" such as industry internships, research internships and so) shall be introduced in the revised curriculum structure to cater to diverse student requirements. However, the assessment/ evaluation rubric be meticulously evolved for the substitutes of traditional thesis course.
- d. The Senate accepted the recommendations of Prof. Gadre and further resolved that:
 - I. Each Department shall evolve the course structure to be offered in each Masters and Dual Degree program, including well-articulated syllabi, LTPS structure with credits, suggested textbooks and references, and guidelines on assessment and evaluation, particularly for non-standard practices.
 - II. Department (and possibly faculty members) responsible for the course delivery shall be clearly identified and documented.
 - III. The Heads of the departments and Dean-Academic Affairs shall immediately identify a common template comprising of table of contents, course codes, relevant terms/terminologies/symbols/abbreviations, etc. for the Curriculum Structures/ detailed course-wise Syllabi (which is to be finally printed in the form of booklet and to be uploaded on the Institute's website), based on the approval in the 37th Senate Meeting, for all these programs. This common template for the Masters and Dual Degree programs (as well as B.Tech programs) shall be formalized before the next Senate meeting, would be presented in the next Senate meeting, towards

its approval and subsequent dissemination in print copies and on the Institute's website.

- IV. Detailed Brochures for these Masters programs, being offered with new titles and new Dual Degree programs of IIITA, as brand document, should also be prepared and notified among aspirants, using possible media/channels.

Item no. 37.05	To Consider and Approve the course titles of approved minor baskets in view of the altered credit structures.
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In reference to the Senate Resolution S-36/04(A) & Resolution S-36/04(B), the Senate deliberated the course titles, LTPS schema, course sequencing etc. of the existing minor baskets.

Resolution: S-37/05: The Senate RESOLVED as:

- a. The Senate APPROVED the revised course titles of all existing approved Minor baskets, in view of the altered credit structures in compliance with the credit and structural framework established in Resolution S-36/04(A) (reduction from 15 credits to 12 credits per Minor basket), as detailed in **Annexure 37.05** [Page No. 114 to 117]
- b. In light of a few overlapping titles and non-clarity in reflecting the syllabus/content from the title, the Senate further resolved that faculty members owning/coordinating each Minor basket shall undertake a comprehensive review of the Course titles, Curricula, Lecture-Tutorial-Practical-Self Study (LTPS) schema, Sequence of courses within the Minor basket (for credit distribution and workload balance) within 15 days from the date of this Senate meeting and submit the same to the Dean (Academic Affairs).
- c. These revised Minor baskets shall be implemented with effect from the July 2025 admitted batch onwards, with Minor basket offerings commencing in their Semester III as per the previously approved implementation timeline.

Item no. 37.06	To Consider and Approve the course titles of the "Honours by Research" basket.
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At its 36th meeting (Resolution S-36/05), the Senate had previously approved the "Honours by Research" program to percolate research culture among bright UG

students and thereby enhance the research outcomes and impact. The entire 12-credit structure is designed to prepare students for achieving the mandated research outputs:

- Research Methodology and Ethics training ensure publication-ready work and proper research conduct
- Data Analysis and AI Tools proficiency enhance research quality and innovation
- Advanced domain courses ensure depth and relevance to chosen research areas
- Culminating research project/dissertation demonstrates the attainment of publications and patent-level contributions

Resolution: S-37/06: The Senate APPROVED the following:

- a. The Senate APPROVED the course titles and structure of the previously approved "Honours by Research" basket (12-credit optional program), as detailed above and in Annexure 37.06, comprising:
 - a. Research Methodology (2 credits)
 - b. Research Practices using Data Analysis and AI Tools (2 credits)
 - c. Advanced Domain-Specific Online/ Independent study Courses - Two courses (4 credits; 2 credits each)
 - d. Research Project & Experimentation OR Dissertation (4 credits)
- b. The details of "Honors by Research" basket shall be circulated to all faculty members through the Dean (Academic Affairs) soliciting their inputs/ feedback for ensuring feasibility, clarity, institutional alignment, and finalize implementation mechanisms after the approval of the Chairperson Senate on the same within 15 days of this Senate meeting.

Item no. 37.07	To consider and approve institutional policy on bilateral arrangements for co-supervision of PhD candidates between IIITA and Institutes/Universities of repute at national/international level
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Prof. Manish Goswami and Prof. Pramod Kumar presented the policy and its provisions to the Senate on-behalf the committee. The Chairperson, Senate appealed that any further inputs, suggestions, modifications, or recommendations be formally communicated to the Dean (Research and Innovation) for incorporation into the policy draft, which will be amended.

Resolution: S-37/07: The Senate APPROVED the following:

- a. The Senate APPROVED, in principle, the institutional policy on bilateral arrangements for co-supervision of PhD candidates between IIITA and

institutes/universities of repute (at national and international levels), as submitted by the Policy Development Committee and detailed in **Annexure 37.07 [Page No. 118 to 128]**

- b. All suggestions, amendments, refinements, inputs etc. shall be submitted to the Dean (Research and Innovation) on or before 15th May 2026 and the committee shall review and accommodate them as deemed fit.
- c. The amended policy shall be approved by the Chairperson Senate and shall be reported in the next Senate meeting for approval. However, till that time any request for bilateral co-supervision shall be dealt as per the provisions of the policy approved in-principle in this Senate.
- d. The policy shall be applied and implemented w.e.f. Academic Year 2026-27 (AY 2026-27) onward.
- e. The finalized policy shall be disseminated to all departments, sections through the Dean (Research and Innovation).

Item no. 37.08	To consider and approve revision in the minimum marks required to pass any Course of UG / PG Program at the Institute, Provisions for Re- Mid/End Sem Exams, Grading, etc.
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Resolution: S-37/08: The Senate APPROVED the following:

- a. The revised minimum passing marks of 34 marks (with minimum 18 marks in Formative Assessment and minimum 16 marks in Summative Assessment) shall be applicable uniformly to all UG (B.Tech) and PG (M.Tech/MBA) programs under the NEP Ordinance.
- b. The provisions for Re-Mid/End Semester examinations shall be applicable only in cases of hospitalization or death of immediate family member, supported by documentary evidence, with requests made within seven days of missing the examination.
- c. The Guided Relative Grading framework as detailed in the agenda note shall govern grade assignment, with A+ grades awarded for marks ≥ 81 , D grades for marks between and including 34 to 40, and relative grading applied for marks 41 to 80 out of 100.

Item no. 37.09	To initiate the process for nomination of three persons on the Senate of IIITA, as per clause 16(1)(g) of IIIT Act 2014, and as per the prevailing practice
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During the discussion, the Secretary Senate informed the Senate that one Senator had communicated (with copy to all Senators) requesting that this agenda item be dropped from consideration. Whereas, the Senate acknowledged that the current co-opted experts have been actively participating in the Senate meetings and their contributions are well-appreciated the discussions on the agenda continued.

A few Senators proposed to extend the tenure of the co-opted experts by full term. The Senate unanimously decided to extend the tenure of the current co-opted members rather than initiating a fresh nomination process, subject to their written consent.

Resolution: S-37/09: The Senate APPROVED the following:

- a. The current experts co-opted as members of the Senate under Section 16(1)(g) of the IIIT Act 2014 should be offered another full term of two years as Senate members under the same section, subject to their written consent to continue. The institute shall formally communicate to the experts in this regard within a time-frame, as decided by the Director.
- b. In the event that any of the current expert(s) do not wish to continue, a fresh process of nomination shall be initiated only for the vacancy position(s) created thereof, following the procedure outlined in the agenda note.
- c. The Senate APPROVED the procedure for nomination of co-opted members as presented in the agenda note of this agenda item.

Items for Reporting and Ratification

Item no. 37.10	To report the resolutions in respect of Institute's academic hours, policy on allowing students for enrolling courses through NPTEL and other online platforms, Conduction of back paper exams, Allotment mechanism for Electives / MDMs, etc.
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Resolution: S-37/10: The Senate noted resolutions in respect of Institute's academic hours, policy on allowing students for enrolling courses through NPTEL and other online platforms, Conduction of back paper exams, Allotment mechanism for Electives / MDMs, etc.

Item no. 37.11	To ratify the Schema for allotting Course Codes to various Courses of UG, PG as well as PhD Programs of the Institute.
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Resolution: S-37/11: The Senate ratified the Schema for allotting Course Codes to various Courses of UG, PG as well as PhD Programs of the Institute.

Item no. 37.12	To report the modification in LTPS Structure of Physical Education Course
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Resolution: S-37/12: The Senate ratified the modification in LTPS Structure of Physical Education Course.

Item no. 37.13	To report the seat distribution for all B.Tech, M.Tech and MBA programs including Dual-Degree programs.
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Resolution: S-37/13: The Senate ratified the seat distribution for all B.Tech, M.Tech and MBA programs including Dual-Degree programs, as detailed in **Annexure 37.13** [Page No. 129 to 134]

Item no. 37.14	To report the change in the order of courses offered in the minor basket in Medical Diagnostics and Therapeutic Technology
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Resolution: S-37/14: The Senate noted the change in the order of courses offered in the minor basket in Medical Diagnostics and Therapeutic Technology.

Item no. 37.15	Any Other Item with the permission of the Chair.
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Item No. 37.15[S1]: To consider and approve the Credit Transfer Program through European Union ERASMUS+ Fully Funded Programme between Indian Institute of Information Technology, Allahabad and University of Ostrava, Czech Republic for Smooth Credit Transfer Procedures and Exchange

The Senate was apprised that an MoU (Memorandum of Understanding) has been executed between Indian Institute of Information Technology, Allahabad (IIITA) and University of Ostrava, Czech Republic, under the European Union ERASMUS+ Fully Funded Programme for student mobility while maintaining the degree continuity at IIITA. The critical requirement for enabling seamless credit transfer is the standardization of

grade conversion between the grading systems used by both institutions. Each institution maintains distinct grading scales and evaluation criteria that must be harmonized to ensure academic equivalence and fairness.

Resolution: S-37/15[S1]: The Senate APPROVED the following:

- A. The Credit Transfer Program through the European Union ERASMUS+ Fully Funded Programme between IIIT, Allahabad and University of Ostrava, Czech Republic, enabling B.Tech students to study for one semester at University of Ostrava, and transfer the earned academic credits from University of Ostrava to their IIITA degree program.
- B. The adoption of grade mapping framework to be applied to such students, as detailed in Annexure 37.15(S1), which establishes the conversion scale between the grade systems of University of Ostrava and IIIT, Allahabad.
- C. All credits earned by IIITA students at University of Ostrava, when converted using the approved grade mapping, shall be recognized and recorded on the student's IIITA transcript and shall be considered towards the degree requirements of the B.Tech program including the SGPI/ CGPI calculations.

Item No. 37.15[S2] : To consider and approve Dual Degree M.Tech-Ph.D program for M.Tech in Biomedical Analytics and Engineering program.

The Senate was apprised by the Dean (Academic Affairs) that the Department of Applied Sciences has proposed reserving an appropriate number of seats in the M.Tech Biomedical Analytics and Engineering program for a Dual Degree M.Tech-Ph.D program in Biomedical Analytics and Engineering, similar to existing Dual Degree M.Tech-Ph.D programs in other departments. The proposal sought Senate approval to commence admissions to this dual degree program from Academic Year 2026-27. HoD (AS) requested the Senate to consider the similar approval for M.Tech Quantum Information and Technologies program.

During the deliberations, one Senator brought to the notice of the Senate that the Dual Degree M.Tech-Ph.D in Biomedical Analytics and Engineering would constitute a separate and distinct program and, therefore, approval of the Board of Governors (BoG) would be mandatory before commencement, in accordance with institutional governance protocols.

Prof. Gadre, in his capacity as Chairperson of the PG Program Review Committee and as a Senator, made a broader strategic recommendation to the Senate. He suggested that rather than addressing individual department's proposals in isolation, the Senate should develop comprehensive, institution-wide frameworks that would enable:

- a. M.Tech-Ph.D / MBA-Ph.D movement: Students enrolled in M.Tech or MBA programs should be able to transit to corresponding Dual Degree M.Tech-Ph.D or MBA-Ph.D programs
- b. B.Tech-M.Tech movement: Students enrolled in B.Tech programs should be able to transit to corresponding Dual Degree B.Tech-M.Tech programs

The Senate acknowledged that developing such frameworks would help students to exercise the choice of integrated learning pathways, in their academic journey within the framework established by the Institute, after their entry in the Institute at UG/PG program.

Resolution R. No. S-37.15[S2]: The Senate RESOLVED the following:

- A. The Senate recommended the M.Tech-Ph.D Dual Degree for Biomedical Analytics and Engineering to the BoG. Further, the Senate directed HoDs to initiate deliberations within their respective departments and, wherever applicable, across departments to develop formal mechanisms and procedures encompassing, but not limited to, eligibility, schedules for enrolment, academic performance thresholds for movement including qualifying examination, curriculum and credit recognition for continuity, resource allocation, grade card & transcript management, degree conferment and funding, if any for:
 - a. Student progression from M.Tech programs to Dual Degree M.Tech-Ph.D programs and from MBA programs to Dual Degree MBA-Ph.D programs
 - b. Student progression from B.Tech programs to Dual Degree B.Tech-M.Tech programs
- B. All Heads of Departments shall submit their departmental proposals for student movement mechanisms to the Dean (Academic Affairs) within four weeks of this Senate approval.
- C. The Dean (Academic Affairs), in consultation with all Heads of Departments, shall jointly formalize and synthesize institution-wide framework or student movement to dual-degree programs in the next Senate meeting for detailed consideration and formal recommendation to the Board of Governors for approval.

The meeting ended with a Vote of Thanks to the Chair and Members.


(Dr. Mandar S. Karyakarte)
Secretary Senate, IIIT Allahabad


(Prof. Mukul S. Sutaone)
Chairman Senate, IIIT Allahabad

ANNEXURES

Minutes of the 37th Meeting of Senate
(Held on April 30, 2026)

NOTE

Subject: Reduction of Load in the B.Tech 1st Semester: Offering Engineering Physics and Linear Algebra courses in first and second semester.

It has been observed over the years that commencement of the classes for BTech first semester students is delayed due to late reporting. The normal Odd Semester for the BTech **III**, **V**, and **VII Semester** starts by the end of July while B.Tech **I Semester** classes begin by August end. Practically one month of teaching is lost.

To compensate for this loss of time additional classes are held during Saturday and Sunday and the winter vacation is reduced to less than a week so that the classes are in sync with the rest of the students from the **II Semester** onward. This accelerated, compressed schedule and semester has a toll on the fresh students. This leads to poor performance in courses like **Engineering Physics** and **Linear Algebra** where the number of **Fails** and **Drops** are maximum. These fresh students come from a different environment and require time to adjust. In addition to this, the laboratory for **Engineering Physics** course is not designed to cater to this large volume of students.

The following is proposed to address the aforesaid challenges. The academic load in the first semester may be reduced by offering **Engineering Physics** and **Linear Algebra** in, both, **I** and **II semesters**. BTech (IT) **I semester** would be offered **Linear Algebra** while **Engineering Physics** course would be taught to the rest of the first year batch (BTech -IT-BIn, Dual degree students and BTech ECE) students. These courses would be **swapped** in the **II semester**. This would disperse the first semester load and reduce load on the Physics laboratory.

Branch Change:

After Completion of the **I Semester**, Branch Change is allowed if there is a vacancy in the Branch. Based on the choice of branch change and the student performance (SGPI) the vacant slots are allowed to be filled. Such students, allowed for Branch Change, who have cleared **Engineering Physics** in their **I Semester** (Section C & D) will study **Linear Algebra** with their Previous Semester Section, while other subjects will be with their new Branch change Section. (Please refer to the attached Table)

Time Table Management:

The subjects: a) **Engineering Physics** and b) **Linear Algebra** will be offered in both the **I** and **II Semester**. The Time-Table slot for both these subjects may be kept at the same time since the students who will take the former will not take the later and vis-a-versa. The decision to arrange the time slot be left to the Time Table preparation committee keeping the above view in mind.

Submitted for kind consideration

Chairman Senate

Secretary
Senate
for N.A.
[Signature]

OK - Please share with
Secretary - Senate
for including in the
37th Senate.
[Signature]
21.4.26

[Signature]
20/4/2026
Dean Academic Affairs

**B.Tech-IT, B.Tech-IT(BIn),
Dual Degree B.Tech-IT - M.Tech-IT and
Dual Degree B.Tech-IT(BIn)-MBA
(Sections: A, B, C1, C2 & C3)
2026**

Semester 1					
Total Credit: Change from 20 to 16.					
Sl. No.	Course Name	Code	Type	Credit	Hours L-T-P-S
1	Engineering Physics (For Sec. C)		BSC	4	3-0-2-0
2	Linear Algebra (For Sec. A & B)		BSC	4	3-1-0-0
3	Problem Solving with Programming		ESC / VSEC	5	3-0-4-0
4	Fundamentals of Electrical & Electronics Engineering		ESC	4	3-0-2-0
5	Technical Communication Skills		HSMC (AEC)	2	1-0-2-0
6	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Universal Human Values				
	Professional Ethics				
	Art of Living				
Total Credit & Hours before the Change:				20	14+1+10+0=25
Total Credit & Hours After the Change:				16	11+1+8+0=20

Semester 2					
Total Credit: Change from 20 to 24.					
Sl. No.	Course Name	Code	Type	Credit	Hours L-T-P-S
1	Discrete Mathematical Structures		PCC	4	3-0-2-0
2	Computer Organization and Architecture		PCC	4	3-0-2-0
3	Data Structures and Algorithms		PCC	4	0-0-4-0
4	Web Development		VSEC	2	3-1-0-0
5	Principles of Data Communication (For B.Tech-IT & Dual Degree B.Tech-MTech-IT)		ESC	3	3-0-0-0
5	Business Informatics and FinTech (For B.Tech-IT (B.In) & Dual Degree B.Tech-IT(BIn)-MBA)		PCC	3	3-0-0-0
6	Principles of Management		HSMC (AEC)	2	1-0-2-0
7	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Environmental Studies				
	Professional Ethics				
	Physical Education (Sports)				
1	Engineering Physics (For Sec. A, B & Branch Change students from IT to ECE)		BSC	4	3-0-2-0
2	Linear Algebra (For Sec. C1, C2, C3 & Branch Change students from Sec. C to IT)		BSC	4	3-1-0-0
Total Credit & Hours before the Change:				20	14+1+10+1=26
Total Credit & Hours After the Change:				25	17+1+12+1=31

Programme	SECTIONS	Max Student	Max Student
B.Tech-IT	Sec. A	307	154
B.Tech-IT	Sec. B		153
		307	307
Total B.Tech Student Intake in 2026:		307	571

**B.Tech-ECE and
Dual Degree B.Tech-ECE - M.Tech-ECE
(Sections: C4 & D)
2026**

Semester 1					
Total Credit: Change from 20 to 16.					
Sl. No.	Course Name	Code	Type	Credit	Hours L-T-P-S
1	Engineering Physics (For Sec. C & D)		BSC	4	3-0-2-0
2	Linear Algebra		BSC	4	3-1-0-0
3	Problem Solving with Programming		ESC/V SEC	5	3-0-4-0
4	Fundamentals of Electrical & Electronics Engineering		ESC	4	3-0-2-0
5	Technical Communication Skills		HSMC (AEC)	2	1-0-2-0
6	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Universal Human Values				
	Professional Ethics				
	Art of Living				
Total Credit & Hours before the Change:				20	14+1+10+0=25
Total Credit & Hours After the Change:				16	11+0+10+0=19

Semester 2					
Total Credit: Change from 22 to 26.					
Sl. No.	Course Name	Code	Type	Credit	Hours L-T-P-S
1	Electronic Workshop		PCC	2	0-0-4-0
2	Digital Logic Design with HDL		PCC	3	2-0-2-0
3	Electronic Devices and Circuits		VSEC	3	2-0-2-0
4	Electronics Measurements and Instrumentations		PCC	3	2-0-2-0
5	Data Structures and Algorithms		ESC	4	3-0-2-0
6	Network Synthesis & Analog Filters			3	2-1-0-0
7	Principles of Management		HSMC (AEC)	2	1-0-2-0
8	Constitution of India		HSMC (VEC)	2	1-0-0-1
	Environmental Studies				
	Professional Ethics				
	Physical Education (Sports)				
2	Linear Algebra (For Sec. C4, D & Branch Change students from ECE to IT)		BSC	4	3-1-0-0
Total Credit & Hours before the Change:				22	13+1+14+1=29
Total Credit & Hours After the Change:				26	16+2+14+1=33

Programme	SECTIONS	Max Student	Max Student
Dual Degree B.Tech-IT - MTech-IT	C1	29	113
B.Tech-IT (BIn)	C2	46	
Dual Degree B.Tech-IT(BIn)-MBA	C3	25	
Dual Degree B.Tech-ECE - M.Tech-ECE	C4	13	
B.Tech-ECE	Sec. D	151	151
		264	264

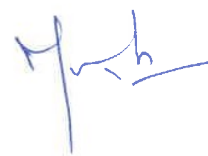
Department of Information Technology
IIIT-Allahabad

M.Tech-IT Programs with Specialization

1. Data Engineering
2. Artificial Intelligence and Machine Learning
3. Cyber Laws and Information Security
4. Robotics and Artificial Intelligence
5. Software Engineering and Automation
6. Human Machine Interaction and Immersive Technologies
7. Network Systems and Computing

Type of Courses

Programme Core Course (PCC)
Programme Elective Course (PEC)
Open/School Elective (OE/SE) other than particular program
Multidisciplinary Minor (MDM)
Vocational and Skill Enhancement Course (VSEC)
Ability Enhancement Course (AEC-01)
Indian Language (AEC-02)
Entrepreneurship/Economics/ Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Internship
Dissertation/Thesis
Community Engagement Activity (CEA)/Field Project
Co-curricular & Extracurricular Activities (CCA)



M. Tech. (IT) with Specialization in <xyz> [Template]

First Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Mathematics for IT		PCC	4	3-0-2-0
2.	Programming Practices		PCC	4	2-0-4-0
3.	Machine Learning		PCC	4	3-0-2-0
4.	CORE-1		PCC	4	3-0-2-0
6.	AI Tools for Research		ELC	3	0-1-4-0
8	Research Methodology & IPR (only for Dual MTech-PhD)		ELC	2	2-0-0-0
Total Semester Credit:				19/21	11-1-14-0 13-1-14-0 26 Hrs./week 28 Hrs./week

Second Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Core-2		PCC	4	3-0-2-0
2.	Core-3		PCC	4	3-0-2-0
3.	Elective - 1		PEC	3	3-0-0-0
4.	Dissertation-I		ELC	3	0-0-6-0
5.	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Environmental Studies				
	Professional Ethics				
	Physical Education(Sports)				
6	Independent Study # (only for Dual MTech-PhD)		PEC	3	0-0-0-3
Total Semester Credit:				15/18	10-0-10-0 10-0-10-3 20 Hrs./week 23Hrs./week

Exit: After successful completion of one year (first two semesters), students may get **PG Diploma**. They need to earn 6 credits additional, in summer, before exit.

Dual M.Tech-Ph.D : After the end of II Semester the M.Tech-PhD student moves into the Ph.D part of the Degree and will be henceforth governed by the Ph.D ordinance.

Area Specific Depth of research domain advised by the Supervisor



Third Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Core-4		PCC	4	3-0-2-0
2.	Elective-2		PEC	3	3-0-0-0
3.	Elective - 3 (MOOC Course based on Thesis Theme advised by Supervisor from NPTEL/SWAYAM)		PEC	3	0-0-0-3
4.	Dissertation-II		ELC	5	0-0-10-0
Total Semester Credit:				15	6-0-12-3 21 Hrs./week

Fourth Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Thesis		ELC	15	0-0-30-0
Total Semester Credit:				15	0-2-26-0 28 Hrs./week
Cumulative Degree Credits				64	

List of Electives

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.					
2.					
3.					
4.					

M. Tech. (IT) with Specialization in Data Engineering

First Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Mathematics for IT		PCC	4	3-0-2-0
2.	Programming Practices		PCC	4	2-0-4-0
3.	Machine Learning		PCC	4	3-0-2-0
4.	Advanced Data Analytics		PCC	4	3-0-2-0
6.	AI Tools for Research		ELC	3	0-1-4-0
8	Research Methodology & IPR (only for Dual MTech-PhD)		ELC	2	2-0-0-0
Total Semester Credit:				19/21	11-1-14-0 13-1-14-0 26 Hrs./week 28 Hrs./week

Second Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Deep Generative Models		PCC	4	3-0-2-0
2.	Big Data Analytics		PCC	4	3-0-2-0
3.	Elective - 1		PEC	3	3-0-0-0
4.	Dissertation-I		ELC	3	0-0-6-0
5.	HSMC-1		HSMC VEC)	1	1-0-0-0
6	Independent Study # (only for Dual MTech-PhD)		PEC	3	0-0-0-3
Total Semester Credit:				15/18	10-0-10-0 10-0-10-3 20 Hrs./week 23Hrs./week

Exit: After successful completion of one year (first two semesters), students may get **PG Diploma**. They need to earn 6 credits additional, in summer, before exit.

Dual M.Tech-Ph.D : After the end of II Semester the M.Tech-PhD student moves into the Ph.D part of the Degree and will be henceforth governed by the Ph.D ordinance.

Area Specific Depth of research domain advised by the Supervisor

Third Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	High Performance Computing		PCC	4	3-0-2-0
2.	Elective-2		PEC	3	3-0-0-0
3.	Elective - 3 (MOOC Course based on Thesis Theme advised by Supervisor from NPTEL/SWAYAM)		OEC	3	0-0-0-3
3.	Dissertation-II		ELC	5	0-0-10-0
Total Semester Credit:				15	6-0-12-3 21 Hrs./week

Fourth Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Thesis		ELC	15	0-2-26-0
Total Semester Credit:				15	0-2-26--0 28 Hrs./week
Cumulative Degree Credits				64	

List of Electives

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.					
2.					
3.					
4.					

M/neh

M. Tech. (IT) with Specialization in Artificial Intelligence and Machine Learning

First Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Mathematics for IT		PCC	4	3-0-2-0
2.	Programming Practices		PCC	4	2-0-4-0
3.	Machine Learning		PCC	4	3-0-2-0
4.	Multimodal Data Processing		PCC	4	3-0-2-0
6.	AI Tools for Research		ELC	3	0-1-4-0
8	Research Methodology & IPR (only for Dual MTech-PhD)		ELC	2	2-0-0-0
Total Semester Credit:				19/21	11-1-14-0 13-1-14-0 26 Hrs./week 28 Hrs./week

Second Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Deep Learning		PCC	4	3-0-2-0
2.	Probabilistic Machine Learning		PCC	4	3-0-2-0
3.	Elective - 1		PEC	3	3-0-0-0
4.	Dissertation-I		ELC	3	0-0-6-0
5.	HSMC-1		HSMC VEC)	1	1-0-0-0
6	Independent Study # (only for Dual MTech-PhD)		PEC	3	0-0-0-3
Total Semester Credit:				15/18	10-0-10-0 10-0-10-3 20 Hrs./week 23Hrs./week

Exit: After successful completion of one year (first two semesters), students may get **PG Diploma**. They need to earn 6 credits additional, in summer, before exit.

Dual M.Tech-Ph.D : After the end of II Semester the M.Tech-PhD student moves into the Ph.D part of the Degree and will be henceforth governed by the Ph.D ordinance.



Area Specific Depth of research domain advised by the Supervisor

Third Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Reinforcement Learning and Autonomous Agents		PCC	4	3-0-2-0
2.	Elective-2		PEC	3	3-0-0-0
3.	Elective - 3 (MOOC Course based on Thesis Theme advised by Supervisor from NPTEL/SWAYAM)		OEC	3	0-0-0-3
3.	Dissertation-II		ELC	5	0-0-10-0
Total Semester Credit:				15	6-0-12-3 21 Hrs./week

Fourth Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Thesis		ELC	15	0-2-26-0
Cumulative of 51 Credits +Total Semester Credit:				15	0-2-26--0 28 Hrs./week
Cumulative Degree Credits				64	

List of Electives

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.					
2.					
3.					
4.					

M/26

M. Tech. (IT) with Specialization in Cyber Laws and Information

Security

First Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Mathematics for IT		PCC	4	3-0-2-0
2.	Programming Practices		PCC	4	2-0-4-0
3.	Machine Learning		PCC	4	3-0-2-0
4.	Introduction to Cryptography		PCC	4	3-0-2-0
6.	AI Tools for Research		ELC	3	0-1-4-0
8	Research Methodology & IPR (only for Dual M.Tech-PhD)		ELC	2	2-0-0-0
Total Semester Credit:				19/21	11-1-14-0 13-1-14-0 26 Hrs./week 28 Hrs./week

Second Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Information Security Laws and Regulations		PCC	4	3-0-2-0
2.	Network Security		PCC	4	3-0-2-0
3.	Elective - 1		PEC	3	3-0-0-0
4.	Dissertation-I		ELC	3	0-0-6-0
5.	HSMC-1		HSMC VEC)	1	1-0-0-0
6	Independent Study (only for Dual M.Tech-PhD)		PEC	3	0-0-0-3
Total Semester Credit:				15/18	10-0-10-0 10-0-10-3 20 Hrs./week 23Hrs./week

Exit: After successful completion of one year (first two semesters), students may get **PG Diploma**. They need to earn 6 credits additional, in summer, before exit.

Dual M.Tech-Ph.D : After the end of II Semester the M.Tech-PhD student moves into the Ph.D part of the Degree and will be henceforth governed by the Ph.D ordinance.

Area Specific Depth of research domain advised by the Supervisor

Third Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Cyber Physical System Security		PCC	4	3-0-2-0
2.	Elective-2		PEC	3	3-0-0-0
3.	Elective - 3 (MOOC Course based on Thesis Theme advised by Supervisor from NPTEL/SWAYAM)		OEC	3	0-0-0-3
3.	Dissertation-II		ELC	5	0-0-10-0
Total Semester Credit:				15	6-0-12-3 21 Hrs./week

Fourth Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Thesis	PC-IT-THB605	ELC	15	0-2-26-0
Total Semester Credit:				15	0-2-26-0 28 Hrs./week
Cumulative Degree Credits				64	

List of Electives

	Course Name	Code PE-IT-xxx60x	Type	Credit	Hours
					L-T-P-S
1.					
2.					
3.					
4.					

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M. Tech. (IT) with Specialization in Robotics and Artificial Intelligence

First Semester

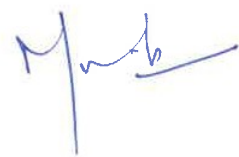
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Mathematics for IT		PCC	4	3-0-2-0
2.	Programming Practices		PCC	4	2-0-4-0
3.	Machine Learning		PCC	4	3-0-2-0
4.	Robot Motion Control		PCC	4	3-0-2-0
6.	AI Tools for Research		ELC	3	0-1-4-0
8	Research Methodology & IPR (only for Dual MTech-PhD)		ELC	2	2-0-0-0
Total Semester Credit:				19/21	11-1-14-0 13-1-14-0 26 Hrs./week 28 Hrs./week

Second Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Mathematical Foundation of Robotics		PCC	4	3-0-2-0
2.	Humanoid and Collaborative Robots		PCC	4	3-0-2-0
3.	Elective - 1		PEC	3	3-0-0-0
4.	Dissertation-I		ELC	3	0-0-6-0
5.	HSMC-1		HSMC VEC)	1	1-0-0-0
6	Independent Study # (only for Dual MTech-PhD)		PEC	3	0-0-0-3
Total Semester Credit:				15/18	10-0-10-0 10-0-10-3 20 Hrs./week 23Hrs./week

Exit: After successful completion of one year (first two semesters), students may get **PG Diploma**. They need to earn 6 credits additional, in summer, before exit.

Dual M.Tech-Ph.D : After the end of II Semester the M.Tech-PhD student moves into the Ph.D part of the Degree and will be henceforth governed by the Ph.D ordinance.



Area Specific Depth of research domain advised by the Supervisor

Third Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Reinforcement Learning and Autonomous Agents		PCC	4	3-0-2-0
2.	Elective-2		PEC	3	3-0-0-0
3.	Elective - 3 (MOOC Course based on Thesis Theme advised by Supervisor from NPTEL/SWAYAM)		OEC	3	0-0-0-3
3.	Dissertation-II		ELC	5	0-0-10-0
Total Semester Credit:				15	6-0-12-3 21 Hrs./week

Fourth Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Thesis		ELC	15	0-2-26-0
Total Semester Credit:				15	0-2-26--0 28 Hrs./week
Cumulative Degree Credits				64	

List of Electives

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.					
2.					
3.					
4.					

M. S. S.

M. Tech. (IT) with Specialization in Software Engineering and Automation

First Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Mathematics for IT		PCC	4	3-0-2-0
2.	Programming Practices		PCC	4	2-0-4-0
3.	Machine Learning		PCC	4	3-0-2-0
4.	Advanced Software Engineering		PCC	4	3-0-2-0
6.	AI Tools for Research		ELC	3	0-1-4-0
8	Research Methodology & IPR (only for Dual MTech-PhD)		ELC	2	2-0-0-0
Total Semester Credit:				19/21	11-1-14-0 13-1-14-0 26 Hrs./week 28 Hrs./week

Second Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Software Design and Architecture		PCC	4	3-0-2-0
2.	DevOps Tools and Practices		PCC	4	3-0-2-0
3.	Elective - 1		PEC	3	3-0-0-0
4.	Dissertation-I		ELC	3	0-0-6-0
5.	HSMC-1		HSMC VEC)	1	1-0-0-0
6	Independent Study # (only for Dual MTech-PhD)		PEC	3	0-0-0-3
Total Semester Credit:				15/18	10-0-10-0 10-0-10-3 20 Hrs./week 23Hrs./week

Exit: After successful completion of one year (first two semesters), students may get **PG Diploma**. They need to earn 6 credits additional, in summer, before exit.

Dual M.Tech-Ph.D : After the end of II Semester the M.Tech-PhD student moves into the Ph.D part of the Degree and will be henceforth governed by the Ph.D ordinance.

Area Specific Depth of research domain advised by the Supervisor

Third Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Software Testing and Automation		PCC	4	3-0-2-0
2.	Elective-2		PEC	3	3-0-0-0
3.	Elective - 3 (MOOC Course based on Thesis Theme advised by Supervisor from NPTEL/SWAYAM)		OEC	3	0-0-0-3
3.	Dissertation-II		ELC	5	0-0-10-0
Cumulative of 35 Credits +Total Semester Credit:				15	6-0-12-3 21 Hrs./week

Fourth Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Thesis		ELC	15	0-2-26-0
Cumulative of 51 Credits +Total Semester Credit:				15	0-2-26-0 28 Hrs./week
Cumulative Degree Credits				64	

List of Electives

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.					
2.					
3.					
4.					



M. Tech. (IT) with Specialization in Human Machine Interaction and Immersive Technologies

First Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Mathematics for IT		PCC	4	3-0-2-0
2.	Programming Practices		PCC	4	2-0-4-0
3.	Machine Learning		PCC	4	3-0-2-0
4.	Interaction Design and UX/UI Principles		PCC	4	3-0-2-0
6.	AI Tools for Research		ELC	3	0-1-4-0
8	<u>Research Methodology & IPR -1</u> (only for Dual MTech-PhD)		ELC	2	2-0-0-0
Total Semester Credit:				19/21	11-1-14-0 13-1-14-0 26 Hrs./week 28 Hrs./week

Second Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Cognition and Cognitive Process Modeling		PCC	4	3-0-2-0
2.	Advanced Graphics and Animation		PCC	4	3-0-2-0
3.	Elective - 1		PEC	3	3-0-0-0
4.	Dissertation-I		ELC	3	0-0-6-0
5.	HSMC-1		HSMC VEC)	1	1-0-0-0
6	<u>Independent Study</u> # (only for Dual MTech-PhD))		PEC	3	0-0-0-3
Total Semester Credit:				15/18	10-0-10-0 10-0-10-3 20 Hrs./week 23Hrs./week

Exit: After successful completion of one year (first two semesters), students may get **PG Diploma**. They need to earn 6 credits additional, in summer, before exit.

Dual M.Tech-Ph.D : After the end of II Semester the M.Tech-PhD student moves into the Ph.D part of the Degree and will be henceforth governed by the Ph.D ordinance.

Area Specific Depth of research domain advised by the Supervisor

Third Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Virtual and Augmented Reality Systems		PCC	4	3-0-2-0
2.	Elective-2		PEC	3	3-0-0-0
3.	Elective - 3 (MOOC Course based on Thesis Theme advised by Supervisor from NPTEL/SWAYAM)		OEC	3	0-0-0-3
3.	Dissertation-II		ELC	5	0-0-10-0
Cumulative of 35 Credits +Total Semester Credit:				15	6-0-12-3 21 Hrs./week

Fourth Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Thesis		ELC	15	0-2-26-0
Total Semester Credit:				15	0-2-26-0 28 Hrs./week
Cumulative Degree Credits				64	

List of Electives

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.					
2.					
3.					
4.					

M/ach

M. Tech. (IT) with Specialization in Network Systems and Computing

First Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Mathematics for IT		PCC	4	3-0-2-0
2.	Programming Practices		PCC	4	2-0-4-0
3.	Machine Learning		PCC	4	3-0-2-0
4.	Advanced Computer Networks		PCC	4	3-0-2-0
6.	AI Tools for Research		ELC	3	0-1-4-0
8	<u>Research Methodology & IPR -1</u> (only for Dual MTech-PhD)		ELC	2	2-0-0-0
Total Semester Credit:				19/21	11-1-14-0 13-1-14-0 26 Hrs./week 28 Hrs./week

Second Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Cloud and Edge Computing		PCC	4	3-0-2-0
2.	Wireless and Mobile Networks		PCC	4	3-0-2-0
3.	Elective - 1		PEC	3	3-0-0-0
4.	Dissertation-I		ELC	3	0-0-6-0
5.	HSMC-1		HSMC VEC)	1	1-0-0-0
6	<u>Independent Study</u> # (only for Dual MTech-PhD)		PEC	3	0-0-0-3
Total Semester Credit:				15/18	10-0-10-0 10-0-10-3 20 Hrs./week 23Hrs./week

Exit: After successful completion of one year (first two semesters), students may get **PG Diploma**. They need to earn 6 credits additional, in summer, before exit.

Dual M.Tech-Ph.D : After the end of II Semester the M.Tech-PhD student moves into the Ph.D part of the Degree and will be henceforth governed by the Ph.D ordinance.

Area Specific Depth of research domain advised by the Supervisor



Third Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	IoT and Cyber Physical Systems		PCC	4	3-0-2-0
2.	Elective-2		PEC	3	3-0-0-0
3.	Elective - 3 (MOOC Course based on Thesis Theme advised by Supervisor from NPTEL/SWAYAM)		OEC	3	0-0-0-3
3.	Dissertation-II		ELC	5	0-0-10-0
Total Semester Credit:				15	6-0-12-3 21 Hrs./week

Fourth Semester

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Thesis		ELC	15	0-2-26-0
Total Semester Credit:				15	0-2-26-0 28 Hrs./week
Cumulative Degree Credits				64	

List of Electives

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.					
2.					
3.					
4.					



Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

M.Tech-ECE Programs with Specialization in

- 1. Microelectronics and VLSI (Credits: 64)**
 - 2. Communication and Signal Processing (Credits: 64)**
- (With effect from July 2026 batch)**

NEP-2020- New Education Policy- 2020

L-T-P (hr)

Lecture-L: 1 Credit = 1 hr/ week

Tutorial-T: 1 Credit = 1 hr/week

Practical-P: 1 Credit = 2 hr/week

Self Study: 1 Credit = 1 hr/week

1. Degree: M.Tech ECE
2. Duration: The total duration of the program will be 2 years.

Type of Courses

Programme Core Course (PCC)
Programme Elective Course (PEC)
Open/School Elective (OE/SE) other than particular program
Multidisciplinary Minor (MDM)
Vocational and Skill Enhancement Course (VSEC)
Ability Enhancement Course (AEC-01)
Indian Language (AEC-02)
Entrepreneurship/Economics/ Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Internship
Dissertation/Thesis
Community Engagement Activity (CEA)/Field Project
Co-curricular & Extracurricular Activities (CCA)

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

M. TECH ECE- Microelectronics & VLSI

Semester 1					Total Credit: 19/21*
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Digital System Design		PCC	4	3-0-2-0
2	VLSI Technology		PCC	4	3-0-2-0
3	Solid State Devices		PCC	4	3-0-2-0
4	Embedded System Design		PCC	4	3-0-2-0
5	Tools and Techniques for Research Practices		ELC	3	0-1-4-0
6	Research Methodology & IPR <i>(Only for Dual M.Tech-PhD)</i>		ELC	2	2-0-0-0
Total				19/21*	12-1-12-0
				(*For Dual M. Tech-PhD)	14-1-12-0
					25 Hrs./Week
					27 Hrs./Week

Semester 2					Total Credit: 15/18*
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Testing and Verification		PCC	4	3-0-2-0
2	Analog Integrated Circuit Design		PCC	4	3-0-2-0
3	Elective - 1		PEC	3	3-0-0-0
4	Dissertation-I		ELC	3	0-0-6-0
5	HSMC		HSMC (VEC)	1	1-0-0-0
6	Independent Study# <i>(Only for Dual M.Tech-PhD)</i>		ELC	3	0-0-0-3
Total				15/18*	10-0-10-0
				(*For Dual M. Tech-PhD)	10-0-10-3
					20 Hrs./Week
					23 Hrs./Week

Exit: After successful completion of first two semesters, students may get a **PG Diploma**. They need to earn an additional 6 credits in the summer before exit.

Dual M.Tech-Ph.D: After the end of the Second Semester, the M.Tech-PhD student moves into the PhD part of the Degree and will be henceforth governed by the PhD ordinance.

Area Specific Depth of research domain advised by the Supervisor.

Indian Institute of Information Technology Allahabad
Department of Electronics and Communication Engineering

Semester 3					Total Credit: 15
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Elective – 2		PEC	3	3-0-0-0
2	Elective – 3		PEC	3	3-0-0-0
3	Elective – 4###		PEC	3	0-0-0-3
4	Dissertation-II		ELC	6	0-0-12-0
				Total	15
					6-0-12-3
					21 Hrs./Week

Course based on Thesis Theme advised by Supervisor from MOOC/NPTEL/SWAYAM approved by department

Semester 4					Total Credit: 15
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Thesis		ELC	15	0-2-26-0
				Total	15
					0-2-26-0
					28 Hrs./Week

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

M.Tech. ECE- Communication & Signal Processing

Semester 1					Total Credit: 19/21*
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Advanced Digital Communication		PCC	4	3-0-2-0
2	Statistical Signal Analysis		PCC	4	3-0-2-0
3	Radiating Systems		PCC	4	3-0-2-0
4	Introduction to Machine Learning		PCC	4	3-0-2-0
5	Tools and Techniques for Research Practices		ELC	3	0-1-4-0
6	Research Methodology & IPR <i>(Only for Dual M.Tech-PhD)</i>		ELC	2	2-0-0-0
Total				19/21* (*For Dual M. Tech-PhD)	12-1-12-0 14-1-12-0
					25 Hrs./Week 27 Hrs./Week

Semester 2					Total Credit: 15/18*
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Principles of Wireless Communications		PCC	4	3-0-2-0
2	Recent Advances in Machine Learning		PCC	4	3-0-2-0
3	Elective - 1		PEC	3	3-0-0-0
4	Dissertation-I		ELC	3	0-0-6-0
5	HSMC		HSMC (VEC)	1	1-0-0-0
6	Independent Study# <i>(Only for Dual M.Tech-PhD)</i>		ELC	3	0-0-0-3
Total				15/18* (*For Dual M. Tech-PhD)	10-0-10-0 10-0-10-3
					20 Hrs./Week 23 Hrs./Week

Exit: After successful completion of one year (first two semesters), students may get a **PG Diploma**. They need to earn an additional 6 credits in the summer before exit.

Dual M.Tech-Ph.D: After the end of the Second Semester, the M.Tech-PhD student moves into the PhD part of the Degree and will be henceforth governed by the PhD ordinance.

Area Specific Depth of research domain advised by the Supervisor.

Indian Institute of Information Technology Allahabad
Department of Electronics and Communication Engineering

Semester 3					Total Credit: 15
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Elective – 2		PEC	3	3-0-0-0
2	Elective – 3		PEC	3	3-0-0-0
3	Elective – 4##		OEC	3	0-0-0-3
4	Dissertation-II		ELC	6	0-0-12-0
Total				15	6-0-12-3
					21

Course based on Thesis Theme advised by Supervisor from MOOC/NPTEL/SWAYAM approved by department

Semester 4					Total Credit: 15
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Thesis		ELC	15	0-2-26-0
Total				15	0-2-26-0
					28



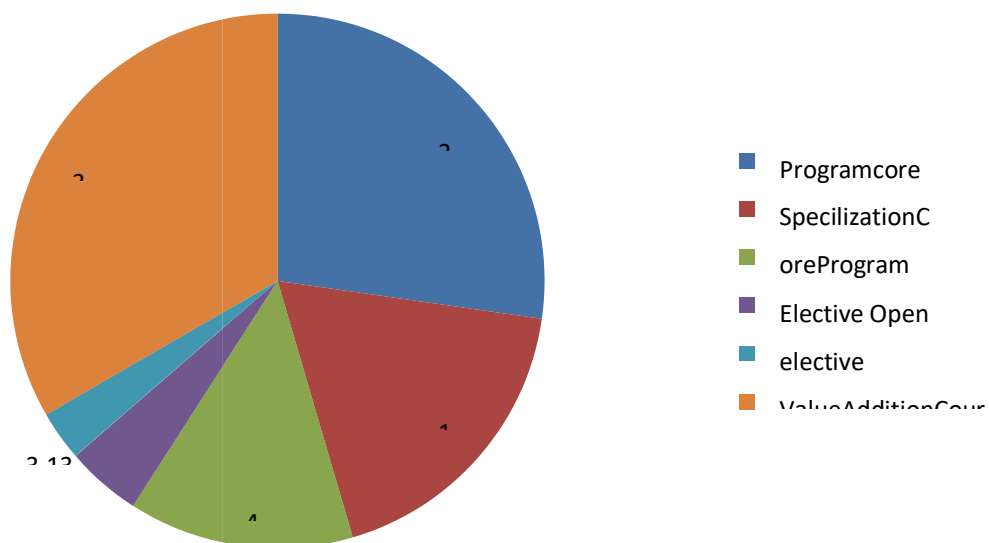
Indian Institute of Information Technology-Allahabad

Deoghat, Jhalwa-211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

M. Tech BI, Credit Distribution

M.TechBI	I	II	III	IV	Total Credits	
Program core	6	12			18	28.13%
Specialization Core	12				12	18.75%
Program Elective		3	6		9	14.06%
Open Elective			3		3	4.69%
Value Addition Course		2			2	3.13%
Thesis/Project		2	8	12	22	34.38%





Indian Institute of Information Technology-Allahabad

Deoghat, Jhalwa-211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

Table1: First Semester (M. Tech)

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	OMICS	AS501	PCC	4	3-0-2-0
2	Mathematics and Statistics for Biology	AS502	PCC	4	3-1-0-0
3.	Scripting and Computer Environments	AS503	PCC	4	2-0-4-0
4.	Data Structure and Algorithms	AS504	PCC	4	2-0-4-0
5.	Tools for Research		AEC	2	2-0-0-0
6.	Research Methodology & IPR (For PhD and MTECH- PhD only)	AS505	ELC	2	2-0-0-0
Total Credit:				18/20	24Hrs./week 6Hrs./week

Table2: Second Semester (M. Tech)

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Next-Generation Sequencing Tools and Algorithms	AS506	PCC	4	3-0-2-0
2.	Data Engineering for Molecular Structure Prediction	AS507	PCC	4	3-0-2-0
3.	Elective-1		PEC	3	3-0-0-0
4.	Dissertation I	AS517	ELE	4	0-0-8-0
5.	HSMC		VEC	2	2-0-0-0
Total Credit:				17	24 Hrs./week

EXIT: after the end of second Semester, after clearing all the papers, the M. Tech student may be eligible for PG Diploma in Bioinformatics. However, these students have to secure **additional 5 credits for receiving PG diploma, which is mandatory.**

Indian Institute of Information Technology-Allahabad

Deoghat, Jhalwa-211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

Table 3: For Exit Cases Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Project (for PG Diploma)	AS510	ELC	2	0-0-4-0
2.	Systems Biology/Cheminformatics/NPTEL (for PG Diploma)	AS612/AS608	PCC	3	3-0-0-0
Total Credit:				5	7Hrs./week 16Hrs./week

Table4: Third Semester (M. Tech)

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Program Elective II	AS601	PEC	3	3-0-0-0
2.	Program Elective III	AS602	PEC	3	3-0-0-0
3.	Open Electives	xx603	OE	3	3-0-0-0
4.	Dissertation II	AS610	ELC	8	0-0-16-0
Total Credit:				17	25 Hrs./week

In III sem, Dual Degree students have to do extra electives course /independent study (of minimum 3 credits) besides regular courses prescribed above in consultation with HOD/Supervisor to satisfy minimum credit requirement as per PhD ordinance.

Table 5: Fourth Semester (M. Tech)

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Thesis	AS605	ELC	12	0-0-24-0
Total Credit:				12	24 Hrs./week

Table 6: List of Elective

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Machine Learning for Biological Systems	AS607	PEC	3	2-0-1-0
2.	Cheminformatics	AS608	PEC	3	3-0-0-0
3.	Molecular Medicine	AS609	PEC	3	3-0-0-0
4.	Cognitive Modeling	AS610	PEC	3	3-0-0-0
5.	Advance Data Analytics	AS611	PEC	3	2-0-1-0
6.	Deep Learning	IT510	PEC	3	2-0-1-0
7.	Systems Biology	AS612	PEC	3	3-0-0-0
8.	Parallel Computing	AS613	PEC	3	3-0-0-0
9.	Pattern Recognition	IT642	PEC	3	2-0-1-0
10.	Numerical Methods	AS614	PEC	3	3-0-0-0
1	All the electives provided in M. Tech BME basket are available for M. Tech BI students also				
1	OPEN ELECTIVES				
1	Open Elective			3	

OMICS			
Semester – 1			
Subject Code	AS501	Credits	4
Course Type	PCC	Scheme (L-T-P)	3-0-2
Course Objectives	The aim of this course is to provide the fundamental knowledge of Molecular biology and Biochemistry (Genomics and Proteomics) to the students. The structure and function of various biomolecules along with the flow of genetic information will be discussed in detail.		
Course Outcomes	• The structure of genes and their regulation at molecular level will be discussed. • The student will learn how the genetic information flows in the living system and will study the structure and function of various biomacromolecules. • Various tools and techniques for recombinant protein production and their real-life applications will be deliberated. • The students will learn the principles of different biochemical laboratory techniques and will be trained to handle different wet laboratory instruments. • The practical class will include prediction and analysis of protein structures, mapping PPI networks, molecular docking, homology modeling, pathway analysis, phylogenetic analysis and RNASeq analysis.		
Content			
• Genomics: Central dogma of molecular biology, Gene structure (Regulator, Operator, Promoter, and Structural genes, Exons, Intron, and ORF) and its expression, Concepts of gene regulation, Genetic codon, Restriction enzymes and mapping, Site directed Mutagenesis, Major DNA sequencing techniques. • Transcriptomics: Transcription and post-transcriptional modifications of RNA, Tools for read mapping, identification of splicing variants and differential expression analysis, characteristics and analysis of small and long non-coding RNA, Tools available for pathways analysis, Gene Ontology, applications of Transcriptomics. • Proteomics: Translation and post-translational modifications of proteins, Basic tools and techniques for protein expression, separation and analysis, Cloning and expression plasmid, Recombinant DNA technology, Software packages and available tools for proteomics data analysis. • Analytical techniques used in Genomics, Transcriptomics and Proteomics: Agarose Gel electrophoresis, SDS-PAGE, 2D-PAGE, Blotting Techniques (Southern, Northern, Western), EMSA, PCR, RT- PCR, Immunoprecipitation, Chip-seq, RNA-seq, DNA Microarray, ELISA, Mass spectrometry, Protein microarray.			
Text Book & Reference Book			
i. Freifelder D (2012). Molecular Biology, 5th edition. Narosa Publishing House, India ii. Berg JM, Tymoczko JL, Gatto GJ and Stryer L (2015) Biochemistry, 8th Edition, WH Freeman & Co., New York. iii. Allison A. Lizabeth (2012) Fundamental Molecular Biology, 2nd Edition. J Willey and Sons, Hoboken, New Jersey. iv. Watson JD, Baker TA, Bell SP, Gann A, Levine M and Losick R (2008) Molecular Biology of the Gene, 6th edition, Cold Spring Harbour Laboratory Press, Pearson Publication. v. Principles of Proteomics (2013), Twyman, R., Garland Science, ISBN: 9780815344728			

Syllabus for M. Tech BI

Mathematics and Statistics for Biology				Semester – 1
Subject Code	AS502		Credits	4
Course Type	PCC		Scheme (L-T-P)	3-1-0
Course Objectives	The objective of this course is to equip students with basic mathematical and statistical tools necessary to analyze and interpret biological data. This course focuses on Matrices, Ordinary Differential Equations (ODEs), and Probability & Statistics.			
Course Outcomes	The students will be able to 1. Understand the basic concepts of Matrix Theory, ODE, key probability distribution and statistical tools. 2. Solve systems of linear equations and ordinary differential equations and apply key probability distributions to Biological data. 3. Analyze biological data using statistical tests. 4. Model biological data using ODE and infer the data using statistical tools.			
Content				
• Matrices: Addition, multiplication, transpose, inverse and determinant of a square matrix, Gauss Elimination Method to solve the system of linear equations, Cramer’s Rule, Rank of a matrix, Eigen Value and Eigen Vectors, Algebraic multiplicity and geometric multiplicity of an eigenvalue, Diagonalizability. • Ordinary Differential Equations (ODE): Separable first-order ODE, Exact first order ODE, Homogeneous first order ODE, • Review of the basic concepts of Probability (up to Bayes Theorem) and Statistics (Central tendencies and standard deviations) Probability Distribution functions: Binomial, Poisson and Normal distributions, Central Limit Theorem and its applications. • Sampling distribution, Estimation, Interval estimation, Confidence interval, Test of hypotheses, Z-test, t-test, the chi-square test. Correlation and Regression analyses, Correlation Coefficients, linear regression (one variable).				
Text and Reference Books				
1. Advanced Engineering Mathematics by Erwin Kreyszig. 2. Biostatistics-A Foundation for Analysis in the Health Sciences by Wayne E. Daniel and Chad L. Gross. 3. Fundamental of Biostatistics by Bernard Rosner				

Scripting and Computer Environments

Semester – 1

Subject Code	AS503		Credits	4
Course Type	PCC		Scheme (L-T-P)	2-0-4
Course Objectives	Bioinformatics is a multidisciplinary field that integrates biological science with computational techniques. This course is designed to equip students with essential skills in scripting languages, data structures, and specialized bioinformatics tools. By the end of the course, students will be proficient in using Python to effectively process and analyze biological data, enabling them to tackle real-world problems in genomics, proteomics, and other relevant areas of biological research.			
Course Outcomes	Upon completion of this course, students will be able to acquire: 1. Problem-Solving Skills: Ability to comprehend and set up approaches to solve bioinformatics related problems using programming. 2. Python Proficiency: Ability to write efficient and effective Python codes using appropriate data structures, algorithms and regular expressions to solve problems related to computational biology in general and bioinformatics in particular. 3. Object-Oriented Programming and relevant tools: Employ an object-oriented programming approach to solve problems and utilize powerful tools available such as Biopython, Pandas, and NumPy for data analysis. 4. Algorithms: Comprehend and apply key algorithms, including dynamic programming and greedy algorithms, to solve bioinformatics challenges effectively.			

Content

1. Programming basics, Functions, Modules, Collections, Control Statements, File Handling, Pattern Matching
2. Biopython, Search Tools, Online Databases, NumPy, Pandas and Matplotlib
3. Dynamic Programming for Local and Global Alignments (Smith & Waterman, Needleman & Wunsch), Multiple Sequence Alignment: Concepts & Implementations
4. Amino Acid Substitution Matrices PAM & BLOSUM Derivation of Dayhoff Matrices, Profiles & Motifs, General Tools, Techniques & Resources Clustal W, BLAST and FASTA

Text Book

1. **Bioinformatics Programming Using Python**, Mitchell L Model, O'Reilly

Reference Book

2. **Biopython Tutorial and Cookbook**, Tiago Antao *et al.*
3. **Introduction to Algorithms** by TH Cormen, *et al.*, MIT Press
4. **Molecular Modeling: Principles and Applications**, Andrew R. Leach, Prentice Hall
5. **Proteins: Structures and Molecular Properties**, Thomas E. Creighton, Freeman
6. Documentation available for various tools covered in the course such as SciPi, Pandas, *etc.*

Syllabus for M. Tech. BI

Research Methodology & IPR				
				Semester – 1
Subject Code	MS 516		Credits	2
Course Type	AEC		Scheme (L-T-P)	2-0-0
Course Objectives	The Course is designed to give an insight into the general principles of Research Methodology, Technical writing and IPR.			
Course Outcomes	• Understanding and analyzing research related data or information. • To Follow research ethics . • Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D. • Knowledge that IPR brings about, economic growth and social benefits.			
Content				
• Unit 1: Research problem: Scope and objectives, Approaches of investigation, data collection, analysis, interpretation, Necessary instrumentations. • Unit 2: Effective literature studies approaches, Plagiarism, Research ethics, technical writing, • Unit 3: Nature of Intellectual Property: Patents, Designs, Trademark, Geographical Indications, Traditional Knowledge, Trade secrets and Copyright. Process of Patenting and Development: International Scenario: International cooperation on Intellectual Property, Licensing and transfer of technology. Patent information and databases. • Unit 4: New Developments in IPR: Administration of Patent System. IPR of Biological Systems, Computer Software, Semi-conductors etc.				
Text Book				
Intellectual Property :A Primer for Academia by Prof. Rupinder Tewari and Ms. Mamta Bhardwaj				
Research Methodology by C R Kothari				
Reference Book				
The Insider’s Guide to Technical Writing by Krista Van Laan and Joann T. Hackos				
Technical Writing by S K Singh				

<u>Data Structure and Algorithms</u>				
Semester – 1				
Subject Code	AS504		Credits	4
Course Type	PCC		Scheme (L-T-P)	2-0-4
Course Objectives	1. Understand and Apply Fundamental Data Structures: Equip students with foundational knowledge of data structures, including linear and non-linear types, with a focus on Python-specific implementations such as lists, tuples, sets, and dictionaries. 2. Develop Proficiency in Algorithm Design and Analysis: Introduce students to core algorithms for searching, sorting, and traversal, as well as their applications in real-world data processing and organization. 3. Learn Data Structures and Their Applications in computational biology: Provide students with a strong understanding of complex data structures like linked lists, stacks, queues, trees, and graphs, including practical applications in problem-solving.			
Course Outcomes	Successful completion of the coursework will enable the students in: 1. Developing ability to Implement and Utilize Data Structures in Python. 2. Develop competence in Using Algorithms for Searching, Sorting, and Traversal 3. Develop the understanding of Data Structures and their Practical Use Cases for computational biology			
Content				
• Basics Flowcharts, Algorithms, Data Structures – Definition, Linear Data Structures, Non-Linear Data Structures Python Specific Data Structures: List, Tuples, Set, Dictionaries, Comprehensions and its Types, Strings, slicing. • Overview, Types of Arrays, Operations on Arrays, Arrays vs List. Searching -Linear Search and Binary Search. Sorting - Bubble Sort, Selection Sort, Insertion Sort, Merge Sort, Quick Sort, Implementation of Singly Linked Lists, Doubly Linked Lists, Circular Linked Lists. • Stacks - Overview of Stack, Implementation of Stack, Applications of Stack; Queues: Overview of Queue, Implementation of Queue, Applications of Queues, Priority Queues. • Graphs -Introduction, Directed vs Undirected Graphs, Weighted vs. Unweighted Graphs, Representations, Breadth First Search, Depth First Search. Trees - Overview of Trees, Tree Terminology, Binary Trees: Introduction, Implementation, Applications. Tree Traversals, Binary Search Trees: Introduction, Implementation				
Text Book				
1.Think Python(2e), Allen Downey, OReilly 2.Introduction to Algorithms, Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein				
Reference Book				
1. Bioinformatics with Python Cookbook: Use modern Python libraries and applications to solve real-world computational biology problems, by Tiago Antao, Packt Publishing				

Biological Information System and Management**Semester – 2**

Subject Code	AS508		Credits	4
Course Type	PCC		Scheme (L-T-P)	3-0-1
Course Objectives	To expose the M. Tech. BI students with the techniques of Database Management System along with different available flat files and database handling techniques			
Course Outcomes	The students will earn DBMS role, usage, creation, designing and implementation database to create in-house database. They will learn the usage of different flat file formats along with their parsing and information retrieval. This will give understanding of analysis of biological data using available data mining techniques and data clustering and classification.			

Content

- Introduction to the database, Database models, Flat model, Hierarchical model, & amp; Network model, Profile Block, Secondary and Tertiary sequence databases, Relational model, Codd's rule with explanation, 1st, 2nd and 3rd level normalization, Relational operations, Dimensional Model and Object database models.
- Applications of Databases, Introduction to MySQL, Introduction to Database interfacing language, PHP, Introduction to PHP manipulating APACHE server.
- Database internals, Indexing and triggers, Binary tree and Hash-key based indexing, Transactions, concurrency, and Replication. Data Mining & amp; Warehousing, Association, Clustering, Classification.
- Applications: Introduction to Protein and Nucleic Acid Databases (PDB, NCBI etc.), PDB and NCBI database formalism, Further manipulation of PDB and NCBI data with the help of already acquired RDBMS knowledge based on PHP-MySQL manipulation, Pearl based data mining and linkage with databases (DBI). Drug databases, genetic databases, genome databases, Therapeutic protein databases, Human

Text Book

i. Biological Databases by Attwood.

Reference Book

- Programming the Perl ID BI by O' Reilly
- Essential of MATLAB for Scientist and Engineer by Hahn Brian D
- Beginning PHP and MySQL5: from novice to professional by W. Jason Gilmore

Next Generation Sequencing Tools and Algorithms

Semester – 2

Subject Code	AS506		Credits	4
Course Type	PCC		Scheme (L-T-P)	3-0-2
Course Objectives	1. To develop Proficiency in Genomic Data Handling and Analysis: Equip students with foundational skills to parse, manipulate, and analyze genomic sequences using computational techniques, including exact and approximate matching algorithms. 2. To apply Bioinformatics Algorithms for Sequence Alignment and Assembly: Introduce students to essential algorithms for sequence alignment (global, local) and genome assembly, emphasizing the use of efficient methods like dynamic programming, overlap graphs, and De Bruijn graphs. 3. To integrate Data Science in Omics Data Analysis: Provide a strong understanding of data science methodologies, including clustering, normalization, and dimension reduction, and apply these techniques to metabolomics and pathway modeling.			
Course Outcomes	Following outcomes are expected after compilation of the course work 1. Ability to Work with Real-World Genomic and Transcriptomic Data 2. Proficiency in Sequence Matching and Assembly techniques and Tools/ Algorithm 3. Competence in Applying Data Science Tools to Biological Data for Genomic Research 4. Skill in Using Statistical and ML Methods for inference generation from string datasets			

Content

- DNA sequencing, strings, and matching: DNA sequencers and working principle, DNA as a string. Parsing and manipulating real genome sequences and real DNA sequencing data. Naïve exact matching, homology detection; optimal pair-wises sequence alignment, alignment score statistics, efficient database searches (BLAST), Data science of metabolomics, pathway models.
- Preprocessing, indexing, and approximate matching: Improving on naïve exact matching with Boyer-Moore. Preprocessing and indexing. Indexing through grouping and ordering, k-mer and k-me indexes. Approximate matching and the pigeonhole principle. Edit distance, assembly, overlaps: Hamming and edit distance. Algorithms for computing edit distance. Dynamic programming. Global and local alignment. De novo assembly. Overlaps and overlap graphs.
- Algorithms for assembly: Shortest common superstring and the greedy version. How repetitive DNA makes assembly difficult. De Bruijn graphs and Eulerian walks. How real assemblers work. The future of assembly.
- Data variability and replication, Data transforms, Clustering, Dimension reduction, Pre-processing and normalization, Linear models with categorical covariates, Logistic regression, Null and alternative hypotheses analysis, false discovery rate, permutation and boot strapping, Gene expression repository(GEO).

Text Book

1. Bioinformatics Algorithms: An Active Learning Approach, by Phillip Compeau & Pavel Pevzner, Active Learning Publishers
2. Bioinformatics with Python Cookbook: Use modern Python libraries and applications to solve real-world computational biology problems, by Tiago Antao, Packt Publishing

Reference Book

Data Engineering for Molecular Structure Prediction

Semester – 2

Subject Code	(AS507)		Credits	4
Course Type	PCC		Scheme (L-T-P)	3-0-2
Course Objectives	1) To provide knowledge to the students (predominantly students of M. Tech.IT - spln. In Bioinformatics and B.Tech. students at 7th semester whosoever opted for Engineering Biology in their 6th semester) on biomolecular structures and their predictions. 2) For combating pandemic causing disease at protein level by speeding up the characterization of structures of pathophysiologically important proteins 3) To help in protein engineering by offering quick structures for sequence engineered (mutated proteins)			
Course Outcomes	1) Human resources well versed in predicting authentic structures of proteins for many applications. 2) Human resources with fundamental knowledge of applications of systems engineering principles (optimization, systems modeling and simulation, machine learning etc.) for prediction of accurate biomolecular structures.			

Content

- Basic structural principles: Building blocks of life, Chemical properties Of polypeptides; PDB Database, Intermolecular forces: Types of intermolecular forces, Entropy and temperature, Protein folding; Levinthal Paradox, Levels of protein structure: Primary structure, Secondary structure, Tertiary structure; Quaternary structure, Motifs, folds and domains of Protein structure: Hydrophobic and hydrophilic regions, Ramachandran Plot, Alpha-helix, Beta-sheets, Loops.
- Structure determination primer: X-Ray crystallography and NMR; Other Structure determination methods.
- Structure prediction primers: Fundamental principles of Protein structure prediction, Impediments, Secondary structure prediction, Comparative models, Homology model, Threading/Fold recognition model, Energy landscape; Validation.
- Structure prediction of small proteins using ab-initio stochastic simulation models: Lattice simulation, Random walk model, Self-avoiding model, HP- models, Structure prediction of small proteins using ab initio Deterministic simulation models, Molecular Dynamics principle, Ergodic hypothesis, Use of Newtonian equations of motion, Structure optimization/refinement techniques using Force fields (Amber, CHARMM), Steepest descent, GA simulated Annealing.
- RNA structure prediction: Secondary Structure prediction in RNA
- Structure validation techniques for proteins: Calculations of Potential energy, Ramachandran Score and Ramachandran Z-score.
- Useful Tools: Visualization using VMD, validation using UCLA SAVES, Simulation using Gromacs, overall structure prediction using Modeller, RoseTTAFold Google AlphaFold

Text Book

1. Introduction to Protein Structure: Carl Branden, John Tooze (Garland)
 2. Proteins: Structures and Molecular Properties: Thomas E. Creighton (Freeman)
- Guidelines for practical's: A two credit lab is to be conducted by covering them relevant and useful topics from aforementioned syllabus.

Reference Book

1. Molecular Modelling: Principles and Applications (2ndEdition): Andrew R. Leach (Prentice Hall)
2. Principles of Nucleic Acid Structure Stephen Neidle (Academic Press)

Elective Course Syllabus :(Electives-I,II and III)**1. Machine Learning in Biological System****Semester –**

Subject Code	(AS607)		Credits	3
Course Type	PEC		Scheme (L-T-P)	2-0-1
Course Objectives	1) To provide knowledge to the students (predominantly students of M. Tech.IT - spln. In Bioinformatics, M.Tech. BME and B.Tech. students in 6th semester) on fundamental aspects of machine learning and its application in biological systems. 2) To resolve the problems of classification and clustering in biological systems, especially automated diagnostics, genetic probe identifications, prediction of protein secondary structures, exon-intron search etc. 3) To provide special in-depth knowledge for pre-processing of complex biological data and context-based extraction of features			
Course Outcomes	1) Human resources well versed in fundamental knowledge of machine learning and its application to solve complex biological problems. 2) Human resources with fundamental knowledge of supervised machine learning algorithms and their applications, rule-based expert system, heuristic classifier (nearest neighbor) statistical machine learning (Bayes classifier, HMM), soft computing algorithms (ANN, Deep Learning) 3) Human resources with fundamental knowledge of supervised machine learning (clustering) algorithms, Hierarchical and K-means clustering, Kohonen's Self-organized Map			

Content

- Foundation of Machine learning: Turing Machine, Concepts of John von Neumann, computation of amount of learning of a machine, Concept of supervised and unsupervised learning, understanding data space, data overlapping, features, special biological data structures, concept of context, concept of clusters and classes, concept of training and testing. Statistical Machine Learning: Design of rule based expert system, knowledge engineering, forward chaining and backward chaining inference techniques, Application to discriminate intron from exon within eukaryotic DNA, Application of rule based system to discover knowledge from data, concept of clustering, condition to find best clusters. Various clustering techniques.
- Important components of a classifier, concepts of various accuracy parameters, Nearest Neighbor Classifier, Probabilistic classifier, Bayesian classifier, Hidden Markov Models and applications, Applications to discriminate Exon from Intron, to predict secondary structures of proteins, discover group of genes having similar up- regulation or down- regulation pattern from gene expression data.
- Discriminant Function Analysis (Linear and non-linear) as precursor to Artificial Neural Network. Soft computing method based machine learning, Artificial Neural Network for clustering and classification, local optimization of ANN weights, Back propagation network, Hopfield network, Genetic algorithm for optimizing parameters of classifiers and any Network.
- Data deficiency managements, One Shot Learning, Zero Shot Learning, Deep learning foundation, Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), Long Short-Term Memory Networks (LSTMs). random forest algorithm

Text Book

1. Pattern recognition and image analysis by Earl Gose.
2. Machine Learning by Mitchell and Tom
3. Artificial Intelligence - a guide to intelligent systems by Michael Negnevitsky

Reference Book

Reference Books: 1. Artificial Intelligence and Molecular Biology: Lawrence Hunter (MIT Press) (freely available e book)

Cheminformatics

Semester –

Subject Code	AS608	Credits	3
Course Type	PEC	Scheme (L-T-P)	3-0-0
Course Objectives	Students should be able to build up QSAR models Ability to create QSPR models To understand application of Reaction network generation		
Course Outcomes	Efficiency in predictive design of biologically useful chemical compounds		

Content

- Detail Introduction to Cheminformatics in Drug Discovery. Chemical file format and their conversion, 2D Databases and Database searching: Substructure search, Virtual Screening, property searching, similarity searching, Representation and manipulation of 2D Molecular Structures, 3D Databases: experimental data sources, database searching, Representation and manipulation of 3D Molecular Structures, Selecting Diverse Sets of Compounds.
- QSAR: Quantitative Structure and Activity Relationship, Historical Development of QSAR, Hammett Equation, Hansch Equation, Kubinyi bilinear model, Tools and Techniques of QSAR: Biological Parameters, Statistical Methods: Linear Regression Analysis. Parameters used in QSAR: Electronic Parameters, Hydrophobicity Parameters, Steric Parameters, Molecular Structure Descriptors, Quantitative Models: Linear Models, Nonlinear Models, Free- Wilson Approach, Applications of QSAR: Isolated Receptor Interactions, Interactions at the Cellular Level Interactions in-Vivo, Comparative QSAR: Database Development, Software: GRID, Co MFA.
- QSPR : Quantitative Structure and Property Relationship, Coronal Water Partition Coefficient, Quantum Chemical Descriptor, HUMO/LUMO, Predictive Quantitative Structure –Activity Relationships Modeling: Data Preparation and General Modeling Workflow, Reaction network Generation, DFT, Chemical Descriptor, Open Source Chemo informatics Software and Database Technologies, Machine Learning based, Bioinformatics Algorithms-Applications to Chemicals.

Text Book

i. Chemo informatics, Concepts, Methods & Tools for Drug Discovery; Ed. Jurgen Bajorath (Humana Press)

Reference Book

- Chemo informatics Ed by Johann Gasteigen, Thomas Engel, Wiley-VCH
- Molecular Modeling, Principles & Applications, Andrew R. Leach
- Bioinformatics from Genomes to Drugs ; Vol I & 2

Molecular Medicine				
Semester –				
Subject Code	AS609		Credits	3
Course Type	PEC		Scheme (L-T-P)	3-0-0
Course Objectives	1. To provide basic and applied scientific knowledge in Molecular Medicine relevant to human health and disease like drugs, drug target, drug designing, etc. 2. To illustrate the advanced research approaches to understand the molecular mechanisms that cause diseases. 3. To provide the updated information on the latest available technologies viz. regenerative, personalized medicine, tissue engineering, etc. used for various therapeutic interventions.			
Course Outcomes	1. Students were able to emphasize cellular and molecular phenomena and interventions rather than the previous conceptual and observational focus on various diseases. 2. Students were able to develop hypothesis formulation and proper interpretation of data for understanding origins and mechanisms of human diseases, and to find novel ways of diagnosing and treating diseases.			
Content				
• Concept and perspective of molecular medicine, History of Drug Development, classification of drugs, Pharmacodynamics and pharmacokinetics, Principles of Chemotherapy • Drug targets at the molecular level, bonding forces, Receptors-Role, activation • Strategies of drug design: Structure Based Drug Designing (SBDD), Ligand Based Drug Designing (LBDD), Pharmacophore Generation, Docking and scoring methods for proteins-ligands, protein- protein, protein-DNA, DNA-ligand, Identifying Cavities and Surface Matching, Shape Complementarity, Solvent-Accessible Surface. • Stem cells and regenerative therapy, Gene therapy for human diseases, personalized medicine, Targeted drug delivery, Nanotechnology in medicine, Biomaterials in tissue engineering				
Text Book & Reference Book				
1. Drug Design: Structure and ligand-based approaches: Kenneth M. Merz, Dagmar Ringe, Charles H. Reynolds. 2. Bioinformatics-from genomes to drugs (Vol.2- Applications Lengauer, Thomas (ed.). 3. Burger`s medicinal chemistry & drug discovery; Vol.-2(Drug discovery and drug development) Abraham, Donald J. (ed.)				

4. Drug design : structure and ligand-based approaches: edited by Kenneth M. Merz, Dagmar Ringe, Charles H. Reynolds
5. Chemo informatics; (Vol.-275 - Methods in molecular biology) : concepts, methods and tools for drug discovery : Bajorath, Jurgen (ed.)

Cognition and Cognitive Processes Modeling				
Semester –				
Subject Code	AS610		Credits	3
Course Type	PEC		Scheme (L-T-P)	3-0-0
Course Objectives	a. To provide an overview of cognition in human brain. b. To introduce students about several AI debates and pro and against arguments of realization of true AI. c. To provide comprehensive details about the cutting-edge approaches and recent developments of cognitive systems. d. Introducing students about several cognitive architectures and hand-on working in these architectures.			
Course Outcomes	a. Students will get the understanding of how human cognition works as per the explanations till date. b. Students will get new side of AI development (Using cognitive architectures). c. Students will get to know the challenges which have been accomplished and which are yet to be addressed to make true AI systems.			
Content				
• Introduction: Human Brain: Introduction, cognitive faculties: memory, attention, vision and language, What is cognition, introduction about approaches to cognition, theories of mind: mind - body dualism, materialist theory of mind, identity theory of mind, computational theory of mind. • Consciousness: First person approach, third person approach, Chalmers view of consciousness, problem of third person approach, Pattern-Information duality, Free Will: Sloman view, free will as continuous dimension, design distinctions for agent modeling. • First AI Debate: Is AI possible? Pro: Roger Penrose, Moravec, Herbert Simon. Artificial mind via symbolic AI, Turing test of AI. Against: Dreyfus five stages of learning, Searle’s Chinese room thought experiment, Degrees of understanding, Godel’s incompleteness theorem Second AI Debate: Connectionist Model, Objectives of Connectionist model, Feldman’s hundred step rules, Brain vs computer model of mind, Lloyd’s cautions, Fodor’s attack, Chalmers’ defense, Rule based AI. • Cognitive Architectures: ACT-R, CLARION, SOAR, Reinforcement Learning, Distributed Cognition, Learning and Memory Architectures. 1. Hands-on on cognitive architectures. 2. Analysis of cognition of brain using complex networks.				

Text Book	
1. Artificial Mind by Stan Franklin 2. Siegelbaum, Steven A., and A. J. Hudspeth. Principles of neural science. Eds. Eric R. Kandel, James H. Schwartz, and Thomas M. Jessell. Vol. 4. New York: McGraw-hill, 2000. 3. Research papers for brain modeling.	
Reference Book	

Advance Data Analytics				
				Semester –
Subject Code	AS611		Credits	3
Course Type	PEC		Scheme (L-T-P)	2-0-1
Course Objectives	Talks about domain specific mining issues and methods. Large data mining			
Course Outcomes	Students will get exposure of various methods of performing data mining.			
Content				
• Association mining, Classification, and Clustering: Revision. Data Stream mining, Social Network Analysis, Graph mining. • Mining algorithms for large data, Mining Big Data, Hadoop, Map-Reduce, HDFS, Spark + seminars. • Mining Sequence pattern in TD, Mining, Time-series data Mining WWW + seminars • Advanced Machine Learning: Deep Learning, probabilistic learning + seminars Detail + seminars				
Text Book				
Mandatory for UG core courses				
Reference Book				
i. Ian H. Witten and Eibe Frank, Data Mining: Practical Machine Learning Tools and Techniques (Second Edition), Morgan Kaufmann, 2005, ISBN: 0-12-088407-0. ii. Hadzic F., Tan H. & Dillon T. S. “Mining data with Complex Structures” Springer, 2011 Yates R. B. and Neto B. R. “Modern Information Retrieval ” Pearson Education, 2005				

Systems Biology

Semester –

Subject Code	AS612		Credits	3
Course Type	PEC		Scheme (L-T-P)	3-0-0
Course Objectives	The objectives of a Systems Biology course are to provide students with an understanding of the complex interactions within biological systems using a holistic approach. Students will learn to integrate data from genomics, proteomics, and metabolomics to model and predict system behavior at multiple levels, from molecular to organismal.			
Course Outcomes	- Students will learn to design mathematical approaches based on biological problems, and mathematical modeling including ODE-based modeling. - Students will gain a basic idea of graph theory and an understanding of biological regulatory networks - Students will get an idea about the mathematical modeling of transcription and translation, feedback, and feed-forward loops - Students will be able to apply systems biology principles to research, enabling discoveries in areas like analyzing large datasets and understanding regulatory networks			

Content

- Biological Systems, Introduction to mathematical modeling, ODE-based modeling, Logistic model, SIR model, SIRV model, Parameter Estimation
- Biological network, Static Network Models, Introduction to Graph Theory, Centrality measurement, shortest path, DIJKSTRA's Algorithm, Clustering coefficient, Adjacency matrix
- Mathematical modeling of gene regulatory systems, ODE-based modeling of transcription and translation, Metabolic Systems, Glucose regulatory Circuit
- Signaling Systems (Positive Feedback, Negative Feed, Positive Forward, Negative Feedforward), Toggle Switch, Biological Oscillator, Repressilator

Text Book

A first Course in System Biology, Eberhard Voit, Mar 2012.

Reference Book

i. An Introduction to Systems Biology: Design Principles of Biological Circuits (1st edition) by Uri Alon, Chapman and Hall/CRC, 2006

- ii. Mathematical Biology: I. An Introduction (3rd edition) by James D. Murray, Springer New York, 2007
- iii. Introduction to Mathematical Biology (1st edition) by Linda Allen, Pearson, 2006

Parallel Computing				
				Semester –
Subject Code	AS613		Credits	3
Course Type	PEC		Scheme (L-T-P)	3-0-0
Course Objectives	To introduce concepts of Parallel Computing.			
Course Outcomes	Upon successful completion, the students will be able to approach designing of parallel computation based better. They shall have not only the theoretical concepts but also practical skill to implement the solutions.			
Content				
• Introduction, Motivation, Scope of parallel computing, Basics of Parallelization, Mutual exclusion • Concurrent objects, Principles of parallel algorithm design Scheduling and Work Distribution, Foundations of Shared Memory, Primitive Synchronization Operations • Tools and Platforms: C++11 threads, Intel Threading Building Blocks, Open CL and CUDA, Introduction to LAM/MIPCH, Issues of Multicore Programming, Basic Communication Operations, Analytical Modelling of Parallel Programs • Universality of Consensus, Spin Locks and Contention Monitors and Blocking Synchronization, Parallel Algorithms & Data Structures, Decomposition Techniques, Characteristics of Tasks and Interactions, Mapping Techniques for Load Balancing, Methods for Containing Interaction Overheads Parallel Algorithm Models				
Text Book				
The Art of Multiprocessor Programming by Maurice Herlihy and Nir Shavit, Morgan Kaufmann Publishers				
Reference Book				
i.	The Art of Concurrency by Clay Breshears, O Reilly			
ii.	Introduction to Parallel Computing (2 Ed) by Ananth Grama, Anshul Gupta, George Karypis, Vipin Kumar, Addison Wesley			
iii.	Professional C++ by M Gregoire, NA Solter, S.J. Kleper (2Ed)			

Pattern Recognition				
				Semester –
Subject Code	IT642		Credits	3
Course Type	PEC		Scheme (L-T-P)	2-0-1
Course Objectives	This course deals with pattern recognition which has several important applications. For example, multimedia document recognition (MDR) and automatic medical diagnosis are two such.			
Course Outcomes	Students will learn Pattern Recognition techniques and its applications.			
Content				
• Preliminary concepts and pre-processing phases, coding, normalization, filtering, linear prediction, Feature extraction and representation thresholding, contours, regions, textures, template matching • Data structure for pattern recognition, statistical pattern recognition, clustering Technique and application. Study of pattern classifiers: Supervised and unsupervised. • Pattern Classifiers: Naïve Bayes, Linear Discriminant Analysis, k- nearest Neighbour (K-NN), Artificial Neural Network etc. and Case studies • Application: Finance, Multimedia.				
Text Book				
Reference Book				
1. R.O. Duda, P.E. Hart and D.G. Stork, Pattern Classification, John Wiley, 2001. 2. K. Fukunaga, Statistical pattern Recognition; Academic Press, 2000. 3. Devi V.S.; Murty, M.N., Pattern Recognition: An Introduction, Universities Press, Hyderabad, 2011				

Numerical Methods				
				Semester –
Subject Code	AS614		Credits	3
Course Type	PEC		Scheme (L-T-P)	3-0-0
Course Objectives	To expose students to numerical methods computational Biology and Bioinformatics			
Course Outcomes	Students will be able to convert a qualitative problem into computer based solutions			
Content				
• Introduction, Curve fitting, Taylor series, Roots of equations, Linear algebraic equations • Optimization and minimization, Numerical differentiation and integration • Ordinary differential equations, eigenvalues and Eigen Vectors • Molecular dynamics, Monte Carlo algorithm				
Text Book				
Numerical Methods for Engineers by Chapra and Can				
Reference Book				

Research Methodology 2				
				Semester –
Subject Code	(MS518)		Credits	2
Course Type	ELC		Scheme (L-T-P)	2-0-0
Course Objectives	To expose students to numerical methods computational Biology and Bioinformatics			
Course Outcomes	Students will be able to convert a qualitative problem into computer based solutions			
Content				
• Nature of Intellectual Property: Patents, Designs, Trade and Copyright. Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, Patenting under PCT. • Patent Rights: Scope of Patent Rights. Licensing and transfer of technology. Patent information and databases. Geographical Indications, Trade marks, Trade Secrets, Copyright. • New Developments in IPR: Administration of Patent System. IPR of Biological Systems, Computer Software etc. Traditional knowledge, Case Studies, Role of IPR in national arena.				
Text Book				
Reference Book				
The Insider’s Guide to Technical Writing by Krista Van Laan and Joann T Hackos Technical Writing by S K Singh Research Methodology by C R Kothari				



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

M.Tech Curriculum 2023-24 & Onwards

Department of Applied Science

(NEP based Curriculum)

Guidelines for M. Tech & Dual degree M. Tech-PhD 2023-24

PC- Programme Core, PE- Programme Elective, ES- Engineering Science, BS- Basic Science, OE- Open Elective, HM- Humanities and Management, MR- Minor, HR- Honor, AC- Audit Course

L-T-P (hr)

Lecture (L): 1 Credit = 1 hr/ week, Tutorial (T): 1 Credit = 1hr/week, Practical (P): 1 credit = 2 hr/week

The credits for all courses are given in LTP format. L stands for Lecture, T for Tutorial, P for Practice/Practical. L=3 signifies 3 hours of Lectures per week, T=1 signifies 1 hour of Tutorial per week, and P=1 corresponds to 2 hours Practice/Practical per week. For M. Tech. students, T and P need not be explicitly mentioned in the Time Table. The Practice/Practical component of the course could also be a Term paper or Term Paper along with the lab. The discretion is left to the Teacher teaching the course.

The dual degree M.Tech.-Ph.D. Programme has been kept reserved. This is in tune with the spirit of NEP 2020. It is envisaged with a target towards research leading to a PhD programme with a minimum duration of 04 years, and with a possible exit for the award of MTech degree and/or PG Diploma after securing required credits.

Please refer to the M.Tech. and Ph.D. Ordinance for the other details of the M. Tech. and Ph.D. programs that is available at the following link: <https://aaa.iiita.ac.in/>

The AS Department is offering the following specializations in each group:



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

M. Tech Biomedical Analytics and Engineering

The M. Tech **Biomedical Analytics and Engineering (BMAE)** program at IIIT-Allahabad is designed to provide students with a comprehensive understanding of the interdisciplinary field that combines principles of engineering, medicine, and biology. The mission of the **Biomedical Analytics and Engineering program** at IIIT-A is to build up clinically adaptable solutions for human health by educating the next generation of biomedical engineers, cultivating leaders, and nurturing the amalgamation of science, engineering, and medicine in a discovery-focused environment. The main educational objective is to offer a systematic training in the fundamentals of engineering science, design, **analytics** and biology. The curriculum is planned to endow with concepts essential to understanding living systems from the molecular and cellular levels. The curriculum further incorporates principles of straight up integration, leading to the choice of a technical area (biomedical imaging and instrumentation, cellular engineering, computational biomedical engineering, or biomechanics), and culminates in a biomedical device design experience. With state-of-the-art facilities and a team of experienced faculty members, IIIT-Allahabad is committed to offering students a stimulating and nurturing learning environment.

Total Credit Distribution

Semester	Semester I	Semester II	Summer Semester	Semester III	Semester IV	Total Credits
M. Tech	18	19	0	15	12	64
PG Diploma	18	19	5	-	-	42



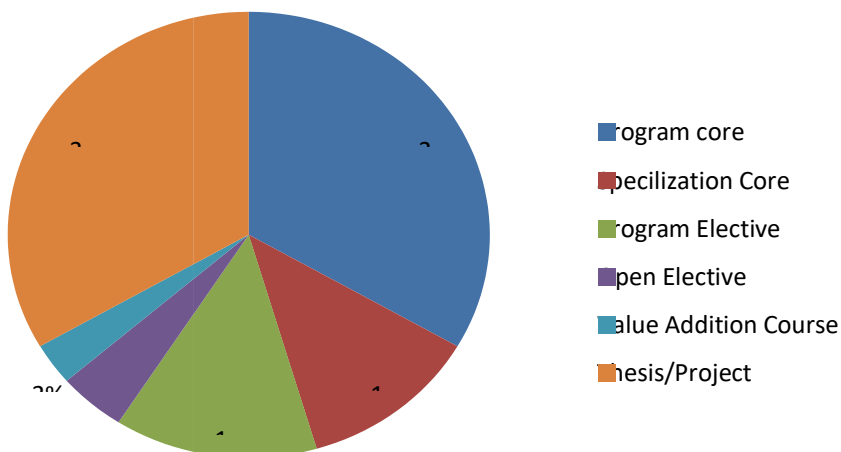
Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

M. Tech BMAE, Credit Distribution

M. Tech BI		I	II	III	IV	Total Credits	
1.	Program core	8	14			22	33%
2.	Specialization Core	8				8	12%
3.	Program Elective		3	6		9	14%
4.	Open Elective			3		3	5%
5.	Value Addition Course		2			2	3%
6.	Thesis/Project		2	6	12	20	31.25%





Indian Institute of Information Technology - Allahabad

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Department of Applied Sciences

Table 1: First Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Biomedical Circuits and Instrumentation	AS512	PCC	4	3-0-2-0
2.	Biomechanics	AS513	PCC	4	3-0-2-0
3.	Tools for Research	AS505	ELC	2	2-0-0-0
4.	Elective I			4	3-0-2-0
5.	Elective II			4	3-0-2-0
Total Credit:				18	²⁴ Hrs./week

*The students have to select Elective I & Elective II from the **softcore elective basket** 1/2 (a single basket has to be chosen)*

List of Softcore Electives/Soft-Core Subjects (Choose a single basket for I & II)

Basket 1: For students with Biology background

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Biosignal Processing	AS514	PCC	4	3-0-2-0
2.	Mathematics and Statistics for Biology	AS515	PCC	4	3-0-2-0
Total Credit:				8	10 Hrs./week

Basket 2: For students without Biology background

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Molecular Biology	AS516	PCC	4	3-0-2-0
2.	Anatomy & Physiology	AS517	PCC	4	3-0-2-0
Total Credit:				8	10 Hrs./week

In the first semester, Dual Degree students have to do the Research Methodology-2 Course besides the regular courses prescribed above in consultation with the HOD/Supervisor, to satisfy the minimum credit requirement as per PhD ordinance.

Table 2: Second Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Soft Computing Tools		PCC	4	3-0-2-0
2.	Biomedical Imaging	AS520	PCC	4	3-0-2-0
3.	Medical Sensors and Actuators	AS521	PCC	4	3-0-2-0
4.	Elective III		PEC	3	3-0-0-0
5.	Dissertation I	AS509	ELC	2	0-0-4-0
6.	HSMC		VEC	2	2-0-0-0
Total Credit:				19	24 Hrs./week

EXIT: After the end of second Semester, after clearing all the papers, the M. Tech student may eligible for PG Diploma in Biomedical Engineering. However, these students have to secure **additional 5 credits** from summer semester for awarding PG diploma, which is mandatory. For regular M. Tech students there is no need of summer semester.

Table 3: Summer Semester (for PG-Diploma)

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Summer Project	AS510	ELC	2	0-0-4-0
2.	Medical Instrumentation Course/NPTEL	AS522	PCC	3	3-0-0-0
Total Credit:				5	7 Hrs./week

Table 4: Third Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Elective IV		PEC	3	3-0-0-0
2.	Elective V		PEC	3	3-0-0-0
3.	Open Electives		OEC	3	3-0-0-0

4.	Dissertation II	AS601	ELC	6	0-0-12-0
Total Credit:				15	²¹ Hrs./week

Table 5: Fourth Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	M. Tech Thesis	AS605	ELC	12	0-0-24-0
Total Credit:				12	²⁴ Hrs./week



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Department of Applied Sciences

Table 6: List of Electives (for elective III, IV and V)

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Bioelectrics	AS615	PEC	3	3-0-0-0
2.	Biomaterials and Tissue Engineering	AS616	PEC	3	3-0-0-0
3.	Image Processing Fundamentals for Medical Systems	IT643	PEC	3	3-0-0-0
4.	Nanobiotechnology and Nanoinformatics	AS617	PEC	3	3-0-0-0
5.	Bio-MEMs	AS618	PEC	3	3-0-0-0
6.	Artificial Organs and Implants	AS619	PEC	3	3-0-0-0
7.	Engineering Processes in Biological Systems	AS620	PEC	3	3-0-0-0
8.	Survival Analysis	AS621	PEC	3	3-0-0-0
9.	Computational Methods for Biomedical Engineers	AS622	PEC	3	3-0-0-0
10.	Modeling of Biomedical Engineering Systems	AS623	PEC	3	3-0-0-0
11.	Telemedicine	AS624	PEC	3	3-0-0-0
12.	Immunotechnology	AS625	PEC	3	3-0-0-0
13.	Medical Information Systems and PCS	AS626	PEC	3	3-0-0-0
14.	Machine Learning for Medical Systems	AS627	PEC	3	3-0-0-0
15.	Computer Aided Drug Designing	AS628	PEC	3	3-0-0-0
16.	Clinical Biochemistry	AS629	PEC	3	3-0-0-0
17.	Infectious Disease Modeling	AS630	PEC	3	3-0-0-0
18.	Material Informatics	AS631	PEC	3	3-0-0-0
19.	Instrumentations	AS632	PEC	3	3-0-0-0
20.	Biomedical Engineering for Space	AS633	PEC	3	3-0-0-0
21.	Fluid Mechanics for Biological Systems	AS634	PEC	3	3-0-0-0

22	All the electives provided in M. Tech BI basket are also available for M. Tech BMAE students				
	OPEN ELECTIVES				
23	Open Elective		OE	3	



NEP-2020 Based **New Proposed Curriculum Dual Degree B.Tech-M.Tech IT**

(With effect from **July 2026 batch**)

NEP-2020- New Education Policy- 2020

L-T-P (hr)

Lecture-L: 1 Credit = 1 hr/ week

Tutorial-T: 1 Credit = 1 hr/week

Practical-P: 1 Credit = 2 hr/week

Self Study: 1 Credit = 1 hr/week

1. Degree: Dual Degree B.Tech-M.Tech IT
2. Duration: The total duration of the program will be 5 years.

Total number of Credits: 200

Type of Courses

Programme Core Course (PCC)
Programme Elective Course (PEC)
Open/School Elective (OE/SE) other than particular program
Multidisciplinary Minor (MDM)
Vocational and Skill Enhancement Course (VSEC)
Ability Enhancement Course (AEC-01)
Indian Language (AEC-02)
Entrepreneurship/Economics/ Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Internship
Dissertation/Thesis
Community Engagement Activity (CEA)/Field Project
Co-curricular & Extracurricular Activities (CCA)

****Note:** Table and pie chart may be updated based on revisions. Final will be submitted finally by the department.



Indian Institute of Information Technology - Allahabad

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Department of Information Technology

Curriculum Dual degree in B.Tech-M.Tech IT with **specialization in xxx**

Semester 1					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Engineering Physics		BSC	4	3-0-2-0
2	Linear Algebra		BSC	4	3-1-0-0
3	Problem Solving with Programming		ESC	5	3-0-4-0
4	Fundamentals of Electrical & Electronics Engineering		ESC	4	3-0-2-0
5	Technical Communication Skills		HSMC (AEC)	2	1-0-2-0
6	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Universal Human Values				
	Professional Ethics				
	Art of Living				
Total				20	14-1-10 25

Semester 2					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Discrete Mathematical Structures		PCC	4	3-1-0-0
2	Computer Organization and Architecture		PCC	4	3-0-2-0
3	Data Structures and Algorithms		PCC	4	3-0-2-0
4	Web Development		VSEC	2	0-0-4-0
5	Principles of Data Communication		ESC	3	3-0-0-0
6	Principles of Management		HSMC (AEC)	2	2-0-0-0
7	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Environmental Studies				
	Professional Ethics				
	Physical Education(Sports)				
Total				20	15-1-8-0 24

Exit: After successful completion of two semesters, a student may get an exit option (Certificate in IT) as per ordinance. They need to do Skill Based Courses of 6 credits additional, in summer, before exit. The department will provide a list of such courses.



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Information Technology

Semester 3					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Probability and Statistics		BSC	4	3-1-0-0
2	Object Oriented Methodologies		PCC	4	3-0-2-0
3	Theory of Computation		PCC	3	2-1-0-0
4	Operating System		PCC	4	3-0-2-0
5	Software Engineering		PCC	3	2-0-2-0
6	<i>Multi-Disciplinary Minor-1</i>		MDM	3	3-0-0-0
7	<i>Entrepreneurship Development</i>		HSMC (AEC)	2	2-0-0-0
8	<i>Community Services</i> NCC, NSS, Yoga, Unnat Bharat Abhiyaan-UBA, Ek Bharat Shreshtha Bharat-EBSB, NGO, Prayas, etc.		HSMC (CEA)	1	0-0-0-1
Total				24	18-2-6-1 27

Semester 4					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Design and Analysis of Algorithms		PCC	4	3-0-2-0
2	Principles of Programming Language		PCC	3	3-0-0-0
3	Computer Networks		PCC	4	3-0-2-0
4	Computer Graphics and Visualization		PCC	4	3-0-2-0
5	Database Management System		PCC	4	3-0-2-0
6	<i>Multi-Disciplinary Minor-2</i>		MDM	3	3-0-0-0
Total				22	18-0-8-0 26

Exit: After successful completion of Four semesters, a student may get an exit option (Diploma in IT) as per Ordinance. They need to do **Skill based courses of 6 credits additional**, in summer, offline before exit. The department will provide a list of such courses.

Mishra



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Information Technology

Semester 5					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Cyber Security		PCC	4	3-0-2-0
2	Introduction to Machine Learning		PCC	4	3-0-2-0
3	Image and Video Processing		PCC	4	3-0-2-0
4	Artificial Intelligence		PCC	3	2-0-2-0
5	Micro Project		ELC	2	0-0-4-0
6	<i>Multi-Disciplinary Minor-3</i>		MDM	3	3-0-0-0
7	<i>Design Thinking and Innovation</i>		HSMC (AEC)	2	1-0-2-0
Total				22	15-0-14-0 29

Specialization Choice exercise: The student will exercise his M.Tech IT specialization choice at the start of 6th Semester.

Semester 6					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Data Analytics		PCC	4	3-0-2-0
2	Mini Project		ELC	4	0-0-8-0
3	Biology for Engineers		BSC	2	2-0-0-0
4	Elective-1		PEC	3	3-0-0-0
5	Elective-2		PEC	3	3-0-0-0
6	<i>Multi-Disciplinary Minor-4</i>		MDM	3	3-0-0-0
7	<i>Indian/Foreign Language</i> <i>Regional Language, Sanskrit, German, Japanese, French</i>		HSMC (AEC)	2	1-0-2-0
Total				21	15-0-12-0 27

Exit option: After successful completion of Six semesters, a student may get an exit option (B.Sc Engg. in IT) as per Ordinance. They need to do **Skill Based Courses of 6 credits, additional**, in summer, before exit. The department will provide a list of such courses.



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Information Technology

Semester 7					
Sl.No.	Course Name	Code	Type	Credit	Hours L-T-P-S
1	Minor Project		ELC	4	0-0-8-0
2	Elective-3		PEC	3	3-0-0-0
3	CORE-1 *		PCC	4	3-0-2-0
4	Open Elective-1		OEC	3	3-0-0-0
5	History of Indian Civilizations/ Kautilya's Arthashastra/ Vedic Mathematics/ Vedic Corpus/ Wisdom from the Ages/ Panini's Grammar		HSMC (IKS)	2	2-0-0-0
6	AI Tools for Research		ELC	3	0-1-4-0
7	Research Methodology & IPR		ELC	2	2-0-0-0
Total				21	13-1-14-0 28

* Core-1 of M.Tech Specialization allotted to students.

Semester-8					
Sl. No.	Course Name	Code	Type	Credit	Hours L-T-P-S
1.	Core-2 *		PCC	4	3-0-2-0
2.	Core-3 *		PCC	4	3-0-2-0
3.	Elective-4		PEC	3	3-0-0-0
4.	Dissertation-I		ELC	3	0-1-4-0
5.	Independent Study #		ELC	3	0-0-6-0
Total				17	9-1-14-0 24

* Core-2 & Core-3 of M.Tech Specialization allotted to students

Advised by the Supervisor

Exit option 1: After successful completion of Eight semesters, a student may get an exit option (B.Sc Engg. in IT with PG Diploma in IT with Specialization xxx) as per ordinance.

Exit options 2: After successful completion of Eight Semesters, students may opt for exit with B.Tech IT by completing one additional semester 9A as per requirements of B.Tech Degree (refer Ordinance)



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Information Technology

Summer Semester					
Sl.No.	Course Name	Code	Type	Credit	
1	Internship		ELC	3	Credit will be added in the 9 th /9A Sem.

Note: Internship will be evaluated in the beginning/during the ninth semester. Its credit and grades will be reflected on the 9th-semester Grade sheet.

Semester-9

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Core-4		PCC	4	3-0-2-0
2.	Elective-5		PEC	3	3-0-0-0
3.	Elective – 6 ##		PEC	3	0-0-0-3
3.	Dissertation-II		ELC	5	0-2-6-0
4.	Internship		ELC	3	0-0-0-3
Total				18	6-2-8-6 22 Hrs./week

Course based on Thesis Theme advised by Supervisor from MOOC/NPTEL/SWAYAM approved by department

Semester-10

	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Thesis		ELC	15	0-2-26-0
Total				15	0-2-26--0 28 Hrs./week
Cumulative Degree Credits				200	



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Information Technology

Semester 9A (This semester is Only for Exit Option 2 opted during 8th Semester)					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Major Project #		ELC	6	0-0-12-0 0-0-0-6 *
2	Elective-5 *		PEC	3	3-0-0-0 0-0-0-3 *
3	Open Elective-2 *		OEC	3	3-0-0-0 0-0-0-3 *
4	Internship		ELC	3	0-0-0-3
Total				15	21/15*

* 9A Semester: Courses may be allowed to join via MOOC/ NPTEL/SWAYAM. The department will offer the list of subjects

For Major Project, the students will have 3 options:

Option 1- The student will do an internship in a company, and the same work will be presented as the project without concealing any code/module;

Option 2- The student will do an internship in a company, but a separate project will be registered with the IIITA faculty in the department;

Option 3- The student will opt for a project only with the IIITA faculty in the department.

1. Electives of B.Tech-IT will be offered for electives upto 7th Semester
2. Electives of M.Tech-IT will be offered for in 8th, 9th and 10th Semester.

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

B.Tech-M.Tech Dual Degree (ECE) (Credits: 200)

(With effect from July 2026 batch)

NEP-2020- New Education Policy- 2020

L-T-P (hr)

Lecture-L: 1 Credit = 1 hr/ week

Tutorial-T: 1 Credit = 1 hr/week

Practical-P: 1 Credit = 2 hr/week

Self Study: 1 Credit = 1 hr/week

1. Degree: Dual Degree B.Tech-M.Tech ECE
2. Duration: The total duration of the program will be 5 years.

Type of Courses

Programme Core Course (PCC)
Programme Elective Course (PEC)
Open/School Elective (OE/SE) other than particular program
Multidisciplinary Minor (MDM)
Vocational and Skill Enhancement Course (VSEC)
Ability Enhancement Course (AEC-01)
Indian Language (AEC-02)
Entrepreneurship/Economics/ Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Internship
Dissertation/Thesis
Community Engagement Activity (CEA)/Field Project
Co-curricular & Extracurricular Activities (CCA)

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Semester 1					Total Credit: 20
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Engineering Physics		BSC	4	3-0-2-0
2	Linear Algebra		BSC	4	3-1-0-0
3	Problem Solving with Programming		ESC	5	3-0-4-0
4	Fundamentals of Electrical & Electronics Engineering		ESC	4	3-0-2-0
5	Technical Communication Skills		HSMC (AEC)	2	1-0-2-0
6	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Universal Human Values				
	Professional Ethics				
	Art of Living				
	Any Other				
Total				20	14-1-10-0
					25

Semester 2					Total Credit: 21
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Electronic Workshop		VSEC	2	0-0-4-0
2	Digital Logic Design with HDL		PCC	3	2-0-2-0
3	Electronic Devices and Circuits		ESC	3	2-0-2-0
4	Electronic Measurements and Instrumentation		PCC	3	2-0-2-0
5	Data Structures and Algorithms		ESC	4	3-0-2-0
6	Network Synthesis & Analog Filters		PCC	3	2-1-0-0
7	Principles of Management		HSMC(AEC)	2	2-0-0-0
8	Constitution of India		HSMC(VEC)	1	1-0-0-0
	Environmental Studies				
	Professional Ethics				
	Physical Education (Sports)				
	Any Other				
Total				21	14-1-12-0
					27

Exit: After successful completion of the first two semesters, a student may opt for an exit (Certificate in ECE) as per the Ordinance. They need to complete 6 additional Skill-based credits offline in the summer before exit. The department will provide a list of such courses.

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Semester 3					Total Credit: 22
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Electromagnetic Field and Waves		PCC	3	3-0-0-0
2	Signal and Systems		PCC	4	3-1-0-0
3	Analog Electronics & Linear ICs		PCC	4	3-0-2-0
4	Microprocessor Interface and Programming		PCC	3	2-0-2-0
5	Biology for Engineers		BSC	2	2-0-0-0
6	Multi-Disciplinary Minor-1		MDM	3	3-0-0-0
7	Entrepreneurship Development		HSMC (AEC)	2	2-0-0-0
8	Community Services		HSMC (CEA)	1	0-0-0-1
	NCC				
	NSS				
	Yoga				
	Unnat Bharat Abhiyaan				
	Ek Bharat Shreshtha Bharat				
	NGO				
	Prayas				
	Other Courses				
Total				22	18-1-4-1
					24

Semester 4					Total Credit: 24
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Control Systems		PCC	4	3-0-2-0
2	Analog Communication		PCC	3	2-0-2-0
3	CMOS VLSI Design		PCC	3	2-0-2-0
4	Probability and Statistics		BSC	4	3-1-0-0
5	Antenna and Wave Propagation		PCC	4	3-0-2-0
6	Integrated Circuit Technologies		PCC	3	3-0-0-0
7	Multi-Disciplinary Minor-2		MDM	3	3-0-0-0
Total				24	19-1-8-0
					28

Exit: After successful completion of the four semesters, a student may opt for an exit (Diploma in ECE) as per the Ordinance. They need to complete 6 additional Skill-based credits offline in the summer before exit. The department will provide a list of such courses.

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Semester 5					Total Credit: 23
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Digital Signal Processing		PCC	4	3-0-2-0
2	Embedded System Design		PCC	3	2-0-2-0
3	Microwave Engineering		PCC	4	3-0-2-0
4	Digital Communication		PCC	4	3-0-2-0
5	Elective-1 A. Electrical Machines B. Advanced Computer Architectures C. AI & ML Techniques D. Solid State Devices E. Any Other		PEC	3	3-0-0-0
6	Multi-Disciplinary Minor-3		MDM	3	3-0-0-0
7	Design Thinking and Innovation		HSMC (AEC)	2	1-0-2-0
Total				23	18-0-10-0
					28

Specialization Choice exercise: The student will exercise their M.Tech ECE specialization choice at the start of the 6th Semester.

Indian Institute of Information Technology Allahabad
Department of Electronics and Communication Engineering

Semester 6					Total Credit: 18
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Data Communication & Networking		PCC	3	2-0-2-0
2	Mobile and Wireless Communication		PCC	3	2–0–2-0
3	Elective-2 F. Power Electronics G. Testing & Verification H. Optical Communication I. Detection & Estimation Theory J. Physics of Nanoscale Devices K. Any Other Subject		PEC	3	3–0–0-0
4	Mini Project		ELC	4	0-0-8-0
5	Multi-Disciplinary Minor-4		MDM	3	3–0–0-0
6	Indian language (I1-I10)		HSMC (AEC)	2	1-0-2-0
	Sanskrit				
	(I2-I10)				
	Foreign language (F1-F10)				
	German				
	Japanese				
	French				
	(F4-F10)				
	Regional Language (R1-R10)				
	(R1-R10)				
Total				18	11-0-14-0
					25

Exit option: After successful completion of six semesters, a student may get an exit option (B.Sc Engg. In ECE) as per the Ordinance. They need to complete **6 additional Skill-based credits** offline in the summer before exit. The department will provide a list of such courses.

Indian Institute of Information Technology Allahabad
Department of Electronics and Communication Engineering

Semester 7					Total Credit: 22
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Core -1*		PCC	4	3-0-2-0
2	Core -2*		PCC	4	3-0-2-0
3	Open Elective-1		OEC	3	3-0-0-0
4	Research Methodology and IPR		ELC	2	2-0-0-0
5	Tools and Techniques for Research Practices		ELC	3	0-1-4-0
6	History of Indian Civilizations		HSMC (IKS)	2	2-0-0-0
	Kautilya's Arthashastra				
	Vedic Mathematics				
	Vedic Corpus				
	Wisdom from the Ages				
	Panini's Grammar				
	Any Other Subject				
8	Minor Project		ELC	4	0-0-8-0
Total				22	13-1-16-0
					30

***Core-1 and Core-2 of M. Tech Specialization allotted to students.**

Semester 8				Total Credit: 17	
S. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Core – 3*		PCC	4	3–0-2-0
2	Core - 4 *		PCC	4	3–0–2-0
3	Elective - 3		PEC	3	3–0–0-0
4	Dissertation-I		ELC	3	0-0-6-0
5	Independent Study#		ELC	3	0-0-0-3
Total				17	9-0-10-3
					22

***Core-3 and Core-4 of M. Tech Specialization allotted to students.**

Advised by the Supervisor

Exit option 1 : After successful completion of eight semesters, a student may get an exit option (B.Sc Engg. in ECE with PG Diploma in ECE with Specialization) as per the ordinance.

Exit option 2: After successful completion of 8th Semester, students may opt for exit with B.Tech ECE by completing one additional semester 9A as per the requirements of B.Tech Degree (refer Ordinance).

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Summer Semester					Total Credit: 3
Sl. No.	Course Name	Code	Type	Credit	
1	Internship		ELC	3	Credit will be added in 9 th /9A Sem.

Note: The internship will be evaluated at the beginning/during the ninth semester. Its credit and grades will be reflected on the 9th-semester Grade sheet.

Semester 9					Total Credit: 18
S. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Elective - 4		PEC	3	3-0-0-0
2	Elective – 5		PEC	3	3-0-0-0
3	Elective – 4##		PEC	3	0-0-0-3
4	Dissertation-II		ELC	6	0-0-12-0
5	Internship		ELC	3	0-0-0-3
Total				18	6-0-12-6
					24

Course based on Thesis Theme advised by Supervisor from MOOC/NPTEL/SWAYAM approved by the department

Semester 10					Total Credit: 15
S. No	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Thesis		ELC	15	0-2-26-0
Total				15	0-2-26-0
					28

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Semester 9A (This semester is Only for Exit Option 2 after 8th Semester)					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Major Project#		ELC	6	0-0-12-0 0-0-0-6 *
2	Elective-4**		PEC	3	3-0-0-0 0-0-0-3 *
3	Open Elective-2**		OEC	3	3-0-0-0 0-0-0-3 *
4	Internship		ELC	3	0-0-0-3
Total				15	6-0-12-3/ 0-0-0-15**
					21/15**

**8th-semester courses may be allowed to join via MOOCs/NPTEL, etc. Major projects may be completed as an internship cum project as per the following options:

For the Major Project, the students will have 3 options:

Option 1- The student will do an internship in a company, and the same work will be presented as the project without concealing any code/module

Option 2- The student will do an internship in a company, but a separate project will be registered with the IITA faculty in the department

Option 3- The student will opt for a project only with the IITA faculty in the department.

1. Electives of ECE will be floated for electives up to 7th Semester
2. Electives of M. Tech ECE will be floated in 8th, 9th and 10th Semesters



NEP Based B.Tech-IT -Business Informatics(BIn)- UG curriculum (with effect from July 2026 batch)

Total Credit : 160

NEP-2020- New Education Policy- 2020

L-T-P-S (hr)

Lecture-L: 1 Credit = 1 hr/ week

Tutorial-T: 1 Credit = 1hr/week

Practical-P: 1 credit = 2 hr/week

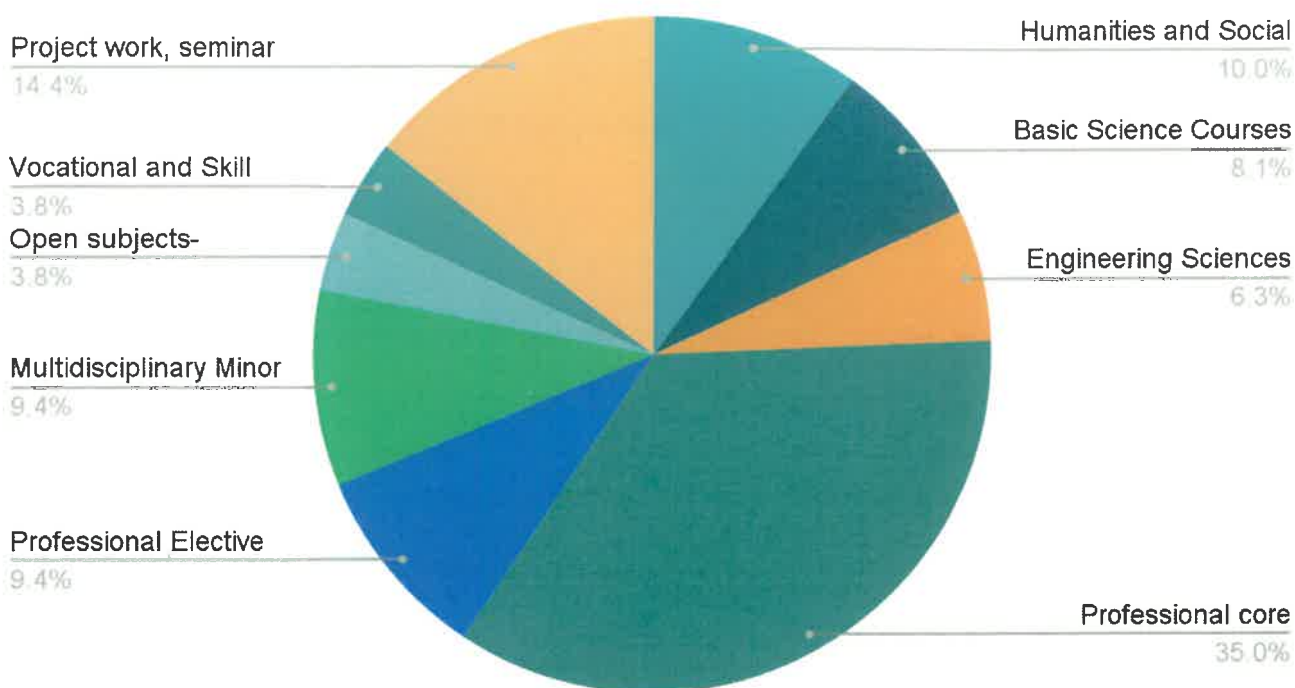
Self Study-S: 1 Credit= 1 hr/week

Multidisciplinary Engineering Program: Sem-wise Credit Dist.- One Major, One Minor

Semester		I	II	III	IV	V	VI	VII	VIII	Total Credits
Basic Science Course	BSC/ESC	08	—	03	—	—	02	—	—	13
Engineering Science Course		07	03	—	—	—	—	—	—	10
Programme Core Course (PCC)	Programme Courses	—	12	14	18	13	03	00	—	60
Programme Elective Course (PEC)		—	—	—	—	—	06	06	03	15
Open/School Elective (OE/SE) other than particular program	Multi-disciplinary	—	—	—	—	—	—	03	03	06
Multidisciplinary Minor (MD M)		—	—	03	03	03	03	03	—	15
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	02	02	—	—	02	—	—	—	06
Ability Enhancement Course (AEC-01)	Humanities Social Science and Management	02	—	—	—	—	—	—	—	02
Indian Language (AEC-02)		—	—	—	—	—	02	—	—	02
Entrepreneurship/Economics/ Management Courses		—	02	02	—	02	—	—	—	06
Indian Knowledge System (IKS)		—	—	—	—	—	—	02	—	02
Value Education Course (VEC)		01	01	—	—	—	—	—	—	02
Research Methodology (RM)	RM	—	—	—	—	02	—	—	—	02
Internship	Experiential Learning Courses	—	—	—	—	—	—	03	06	17
Project		—	—	—	—	—	04	04		
Community Engagement Activity (CEA)/Field Project		—	—	02	—	—	—	—	—	02
Co-curricular & Extracurricular Activities (CCA)	Liberal Learning Course	—	—	—	—	—	—	—	—	0
Total Credits (One Major, One Minor degree)		20	20	24	21	22	20	21	12	160



Credit Distribution



****Note:** Table and pie chart may be updated based on revisions. Final will be submitted finally by the department.



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Information Technology

Curriculum

Semester 1					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Engineering Physics		BSC	4	3-0-2-0
2	Linear Algebra		BSC	4	3-1-0-0
3	Problem Solving with Programming		ESC	5	3-0-4-0
4	Fundamentals of Electrical & Electronics Engg.		ESC	4	3-0-2-0
5	Technical Communication Skills		HSMC (AEC)	2	1-0-2-0
6	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Universal Human Values				
	Professional Ethics				
	Art of Living				
					14-1-10-0
Total				20	25

Semester 2					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Discrete Mathematical Structures		PCC	4	3-1-0-0
2	Computer Organization and Architecture		PCC	4	3-0-2-0
3	Data Structures and Algorithms		PCC	4	3-0-2-0
4	Web Development		VSEC	2	0-0-4-0
5	Business Informatics and FinTech		BSC	3	3-0-0-0
6	Principles of Management		HSMC (AEC)	2	2-0-0-0
7	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Environmental Studies				
	Professional Ethics				
	Physical Education(Sports)				
					15-1-8-0
Total				20	24

Exit: After successful completion of two semesters, a student may get an exit option (certificate in IT-BIn) as per Ordinance. They need to do **Skill based courses of 6 credits additional**, in summer, offline before exit. The department will provide a list of such courses.



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Information Technology

Semester 3					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Probability and Statistics		BSC	4	3-1-0-0
2	Object Oriented Methodologies		PCC	4	3-0-2-0
3	Operating System		PCC	4	3-0-2-0
4	Software Engineering		PCC	3	2-0-2-0
5	Theory of Computation		PCC	3	2-1-0-0
6	Multi-Disciplinary Minor-1		MDM	3	3-0-0-0
7	Entrepreneurship Development		HSMC (AEC)	2	2-0-0-0
8	Community Services NCC, NSS, Yoga, Unnat Bharat Abhiyaan-UBA, Ek Bharat Shrestha Bharat, NGO, Prayas, etc.		HSMC (CEA)	1	0-0-0-1
					19-1-6-2
Total				24	28

Semester 4					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Design and Analysis of Algorithms		PCC	4	3-0-2-0
2	Operations Research		PCC	4	3-1-0-0
3	Computer Networks		PCC	4	3-0-2-0
4	Operations Management		PCC	3	2-1-0-0
5	Database Management System		PCC	4	3-0-2-0
6	Multi-Disciplinary Minor-2		MDM	3	3-0-0-0
					17-2-6-0
Total				22	25

Exit: After successful completion of four semesters, a student may get an exit option (Diploma in IT-BIn) as per Ordinance. They need to do **Skill Based Courses of 6 credits, additional**, in summer, before exit. The department will provide a list of such courses.



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Information Technology

Semester 5					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Cyber Security		PCC	4	3-0-2-0
2	Introduction to Machine Learning		PCC	4	3-0-2-0
3	Business Process Management		PCC	4	3-0-2-0
4	Artificial Intelligence		PCC	3	2-0-2-0
5	Micro Project		ELC	2	0-0-4-0
6	Multi-Disciplinary Minor-3		MDM	3	3-0-0-0
7	Design Thinking and innovation		HSMC (AEC)	2	1-0-2-0
					15-0-14-0
Total				22	29

Semester 6					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Data Analytics		PCC	4	3-0-2-0
2	Mini Project		ELC	4	0-0-8-0
3	Biology for Engineers		BSC	2	2-0-0-0
4	Process Mining & Analytics		PCC	3	2-0-2-0
5	Elective-1		PEC	3	3-0-0-0
6	Multi-Disciplinary Minor-4		MDM	3	3-0-0-0
7	Indian/Foreign Language (Regional Language, Sanskrit, German, Japanese, French)		HSMC (AEC)	2	1-0-2-0
					14-0-14-0
Total				21	28

Exit: After successful completion of Six semesters, a student may get an exit option (B.Sc Engg. in IT-BIn) as per ordinance. They need to do **Skill Based Courses of 6 credits, additional**, in summer, before exit. The department will provide a list of such courses.

Summer Semester					
S.N.	Course Name	Code	Type	Credit	
1	Internship		ELC	3	Credit will be added in 7th Sem.

Note: Internship will be evaluated in the beginning or during the seventh semester. Its credit and grades will be reflected in the 7th semester Grade sheet.

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Indian Institute of Information Technology - Allahabad

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Department of Information Technology

Semester 7					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Minor Project		ELC	4	0-0-8-0
2	Big Data Analytics		PCC	4	3-0-2-0
3	Elective-3		PEC	3	3-0-0-0
4	Open Elective-1		OEC	3	3-0-0-0
5	a)History of Indian Civilizations, b) Kautiliya's Arthashastra, c)Vedic Mathematics,d) Vedic Corpus ,e) Wisdom from the Ages, f) Panini's Grammar		HSMC (IKS)	2	2-0-0-0
6	Internship (Summer Semester)		ELEC	3	0-0-0-3
					10-0-10-3
Total				19	23

Semester 8					
Sl.No.	Course Name	Code	Type	Credit	L-T-P(hr)-S
1	Major Project#		ELC	6	0-0-12-0 0-0-0-6*
2	Elective-4		PEC	3	3-0-0-0 0-0-0-3*
3	Open Elective-2		OEC	3	3-0-0-0 0-0-0-3*
					6-0-12-0
Total				12	18

*8th Semester courses may be allowed to join via MOOC/ NPTEL/SWAYAM from list of courses approved by the department.

For Major Project, the students will have 3 options:

Option 1- The student will do an internship in a company, and the same work will be presented as the project without concealing any code/module;

Option 2- The student will do an internship in a company, but a separate project will be registered with the IIITA faculty in the department;

Option 3- The student will opt for a project only with the IIITA faculty in the department.



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Elective Basket (Tentative):

- International Business Operations
- High Performance Computing
- Time Series Data Analysis
- Any subject relevant to the specialization as decided by the department

Honors

- “Honors” is an additional credential a student will earn if he/ she opts for the extra 15 credits needed for this in his/ her own discipline. The concerned department specifies the course requirements for earning the Honors.
- **BTech- BI- Honors Course:** Minimum 8 CGPI and No backlog.
- After 3rd semester, students may choose extra credits for Honors.
- **The 8th Semester project must be an academic/research project.** At least one research publication in Tier I/II conferences or in SCI Journals communicated or one patent filed.
- Honors by Research

NEP-2020 Based

Curriculum Dual Degree B.Tech-IT(BIn) –MBA

(With effect from July 2026 batch)

Total Credit : 222

NEP-2020- New Education Policy- 2020

L-T-P (hr)

Lecture-L: 1 Credit = 1 hr/ week

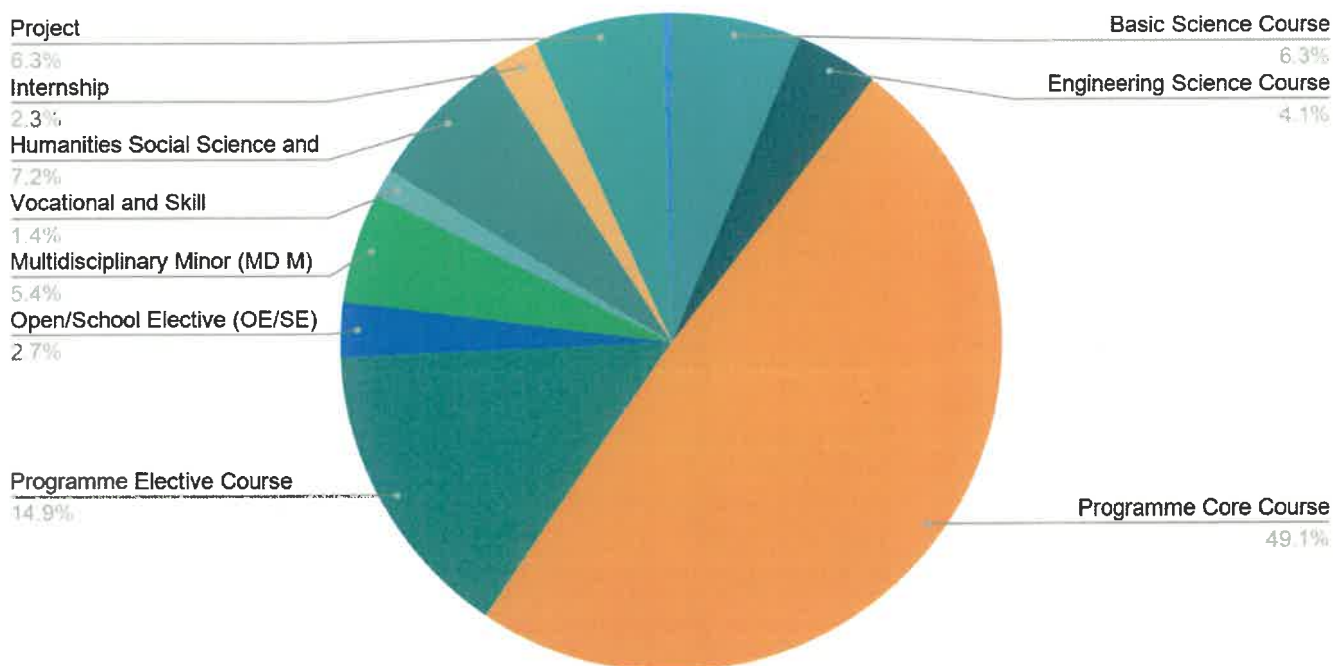
Tutorial-T: 1 Credit = 1 hr/week

Practical-P: 1 Credit = 2 hr/week

Self Study-S: 1 Credit= 1 hr/week

1. Degree: Dual Degree B.Tech. IT- (B.In.) - MBA shall be given upon successful completion of the programme.
2. Duration: The total duration of the program will be 5 years.

B.Tech-IT (B.In.) –MBA Credit Distribution



M/zh

Dual Degree B.Tech IT- (B.In.) –MBA Credit Distribution

Multidisciplinary Engineering & Management Program:

Sem-wise Credit Distribution

Semester		I	II	III	IV	V	VI	VII	VIII	IX	X	Total Credits
Basic Science Course	BSC/ESC	08	--	04	--	--	02	--	--	--	--	14
Engineering Science Course		09	--	--	--	--	--	--	--	--	--	09
Programme Core Course (PCC)	Programme Courses	--	15	14	19	17	08	13	14	07	02	109
Programme Elective Course (PEC)		--	--	--	--	--	03	03	03	12	12	33
Open/School Elective (OE/SE) other than particular program	Multi-disciplinary	--	--	--	--	--	--	03	03	--	--	06
Multidisciplinary Minor (MD M)		--	--	03	03	03	03	--	--	--	--	12
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	--	02	--	--	--	--	--	--	01	--	03
Ability Enhancement Course (AEC-01)	Humanities Social Science and Management	02	--	02	--	02	--	--	--	--	--	06
Indian Language (AEC-02)		--	--	--	--	--	02	--	--	--	--	02
Entrepreneurship/Economics/Management Courses		--	02	--	--	--	--	--	--	--	02	04
Indian Knowledge System (IKS)		--	--	--	--	--	--	02	--	--	--	02
Value Education Course (VEC)		01	01	--	--	--	--	--	--	--	--	02
Internship	Experiential Learning Courses	--	--	--	--	--	--	03	--	02	--	05
Project		--	--	--	--	02	04	04	--	--	04	14
Community Engagement Activity (CEA)/Field Project		--	--	01	--	--	--	--	--	--	--	01
Co-curricular & Extracurricular Activities (CCA)	Liberal Learning Course	--	--	--	--	--	--	--	--	--	--	0
Total Credits		20	20	24	22	24	22	28	20	22	20	222

****Note:** Table and pie chart may be updated based on revisions. Final will be submitted finally by the department.

Curriculum

Semester 1					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Engineering Physics		BSC	4	3-0-2-0
2	Linear Algebra		BSC	4	3-1-0-0
3	Problem Solving with Programming		ESC	5	3-0-4-0
4	Fundamentals of Electrical & Electronics Engg.		ESC	4	3-0-2-0
5	Technical Communication Skill		HSMC (AEC)	2	1-0-2-0
6	Constitution of India Universal Human Values Professional Ethics Art of Living		HSMC (VEC)	1	1-0-0-0
					14-1-10-0
Total				20	25

Semester 2					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Discrete Mathematical Structures		PCC	4	3-1-0-0
2	Computer Organization and Architecture		PCC	4	3-0-2-0
3	Data Structures and Algorithms		PCC	4	3-0-2-0
4	Web Development		VSEC	2	0-0-4-0
5	Business Informatics and FinTech		BSC	3	3-0-0-0
6	Principles of Management		HSMC (AEC)	2	2-0-0-0
7	Constitution of India Environmental Studies Professional Ethics Physical Education (Sports)		HSMC (VEC)	1	1-0-0-0
					15-1-8-0
Total				20	24

Exit: After successful completion of two semesters, a student may opt for an exit option (Certificate in IT-B.In.) as per the Ordinance. They need to do **skill-based courses of 6 credits additional**, in the summer, offline, before exit. The department will provide a list of such courses.

Semester 3					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Probability and Statistics		BSC	4	3-1-0-0
2	Object Oriented Methodologies		PCC	4	3-0-2-0
3	Operating System		PCC	4	3-0-2-0
4	Software Engineering		PCC	3	2-0-2-0
5	Theory of Computation		PCC	3	2-1-0-0
6	Multi-Disciplinary Minor-1		MDM	3	3-0-0-0
7	Entrepreneurship Development		HSMC (AEC)	2	2-0-0-0
8	Community Services NCC, NSS, Yoga, Unnat Bharat Abhiyaan-UBA, Ek Bharat Shrestha Bharat, NGO, Prayas, etc.		HSMC (CEA)	1	0-0-0-1
					18-2-6-1
Total				24	27

Semester 4					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Design and Analysis of Algorithms		PCC	4	3-0-2-0
2	Operations Research		PCC	4	3-1-0-0
3	Computer Networks		PCC	4	3-0-2-0
4	Operations Management		PCC	3	2-2-0-0
5	Database Management System		PCC	4	3-0-2-0
6	Multi-Disciplinary Minor-2		MDM	3	3-0-0-0
					17-3-6-0
Total				22	26

Exit: After successful completion of four semesters, a student may get an exit option (Diploma in IT-B.In.) as per Ordinance. They need to do **Skill-Based Courses of 6 credits, additional**, in summer, before exit. The department will provide a list of such courses.

Semester 5					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Cyber Security		PCC	4	3-0-2-0
2	Introduction to Machine Learning		PCC	4	3-0-2-0
3	Business Process Management		PCC	4	3-0-2-0
4	Artificial Intelligence		PCC	3	2-0-2-0
6	Micro Project		ELC	2	0-0-4-0
7	Multi-Disciplinary Minor-3		MDM	3	3-0-0-0
8	Design Thinking and innovation		HSMC (AEC)	2	1-0-2-0
9	Organisation Design & Behavior		PCC	2	2-0-0-0
					17-0-14-0
Total				24	31

Semester 6					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Data Analytics		PCC	4	3-0-2-0
2	Mini Project		ELC	4	0-0-8-0
3	Biology for Engineers		BSC	2	2-0-0-0
4	Process Mining & Analytics		PCC	3	2-0-1-0
5	Elective-1		PEC	3	3-0-0-0
6	Multi-Disciplinary Minor-4		MDM	3	3-0-0-0
7	Indian/Foreign Language (Regional Language, Sanskrit, German, Japanese, French)		HSMC (AEC)	2	1-0-2-0
8	Business Law and IPRs		PCC	1	1-0-0-0
					16-0-13-0
Total				22	29

Exit: After successful completion of six semesters, a student may opt for an exit option (B.Sc. Engg. in IT-B.In.) as per ordinance. They need to do **Skill-Based Courses of 6 credits, additional**, in summer, before exit. The department will provide a list of such courses.

Summer Semester					
S.N.	Course Name	Code	Type	Credit	
1	Internship		ELC	3	Credit will be added in VII Sem.

Note: The internship will be evaluated at the beginning or during the seventh semester. Its credit and grades will be reflected in the 7th-semester grade sheet.

Semester 7					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Minor Project		ELC	4	0-0-8-0
2	Big Data Analytics		PCC	4	3-0-2-0
3	Elective-2*		PEC	3	3-0-0-0
4	Open Elective-1		OEC	3	3-0-0-0
5	a)History of Indian Civilizations, b) Kautiliya's Arthashastra, c)Vedic Mathematics,d) Vedic Corpus ,e) Wisdom from the Ages, f) Panini's Grammar		HSMC (IKS)	2	2-0-0-0
6	Internship (Summer Semester)		ELC	3	0-0-0-3
7	Marketing management		PCC	3	2-0-2-0
8	Financial Statements & Analysis		PCC	3	2-0-2-0
9	Economics		PCC	3	3-0-0-0
					18-0-14-3
Total				28	35

Semester 8					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Corporate Finance		PCC	3	2-0-2-0
2	Human Resource Management		PCC	3	2-0-2-0
3	Business research methods		PCC	3	2-0-2-0
4	Elective-3 *		PEC	3	3-0-0-0
5	Open Elective-2		OEC	3	3-0-0-0
6	Artificial Intelligence for Business		PCC	3	2-0-2-0
7	IT Audit & Security		PCC	2	2-0-0-0
					16-0-8-0
Total				20	24

Exit option 1: After successful completion of eight semesters, a student may opt for an exit option (B.Sc Engg in IT-B.In.) with a Diploma in Business Administration as per the ordinance.

Exit options 2: After successful completion of Eight Semesters, students may opt for exit with B.Tech IT-B.In. by completing one additional semester 9A as per the requirements of the B.Tech Degree (refer Ordinance)

* Elective-1, 2 & 3 will be offered by the IT Department.

Semester 9					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Strategic Management		PCC	3	2-0-2-0
2	Business & IT Consulting		PCC	2	1-0-2-0
3	Workshop on Advanced Communication Skills		VSEC	1	0-0-2-0
4	Business Ethics and Corporate Governance		PCC	2	2-0-0-0
5	Two Courses to be chosen from one of the Baskets 1/2/3/4/5/6/7		PEC	3	2-0-2-0
6			PEC	3	2-0-2-0
7	Two Courses to be chosen from one of the Baskets 1/2/3/4/5/6/7		PEC	3	2-0-2-0
8			PEC	3	2-0-2-0
9	Summer Internship		ELC	2	0-0-0-2
					13-0-14-2
Total				22	29

Semester 10					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	IT Product Management		PCC	2	2-0-0-0
2	Sustainability and Social Audit		HSMC	2	2-0-0-0
3	Two Courses to be chosen from one of the Baskets 1/2/3/4/5/6/7		PEC	3	2-0-2-0
4			PEC	3	2-0-2-0
5	Two Courses to be chosen from one of the Baskets 1/2/3/4/5/6/7		PEC	3	2-0-2-0
6			PEC	3	2-0-2-0
7	Capstone Project		ELC	4	0-0-0-4
					12-0-8-4
Total				20	24

Semester 9A (This semester is only for Exit Option 2 after 8th Semester)					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Major Project #		ELC	6	0-0-12-0
2	Business & IT Consulting		PCC	2	1-0-2-0
3	Business Ethics and Corporate Governance		PCC	2	2-0-0-0
					3-0-14-0
Total				10	17

For Major Project, the students will have 3 options:

Option 1- The student will do an internship in a company, and the same work will be presented as the project without concealing any code/module.

Option 2- The student will do an internship in a company, but a separate project will be registered with the IIITA faculty in the department.

Option 3- The student will opt for a project only with the IIITA faculty in the department.

List of Elective Baskets Offered in MBA
Basket 1: Marketing Management
Basket 2: Financial Management
Basket 3: Operation Management
Basket 4: Human Resource Management
Basket 5: Information Technology Management (B.In.) (Exclusively for Dual Degree B.Tech. IT- (B.In.) - MBA Program)
Basket 6: Entrepreneurship Development
Basket 7: Agri-Business Management





NEP-2020 Based BTech-IT- UG curriculum

(With effect from July 2026)

Total Credit : 160

Lecture-L: 1 Credit = 1 hr/ week

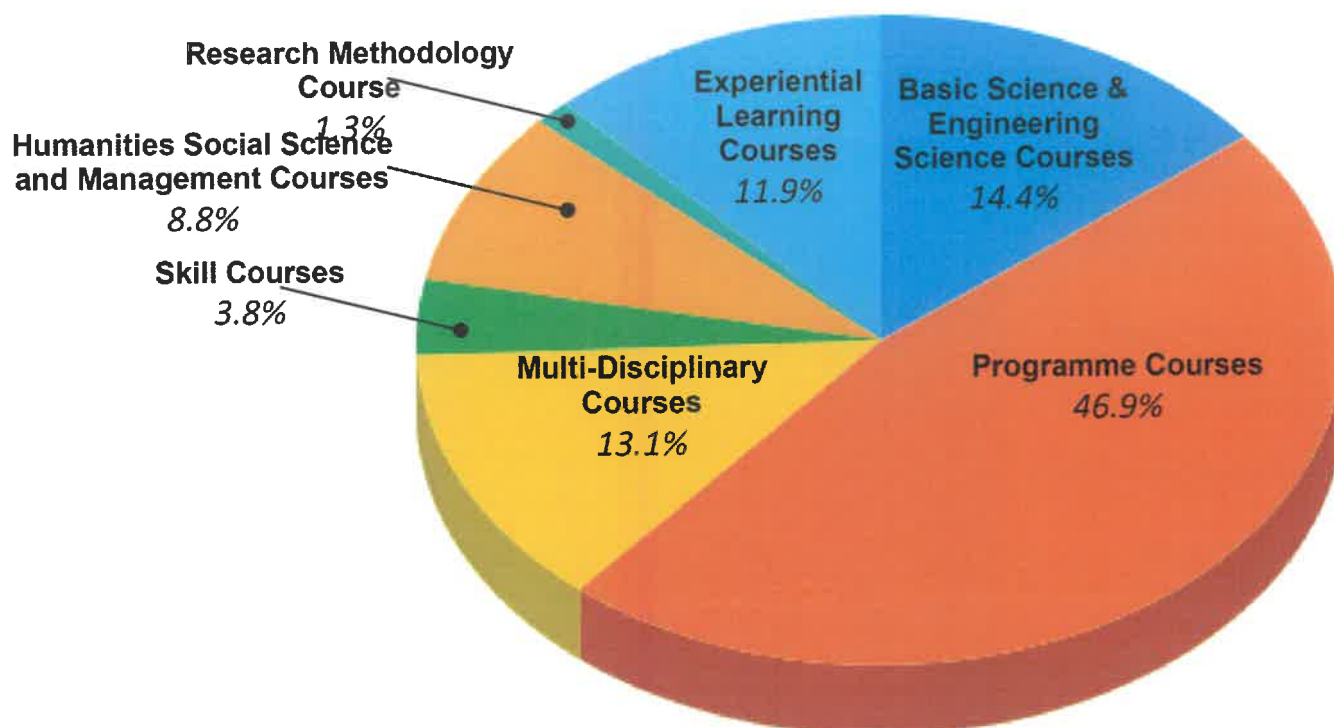
Practical-P: 1 Credit = 2 hr/week

Tutorial-T: 1 Credit = 1hr/week

Self Study-S: 1 Credit= 1 hr/week

Multidisciplinary BTech-IT Program: Sem-wise Credit Dist.- One Major, One Minor

Semester		I	II	III	IV	V	VI	VII	VIII	Total Credits	
Basic Science Course	BSC/ESC	08	--	03	--	--	02	--	--	13	23
Engineering Science Course		07	03	--	--	--	--	--	--	10	
Programme Core Course (PCC)	Programme Courses	--	12	14	18	13	03	--	--	60	75
Programme Elective Course (PEC)		--	--	--	--	--	06	06	03	15	
Open/School Elective (OE/SE) other than particular program	Multi-disciplinary	--	--	--	--	--	--	03	03	06	21
Multidisciplinary Minor (MD M)		--	--	03	03	03	03	03	--	15	
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	02	02	--	--	02	--	--	--	06	06
Ability Enhancement Course (AEC-01)	Humanities Social Science and Management	02	--	--	--	--	--	--	--	02	14
Indian Language (AEC-02)		--	--	--	--	--	02	--	--	02	
Entrepreneurship/Economics/Management Courses		--	02	02	--	02	--	--	--	06	
Indian Knowledge System (IKS)		--	--	--	--	--	--	02	--	02	
Value Education Course (VEC)		01	01	--	--	--	--	--	--	02	
Research Methodology (RM)	RM	--	--	--	--	02	--	--	--	02	02
Internship	Experiential Learning Courses	--	--	--	--	--	--	03	06	17	19
Project		--	--	--	--	--	04	04			
Community Engagement Activity (CEA)/Field Project		--	--	02	--	--	--	--		02	
Co-curricular & Extracurricular Activities (CCA)	Liberal Learning Course	--	--	--	--	--	--	--	--	0	0
Total Credits (One Major, One Minor degree)		20	20	24	21	22	20	21	12	160	160



****Note:** Table and pie chart may be updated based on revisions. Final will be submitted finally by the department.



Indian Institute of Information Technology - Allahabad

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Department of Information Technology

Curriculum

Semester 1					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Engineering Physics		BSC	4	3-0-2-0
2	Linear Algebra		BSC	4	3-1-0-0
3	Problem Solving with Programming		ESC	5	3-0-4-0
4	Fundamentals of Electrical & Electronics Engineering		ESC	4	3-0-2-0
5	Technical Communication Skills		HSMC (AEC)	2	1-0-2-0
6	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Universal Human Values				
	Professional Ethics				
	Art of Living				
Total				20	14-1-10
					25

Semester 2					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Discrete Mathematical Structures		PCC	4	3-1-0-0
2	Computer Organization and Architecture		PCC	4	3-0-2-0
3	Data Structures and Algorithms		PCC	4	3-0-2-0
4	Web Development		VSEC	2	0-0-4-0
5	Principles of Data Communication		ESC	3	3-0-0-0
6	Principles of Management		HSMC (AEC)	2	2-0-0-0
7	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Environmental Studies				
	Professional Ethics				
	Physical Education(Sports)				
Total				20	15-1-8-0 24

Exit: After successful completion of two semesters, a student may get an exit option (Certificate in IT) as per Ordinance. They need to do **Skill based courses of 6 credits additional**, in summer, offline before exit. The department will provide a list of such courses.



Indian Institute of Information Technology - Allahabad

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Department of Information Technology

Semester 3					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Probability and Statistics		BSC	4	3-1-0-0
2	Object Oriented Methodologies		PCC	4	3-0-2-0
3	Theory of Computation		PCC	3	2-1-0-0
4	Operating System		PCC	4	3-0-2-0
5	Software Engineering		PCC	3	2-0-2-0
6	<i>Multi-Disciplinary Minor-1</i>		MDM	3	3-0-0-0
7	<i>Entrepreneurship Development</i>		HSMC (AEC)	2	2-0-0-0
8	<i>Community Services</i> NCC, NSS, Yoga, Unnat Bharat Abhiyaan-UBA, Ek Bharat Shreshtha Bharat-EBSB, NGO, Prayas, etc.		HSMC (CEA)	1	0-0-0-1
Total				24	18-2-6-1 27

Semester 4					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Design and Analysis of Algorithms		PCC	4	3-0-2-0
2	Principles of Programming Language		PCC	3	3-0-0-0
3	Computer Networks		PCC	4	3-0-2-0
4	Computer Graphics and Visualization		PCC	4	3-0-2-0
5	Database Management System		PCC	4	3-0-2-0
6	<i>Multi-Disciplinary Minor-2</i>		MDM	3	3-0-0-0
Total				22	18-0-8-0 26

Exit: After successful completion of Four semesters, a student may get an exit option (Diploma in IT) as per Ordinance. They need to do **Skill Based Courses of 6 credits, additional**, in summer, before exit. The department will provide a list of such courses.

Semester 5					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Cyber Security		PCC	4	3-0-2-0
2	Introduction to Machine Learning		PCC	4	3-0-2-0
3	Image and Video Processing		PCC	4	3-0-2-0

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Indian Institute of Information Technology - Allahabad

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Department of Information Technology

4	Artificial Intelligence		PCC	3	2-0-2-0
5	Micro Project		ELC	2	0-0-4-0
6	<i>Multi-Disciplinary Minor-3</i>		MDM	3	3-0-0-0
7	<i>Design Thinking and Innovation</i>		HSMC (AEC)	2	1-0-2-0
Total				22	15-0-14-0 29

Semester 6					
Sl.No.	Course Name	Code	Type	Credit	Hours L-T-P-S
1	Data Analytics		PCC	4	3-0-2-0
2	Mini Project		ELC	4	0-0-8-0
3	Biology for Engineers		BSC	2	2-0-0-0
4	Elective-1		PEC	3	3-0-0-0
5	Elective-2		PEC	3	3-0-0-0
6	<i>Multi-Disciplinary Minor-4</i>		MDM	3	3-0-0-0
7	<i>Indian/Foreign Language Regional Language, Sanskrit, German, Japanese, French</i>		HSMC (AEC)	2	1-0-2-0
Total				21	15-0-12-0 27

Exit: After successful completion of Six semesters, a student may get an exit option (B.Sc Engg. in IT) as per ordinance. They need to do **Skill Based Courses of 6 credits, additional**, in summer, before exit. The department will provide a list of such courses

Summer Semester					
Sl.No.	Course Name	Code	Type	Credit	
1	Internship		ELC	3	Credit will be added in VII Sem.

Note: Internship will be evaluated in the beginning of seventh semester. Its credit and grades will be reflected in the 7th semester Grade sheet.

Semester 7					
Sl.No.	Course Name	Code	Type	Credit	Hours L-T-P-S
1	Minor Project		ELC	4	0-0-8-0
2	Elective-3		PEC	3	3-0-0-0
3	Elective-4		PEC	3	3-0-0-0

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Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Information Technology

4	Open Elective-1		OEC	3	3-0-0-0
5	History of Indian Civilizations/ Kautilya's Arthashastra/ Vedic Mathematics/ Vedic Corpus/ Wisdom from the Ages/ Panini's Grammar		HSMC (IKS)	2	2-0-0-0
6	Internship (Summer Semester)		ELC	3	0-0-0-6
Total				18	11-0-8-6
					25

Semester 8					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Major Project#		ELC	6	0-0-12-0 0-0-0-6 *
2	Elective-5		PEC	3	3-0-0-0 0-0-0-3 *
3	Open Elective-2		OEC	3	3-0-0-0 0-0-0-3 *
Total				12	6-0-12-0 18

*8th Semester courses may be allowed to join via MOOC/ NPTEL/SWAYAM from list of courses approved by the department.

For Major Project, the students will have 3 options:

Option 1- The student will do an internship in a company, and the same work will be presented as the project without concealing any code/module;

Option 2- The student will do an internship in a company, but a separate project will be registered with the IIITA faculty in the department;

Option 3- The student will opt for a project only with the IIITA faculty in the department.



1. Honors

- “Honors” is an additional credential a student will earn if he/ she opts for the extra 15 credits needed for this in his/ her own discipline. The concerned department specifies the course requirements for earning the Honors.
- BTech- IT- Honor Course: Minimum 8 CGPI and No backlog.
- After 3rd semester, students may choose extra credits for Honors
- The 8th Semester project must be an academic project. At least one research publication in Tier I/II conferences or in SCI Journals communicated or one patent filed.

2. Honors by Research

Multidisciplinary Minor Cyber Security & Forensics

Sl.No.	Course Name	Course Code	Semester	Credits	Hours
					L-T-P
1	Cyber Security and Digital Forensics		III	3	
2	Cyber Law and Security Standards		IV	3	
3	Blockchain Technology		V	3	
4	Intrusion Detection System		VI	3	
Total				12	

Note: Department will float other minors in future.

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

B.Tech ECE (Credits: 160)

(With effect from July 2026 batch)

NEP-2020- New Education Policy- 2020

L-T-P (hr)

Lecture-L: 1 Credit = 1 hr/ week

Tutorial-T: 1 Credit = 1 hr/week

Practical-P: 1 Credit = 2 hr/week

Self Study: 1 Credit = 1 hr/week

1. Degree: B.Tech ECE

2. Duration: The total duration of the program will be 4 years.

Type of Courses

Programme Core Course (PCC)
Programme Elective Course (PEC)
Open/School Elective (OE/SE) other than particular program
Multidisciplinary Minor (MDM)
Ability Enhancement Course (AEC-01)
Indian Language (AEC-02)
Entrepreneurship/Economics/ Management Courses
Indian Knowledge System (IKS)
Value Education Course (VEC)
Internship
Dissertation/Thesis
Community Engagement Activity (CEA)/Field Project
Co-curricular & Extracurricular Activities (CCA)

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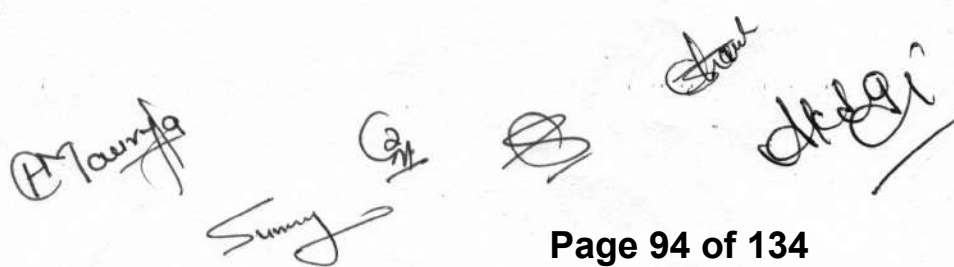
Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Semester 1					Total Credit: 20
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Engineering Physics		BSC	4	3-0-2-0
2	Linear Algebra		BSC	4	3-1-0-0
3	Problem Solving with Programming		ESC	5	3-0-4-0
4	Fundamentals of Electrical & Electronics Engineering		ESC	4	3-0-2-0
5	Technical Communication Skills		HSMC (AEC)	2	1-0-2-0
6	Constitution of India		HSMC (VEC)	1	1-0-0-0
	Universal Human Values				
	Professional Ethics				
	Art of Living				
Total				20	14-1-10-0
					25

Semester 2					Total Credit: 21
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Electronic Workshop		VSEC	2	0-0-4-0
2	Digital Logic Design with HDL		PCC	3	2-0-2-0
3	Electronic Devices and Circuits		ESC	3	2-0-2-0
4	Electronic Measurements and Instrumentation		PCC	3	2-0-2-0
5	Data Structures and Algorithms		ESC	4	3-0-2-0
6	Network Synthesis & Analog Filters		PCC	3	2-1-0-0
7	Principles of Management		HSMC(AEC)	2	2-0-0-0
8	Constitution of India		HSMC(VEC)	1	1-0-0-0
	Environmental Studies				
	Professional Ethics				
	Physical Education (Sports)				
	Any Other				
Total				21	14-1-12-0 27

Exit: After successful completion of the first two semesters, a student may opt for an exit (Certificate in ECE) as per the Ordinance. They need to complete 6 additional Skill-based credits offline in the summer before exit. The department will provide a list of such courses.



Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Semester 3					Total Credit: 22
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Electromagnetic Field and Waves		PCC	3	3-0-0-0
2	Signal and Systems		PCC	4	3-1-0-0
3	Analog Electronics & Linear ICs		PCC	4	3-0-2-0
4	Microprocessor Interface and Programming		PCC	3	2-0-2-0
5	Biology for Engineers		BSC	2	2-0-0-0
6	Multi-Disciplinary Minor-1		MDM	3	3-0-0-0
7	Entrepreneurship Development		HSMC (AEC)	2	2-0-0-0
8	Community Services		HSMC (CEA)	1	0-0-0-1
	NCC				
	NSS				
	Yoga				
	Unnat Bharat Abhiyaan				
	Ek Bharat Shreshtha Bharat				
	NGO				
	Prayas				
	Other Courses				
Total				22	18-1-4-1 24

Semester 4					Total Credit: 24
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Control Systems		PCC	4	3-0-2-0
2	Analog Communication		PCC	3	2-0-2-0
3	CMOS VLSI Design		PCC	3	2-0-2-0
4	Probability and Statistics		BSC	4	3-1-0-0
5	Antenna and Wave Propagation		PCC	4	3-0-2-0
6	Integrated Circuit Technologies		PCC	3	3-0-0-0
7	Multi-Disciplinary Minor-2		MDM	3	3-0-0-0
Total				24	19-1-8-0 28

Exit: After successful completion of the four semesters, a student may opt for an exit (Diploma in ECE) as per the Ordinance. They need to complete 6 additional Skill-based credits offline in the summer before exit. The department will provide a list of such courses.

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Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Semester 5					Total Credit: 23
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Digital Signal Processing		PCC	4	3-0-2-0
2	Embedded System Design		PCC	3	2-0-2-0
3	Microwave Engineering		PCC	4	3-0-2-0
4	Digital Communication		PCC	4	3-0-2-0
5	Elective-1 A. Electrical Machines B. Advanced Computer Architectures C. AI & ML Techniques D. Solid State Devices E. Any Other		PEC	3	3-0-0-0
6	Multi-Disciplinary Minor-3		MDM	3	3-0-0-0
7	Design Thinking and Innovation		HSMC (AEC)	2	1-0-2-0
Total				23	18-0-10-0 28

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Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Semester 6					Total Credit: 18
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Data Communication & Networking		PCC	3	2-0-2-0
2	Mobile and Wireless Communication		PCC	3	2-0-2-0
3	Elective-2 A. Power Electronics B. Testing & Verification C. Optical Communication D. Detection & Estimation Theory E. Physics of Nanoscale Devices F. Any Other		PEC	3	3-0-0-0
4	Mini Project		ELC	4	0-0-8-0
5	Multi-Disciplinary Minor-4		MDM	3	3-0-0-0
6*	Indian language(I1-I10)		HSMC (AEC)	2	1-0-2-0
	Sanskrit				
	(I2-I10)				
	Foreign language(F1-F10)				
	German				
	Japanese				
	French				
	(F4-F10)				
	Regional Language(R1-R10)				
	(R1-R10)				
Total				18	11-0-14-0 25

Exit option: After successful completion of six semesters, a student may get an exit option (B.Sc Engg. In ECE) as per Ordinance after completion of the summer semester internship (3 credits) and additional 3 credit courses in summer.

*I1 to I10, F1 to F10 and R1 to R10 will be decided by the concerned department.

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Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Summer Semester					Total Credit: 3
Sl. No.	Course Name	Code	Type	Credit	
1	Internship		ELC	3	Credit will be added in 7 th Sem.

Note: Internship will be evaluated in the beginning of seventh semester. Its credit and grades will be reflected in the 7th Semester Grade Sheet.

Semester 7					Total Credit: 18
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Elective-3 A. Electrical Vehicles B. FPGA Architectures C. Image Processing & Image Vision D. Multiple Input-Multiple Output (MIMO) E. Low Power System Design F. Any Other		PEC	3	3-0-0-0
2	Elective-4 A. Radar & Satellite Communication B. MEMS C. Speech Processing D. Emerging Nanoscale Devices E. 6G & THz Communication F. Any Other		PEC	3	3-0-0-0
3	Open Elective-1		OEC	3	3-0-0-0
4	History of Indian Civilizations Kautilya's Arthashastra Vedic Mathematics Vedic Corpus Wisdom from the Ages Panini's Grammar XI - X9		HSMC (IKS)	2	2-0-0-0
5	Internship (Summer Semester)		ELC	3	0-0-0-3
6	Minor Project		ELC	4	0-0-8-0
Total				18	11-0-8-3
					22

Semester 8				Total Credit: 14	
S. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Major Project#		ELC	8	0-0-16-0 0-0-0-8**
2	Elective-5**		PEC	3	3-0-0-0 0-0-0-3**
3	Open Elective-II**		OEC	3	3-0-0-0 0-0-0-3**
				Total	14
					6-0-16-0/ 0-0-0-14 22/14

**8th Semester courses may be allowed to join via MOOC / NPTEL, etc. Major projects may be completed as Internship cum projects as per the following options:

For Major Project, the students will have 3 options:

Option 1- The student will do an internship in a company, and the same work will be presented as the project without concealing any code/module

Option 2- The student will do an internship in a company, but a separate project will be registered with the IIITA faculty in the department

Option 3- The student will opt for a project only with the IIITA faculty in the department.

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LIST OF ELECTIVES

Total Credit: 21					
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Image and Video Processing	IT5504	PEC	3	3
2	Deep Learning	IT5505	PEC	3	3
3	Probabilistic Machine Learning and Graphical Model	IT5506	PEC	3	3
4	Optimization	IT5507	PEC	3	3
5	Deep Learning	IT5508	PEC	3	3
6	Robot Motion Control	IT5509	PEC	3	3
7	Foundations of Robotics	IT5510	PEC	3	3
8	Advanced Graphics & Animation	IT5511	PEC	3	3
9	Virtual Reality	IT5512	PEC	3	3
10	Software Design & Architecture	IT5513	PEC	3	3
11	Software Requirements and Estimation	IT5514	PEC	3	3
12	Software Testing and Quality Management	IT5515	PEC	3	3
13	Data Visualization	IT5516	PEC	3	3
14	Big Data Analytics	IT5517	PEC	3	3
15	Parallel and Distributed Computing	IT5518	PEC	3	3
16	Principles of Wireless Communications	IT5519	PEC	3	3
17	Cloud and Edge Computing	IT5520	PEC	3	3
18	Embedded Systems and IoT	IT5521	PEC	3	3
19	Information Security Laws and Regulations	IT5522	PEC	3	3
20	Network Security	IT5523	PEC	3	3
21	Cyber Physical System Security	IT5524	PEC	3	3
22	Visual Recognition	IT5525	PEC	3	3
23	Computer vision	IT5526	PEC	3	3

24	Natural Language Processing	IT5527	PEC	3	3
25	Database Security	IT5528	PEC	3	3
26	Blockchain Technology	IT5529	PEC	3	3
27	Remote Sensing and GIS	IT5530	PEC	3	3
28	Social Network Analysis	IT5531	PEC	3	3
29	Generative AI and LLMs	IT5532	PEC	3	3
30	Large Language Model Conditioned Human-Robot Interactions	IT5533	PEC	3	3
31	Distributed Systems	IT5534	PEC	3	3
32	Optimization	IT5535	PEC	3	3
33	Probabilistic Graphical Models	IT5536	PEC	3	3
34	Cyber Security and Digital Forensics	IT5537	PEC	3	3
35	OMICS	AS5501	PEC	3	3
36	Data Analytics Fundamentals for Biology	AS5502	PEC	3	3
37	Scripting and Computer Environments	AS5503	PEC	3	3
38	Next-Generation Sequencing Tools and Algorithms	AS5504	PEC	3	3
39	Data Engineering for Molecular Structure Prediction	AS5505	PEC	3	3
40	Circuits and Instrumentation for Biomedical Engineering	AS5506	PEC	3	3
41	Biomechanics	AS5507	PEC	3	3
42	Biosignal Processing	AS5508	PEC	3	3
43	Mathematics and Statistics for Biology	AS5509	PEC	3	3
44	Molecular Biology	AS5510	PEC	3	3
45	Anatomy & Physiology	AS5511	PEC	3	3
46	Advanced Medical Instrumentation	AS5512	PEC	3	3
47	Biomedical Imaging	AS5513	PEC	3	3
48	Solid State Devices	EC5503	PEC	3	3

49	Testing and Verification	EC5505	PEC	3	3
50	Analog Integrated Circuit Design	EC5506	PEC	3	3
51	Advanced Digital Communication	EC5507	PEC	3	3
52	Statistical Signal Analysis	EC5508	PEC	3	3
53	Radiating Systems	EC5509	PEC	3	3
54	Introduction to Machine Learning	EC5510	PEC	3	3
55	Principles of Wireless Communications	EC5511	PEC	3	3
56	Recent Advances in Machine Learning	EC5512	PEC	3	3
57	Hardware Design Methodology	EC5513	PEC	3	3
58	Physics of Nanoscale Devices	EC5514	PEC	3	3
59	Radar & Satellite Communication	EC5515	PEC	3	3
60	Micro-electromechanical Systems	EC5516	PEC	3	3
61	Speech Processing	EC5517	PEC	3	3
62	Emerging Nanoscale Devices	EC5518	PEC	3	3
63	6G & THz Communication	EC5519	PEC	3	3
64	RF Integrated Circuit Design	EC5520	PEC	3	3

Multidisciplinary Minor

Entrepreneurship & Innovation				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	MS2501	Fundamentals of Entrepreneurship	3	2-0-2-0
IV	MS2502	Social Entrepreneurship	3	2-0-2-0
V	MS2503	Entrepreneurial Finance	3	2-1-0-0
VI	MS2504	Innovation Management	3	2-0-2-0
VII	MS2505	Managing Corporate Entrepreneurship	3	2-0-2-0
		Total	15	

Economics & Finance for Engineers				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	MS2506	Indian Economics	3	2-0-2-0
IV	MS2507	Money and Banking	3	2-0-2-0
V	MS2508	Economics of Business Environment	3	2-1-0-0
VI	MS2509	Start-up Economics	3	2-0-2-0
VII	MS2510	Digital Economics	3	2-0-2-0
		Total	15	

Science of Happiness				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	CS2501	Introduction to Science of Happiness	3	2-0-2-0
IV	CS2502	Understanding Domains of Happiness	3	2-0-2-0
V	CS2503	Happiness Indices	3	2-1-0-0
VI	CS2504	Assessment of happiness	3	2-0-2-0
VII	CS2505	Independent Study of Science of Happiness	3	2-0-2-0
		Total	15	

Biological Data Analytics				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	AS2501	Proteomics and Genomics	3	2-0-2-0
IV	AS2502	Next Generation Sequencing	3	2-0-2-0
V	AS2503	Cheminformatics for Engineers	3	2-1-0-0
VI	AS2504	Systems Biology and Modeling	3	2-0-2-0
VII	AS2505	Molecular Structure Prediction	3	2-0-2-0
		Total	15	

Revised (updated version at the end this program structure)

Revised (updated version at the end of this program structure)

Medical Diagnostics and Therapeutic Technology				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
II	AS2506	Basics of Immunology and Pathology	3	3-0-0-0
	AS2507	Biomedical Instrumentation	3	2-0-2-0
V	AS2508	Bio-MEMs and Nanotechnology	3	2-1-0-0
VI	AS2509	Medical Imaging	3	2-0-2-0
VII	AS2510	Tissue engineering and Gene therapy	3	2-0-2-0
		Total	15	

Mathematical Analysis				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	AS2511	Real Analysis	3	3-0-0-0
IV	AS2512	Introduction to Topology	3	3-0-0-0
V	AS2513	Differential Geometry of Curves and Surfaces	3	3-0-0-0
VI	AS2514	Measure Theory	3	3-0-0-0
VII	AS2515	Functional Analysis	3	3-0-0-0
		Total	15	

Frontiers in Physics				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	AS2516	Light Matter Interaction	3	2-1-0-0
IV	AS2517	Physics of Space and Time	3	2-1-0-0
V	AS2518	Magnetic Materials and Applications	3	2-1-0-0
VI	AS2519	Quantum Materials & Devices	3	2-1-0-0
VII	AS2520	Green Energy Physics	3	2-1-0-0
		Total	15	

The following is the complete list of courses in the desired order for these two MDM baskets.

A. Minor in Medical Diagnostics and Therapeutic Technology Curriculum

Semester	Course Name	Credit	L-T-P-S
III	Basics of Human Anatomy & Physiology	3	3-0-0-0
IV	Medical Imaging	3	3-0-0-0
V	Biomedical Instrumentation	3	3-0-0-0
VI	Bio-MEMs and Nanotechnology	3	3-0-0-0
	Total	12	

B. Minor in Biological Data Analytics Course Curriculum

Sl. No.	Course Name	Credit	LTPS
III	Proteomics and Genomics	3	3-0-0
IV	Molecular Structure & Prediction	3	3-0-0
V	Cheminformatics for Engineers	3	3-0-0
VI	Next Generation Sequencing	3	3-0-0
	Total	12	

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NEP-2020 Based Curriculum

Master of Business Administration

(With effect from [July 2026 batch](#))

Total Credit : 86

Semester 1 Credits: 22					Total
S.No.	Course title	Code	Type	Credits	Hours L-T-P-S
1.	Financial Statements & Analysis	MS4101	PCC	3	2-0-2-0
2.	Business Statistics & Analytics	MS4102	PCC	3	2-1-0-0
3.	Technology Management for Business	MS4103	PCC	3	2-0-2-0
4.	Data Visualization & Modelling	MS4104	SEC	2	1-0-2-0
5.	Business Communication	MS4105	SEC	1	0-0-2-0
6.	Marketing Management	MS4106	PCC	3	2-0-2-0
7.	Organization Design & Behavior	MS4107	PCC	2	2-0-0-0
8.	Entrepreneurship Development	MS4108	HSMC	2	2-0-0-0
9.	Economics	MS4109	PCC	3	3-0-0-0
				Total	22
					16-1-10-0
					27

Semester 2 Credits: 22					Total
S.No.	Course title	Code	Type	Credits	Hours L-T-P-S
1.	Corporate Finance	MS4110	PCC	3	2-0-2-0
2.	Human Resource Management	MS4111	PCC	3	2-0-2-0
3.	Operations Management	MS4112	PCC	3	2-1-0-0
4.	Business decision Modelling	MS4113	PCC	3	2-1-0-0
5.	Business research methods	MS4114	PCC	3	2-0-2-0
6.	Artificial Intelligence for business	MS4115	PCC	3	2-0-2-0
7.	IT Audit & Security	MS4116	PCC	2	2-0-0-0
8.	Design thinking & Innovation	MS4117	SEC	1	1-0-0-0
9.	Business Law & IPRs	MS4118	HSMC	1	1-0-0-0
				Total	22
					16-2-8-0
					26

Exit: After successful completion of one year (first two semesters), students may get *Diploma in Business Administration*. They need to earn 6 credits additional, in summer, before exit.

Semester 3 Credits: 22					Total
S.No.	Course title	Code	Type	Credits	Hours
					L-T-P-S
1.	Strategic Management	MS5201	PCC	3	2-0-2-0
2.	Business & IT Consulting	MS5202	PCC	2	1-0-2-0
3.	Workshop on advanced communication skills	MS5203	SEC	1	0-0-2-0
4.	Business Ethics and corporate governance	MS5204	PCC	2	2-0-0-0
5.	Two Courses to be chosen from one of the Baskets 1/2/3/4/5/6/7	MS5501-MS5599	PEC	3	2-0-2-0
6.			PEC	3	2-0-2-0
7.	Two Courses to be chosen from one of the Baskets 1/2/3/4/5/6/7	MS5501-MS5599	PEC	3	2-0-2-0
8.			PEC	3	2-0-2-0
9.	Summer Internship	MS6001	ELC	2	0-0-0-2
Total				22	13-0-14-2 29
Basket 1: Marketing Management					
Basket 2: Financial Management					
Basket 3: Operation Management					
Basket 4: Human Resource Management					
Basket 5: Information Technology Management					
Basket 6: Entrepreneurship Development					
Basket 7: Agri-Business Management					

Semester 4 Credits: 20					Total
S.No.	Course title	Code	Type	Credits	Hours
					L-T-P-S
1.	IT Product Management	MS5205	PCC	2	2-0-0-0
2.	Sustainability and Social Audit	MS5206	HSMC	2	2-0-0-0
3.	Two Courses to be chosen from one of the Baskets 1/2/3/4/5/6/7	MS5501-MS5599	PEC	3	2-0-2-0
4.			PEC	3	2-0-2-0
5.	Two Courses to be chosen from one of the Baskets 1/2/3/4/5/6/7	MS5501-MS5599	PEC	3	2-0-2-0
6.			PEC	3	2-0-2-0
7.	Capstone Project	MS6002	ELC	4	0-0-0-4
Total				20	12-0-8-4 24
Basket 1: Marketing Management					
Basket 2: Financial Management					
Basket 3: Operation Management					
Basket 4: Human Resource Management					
Basket 5: Information Technology Management					
Basket 6: Entrepreneurship Development					
Basket 7: Agri-Business Management					

List of Elective Baskets					
S.No.	Course title	Code	Type	Credits	Hours L-T-P-S
Basket 1: Marketing Management					
1.	Advertising	MS5501	PEC	3	2-0-2-0
2.	Consumer Analytics	MS5502	PEC	3	2-0-2-0
3.	Consumer Behavior	MS5503	PEC	3	2-0-2-0
4.	Digital Marketing	MS5504	PEC	3	2-0-2-0
5.	International Marketing	MS5505	PEC	3	2-0-2-0
6.	Marketing Technology	MS5506	PEC	3	2-0-2-0
7.	Marketing of Services	MS5507	PEC	3	2-0-2-0
8.	Retail Management and rTech	MS5508	PEC	3	2-0-2-0
9.	Data-Driven Marketing	MS5509	PEC	3	2-0-2-0
10.	Social Media Marketing	MS5510	PEC	3	2-0-2-0
Basket 2: Financial Management					
11	Security Analysis and Portfolio Management	MS5511	PEC	3	2-0-2-0
12	International Financial Management	MS5512	PEC	3	2-0-2-0
13	Strategic Cost Management	MS5513	PEC	3	2-0-2-0
14	Behavioral Finance	MS5514	PEC	3	2-0-2-0
15	Management of Banking and Financial Institutions	MS5515	PEC	3	2-0-2-0
16	Financial Technology	MS5516	PEC	3	2-0-2-0
17	Financial derivatives and Risk Management	MS5517	PEC	3	2-0-2-0
18	Project Appraisal and Financing	MS5518	PEC	3	2-0-2-0
Basket 3: Operation Management					
19	Supply Chain Management	MS5519	PEC	3	2-0-2-0
20	Strategic Sourcing and Logistics Management	MS5520	PEC	3	2-0-2-0
21	Project Management	MS5521	PEC	3	2-0-2-0
22	Advanced Operations Research	MS5522	PEC	3	2-0-2-0
23	Total Quality Management and Six Sigma	MS5523	PEC	3	2-0-2-0
24	Knowledge Management	MS5524	PEC	3	2-0-2-0
25	Sustainable and Global Supply Chain	MS5525	PEC	3	2-0-2-0
26	Service Operations Management	MS5526	PEC	3	2-0-2-0
Basket 4: Human Resource Management					
27	Business Transformation and VUCA	MS5527	PEC	3	2-0-2-0
28	Talent and Competency Management	MS5528	PEC	3	2-0-2-0
29	Managing Working Dynamics and Diversity	MS5529	PEC	3	2-0-2-0
30	Labour Law and Compensation	MS5530	PEC	3	2-0-2-0
31	International Human Resource Management	MS5531	PEC	3	2-0-2-0
32	Employer Brand Building	MS5532	PEC	3	2-0-2-0
33	Emotional Intelligence and Leadership	MS5533	PEC	3	2-0-2-0
34	Creativity and Innovation	MS5534	PEC	3	2-0-2-0
Basket 5: Information Technology Management					
35	IT Governance	MS5535	PEC	3	2-0-2-0
36	Cybersecurity Strategy	MS5536	PEC	3	2-0-2-0
37	Cloud Computing for Business	MS5537	PEC	3	2-0-2-0

38	Search Engine Optimization	MS5538	PEC	3	2-0-2-0
39	Software Project Management	MS5539	PEC	3	2-0-2-0
40	Business Intelligence	MS5540	PEC	3	2-0-2-0
Basket 6: Entrepreneurship Development					
41	Entrepreneurial Marketing & Growth	MS5541	PEC	3	2-0-2-0
42	Legal & Ethical Aspects of Entrepreneurship	MS5542	PEC	3	2-0-2-0
43	Entrepreneurial Strategy	MS5543	PEC	3	2-0-2-0
44	Innovation, Effectuation & Feasibility	MS5544	PEC	3	2-0-2-0
45	Product Development & MVP Design	MS5545	PEC	3	2-0-2-0
46	Startup Finance & Fundraising	MS5546	PEC	3	2-0-2-0
Basket 7: Agri-Business Management					
47	Agricultural Renewable Energy	MS5547	PEC	3	2-0-2-0
48	Digital Agribusiness Management	MS5548	PEC	3	2-0-2-0
49	Farm Equipment Management	MS5549	PEC	3	2-0-2-0
50	IoT-Enabled Agribusiness Supply	MS5550	PEC	3	2-0-2-0
51	Horticultural Production Management	MS5551	PEC	3	2-0-2-0
52	Smart Agribusiness Policies	MS5552	PEC	3	2-0-2-0

Semester wise Credit distribution as per NEP

	Sem1	Sem 2	Sem 3	Sem 4	Total Credits
PCC	17	20	7	2	46
PEC	0	0	12	12	24
SEC	3	1	1	0	5
HSMC	2	1	0	2	5
ELC	0	0	2	4	6
Total Credits	22	22	22	20	86

PCC: Program Core Course, PEC: Program Elective Course, SEC: Skill Enhancement Course

HSMC: Humanities, Social Science, and Management Course, ELC: Experiential Learning Course

L-T-P (hr)

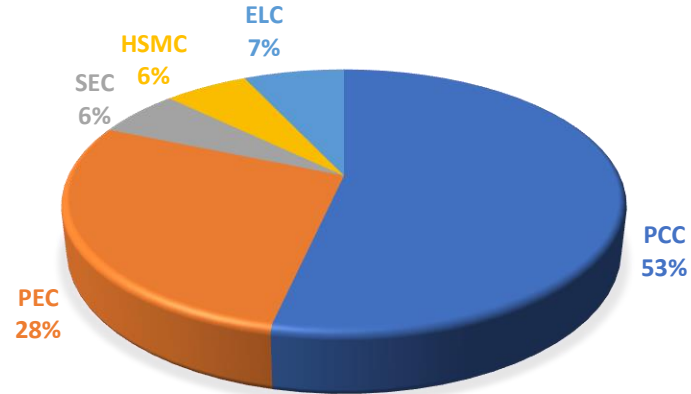
Lecture-L: 1 Credit = 1 hr/ week

Tutorial-T: 1 Credit = 1 hr/week

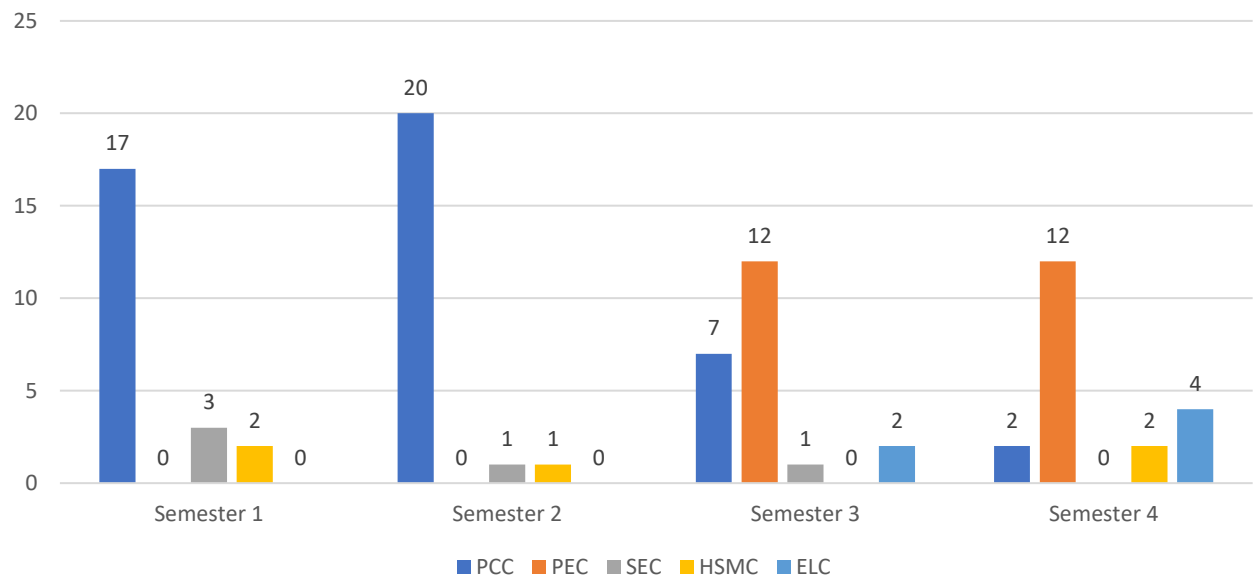
Practical-P: 1 Credit = 2 hr/week

Self Study-S: 1 Credit= 1 hr/week

PERCENTAGE DISTRIBUTION OF CREDITS



Semester-wise Credit Distribution



PG Seat Matrix for Year 2026-27 through CCMT

S. No.	Institute	Department	PG Program	OPEN	OPEN-PwD	EWS	EWS-PwD	SC	SC-PwD	ST	ST-PwD	OBC	OBC-PwD	Total
1	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Applied Sciences	M.Tech Bioinformatics	8	1	2	0	3	0	2	0	6	0	22
2	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Applied Sciences	Dual Degree M.Tech.- Ph.D. in Bioinformatics ✓	1	0	0	0	1	0	0	0	1	0	3
3	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Applied Sciences	M.Tech. Biomedical Analytics and Engineering	7	1	2	0	3	0	2	0	5	0	20
4	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Applied Sciences	M. Tech. Quantum Information and Technologies	9	1	2	0	4	0	2	0	7	0	25
5	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Electronics and Communication Engineering	M.Tech. ECE with specialization in Microelectronics and VLSI	8	1	2	0	3	0	2	0	6	0	22
6	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Electronics and Communication Engineering	M.Tech. ECE with specialization in Communication and Signal Processing	9	1	2	0	3	0	2	0	6	0	23
7	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Electronics and Communication Engineering	Dual Degree M.Tech. -Ph.D. in ECE with specialization in Microelectronics and VLSI	1	0	0	0	1	0	0	0	1	0	3
8	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Electronics and Communication Engineering	Dual Degree M.Tech. - Ph.D. in ECE with Specialization in Communication and Signal Processing	1	0	0	0	0	0	0	0	1	0	2
9	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Networks Systems and Computing	7	0	2	0	2	0	1	0	4	0	16
10	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Cyber Laws and Information Security	7	0	2	0	2	0	1	0	4	0	16
11	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Software Engineering and Automation	7	0	2	0	2	0	1	0	4	0	16
12	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Data Engineering	7	0	2	0	2	0	1	0	4	0	16
13	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Artificial Intelligence and Machine Learning	7	0	2	0	2	0	1	0	4	0	16
14	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Robotics and Artificial Intelligence	7	0	2	0	2	0	1	0	4	0	16
15	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Human Machine Interaction and Immersive Technologies	7	0	2	0	2	0	1	0	4	0	16
16	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Networks Systems and Computing	1	0	0	0	0	0	0	0	1	0	2
17	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Cyber Laws and Information Security	1	0	0	0	0	0	0	0	1	0	2
18	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Software Engineering and Automation	1	0	0	0	0	0	0	0	1	0	2
19	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Data Engineering	1	0	0	0	0	0	0	0	1	0	2
20	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Artificial Intelligence and Machine Learning	1	0	0	0	0	0	0	0	1	0	2
21	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Robotics and Artificial Intelligence	1	0	0	0	0	0	0	0	1	0	2
22	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Human Machine Interaction and Immersive Technologies	1	0	0	0	0	0	0	0	0	0	1
Total				100	5	24	0	32	0	17	0	67	0	245

[Signature]
24/03/2026

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24/3/2026

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24.3.26

Revised credit and course structure for Multidisciplinary Minors:

1. Course Proposer: MS Department (Prof. Anurika Vaish & Dr. Pragya Singh) ---MMDM-1

Entrepreneurship & Innovation (Floated by the Department of Management Studies)				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	DM201	Fundamentals of Entrepreneurship	3	2-0-1-0
IV	DM202	Social Entrepreneurship	3	2-0-1-0
V	DM303	Entrepreneurial Finance	3	2-0-1-0
VI	DM304	Innovation Management	3	2-0-1-0
Total			12	

2. Course Proposer: MS Department (Prof. Anurika Vaish & Dr. Pragya Singh) ---MMDM-2

Economics & Finance for Engineers (Floated by the Department of Management Studies)				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	DM211	Indian Economics	3	2-0-1-0
IV	DM212	Money and Banking	3	2-0-1-0
V	DM313	Economics of Business Environment	3	2-0-1-0
VI	DM314	Digital Economics	3	2-0-1-0
Total			12	

3. Course Proposer: Rekhi Centre on Science of Happiness(Prof. Prithish Varadwaj & Prof. Vijay Kumar Chaurasiya) ---MMDM-3

Science of Happiness (Floated by the Rekhi Centre on Science of Happiness)				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	CH201	Introduction to Science of Happiness	3	2-0-1-0
IV	CH202	Happiness Indices	3	2-0-1-0
V	CH303	Assessment of happiness	3	2-0-1-0
VI	CH304	Mini Project of Science of Happiness	3	0-0-1-2
Total			12	

Revised (updated version at the end of Annexure)

4. Course Proposer: AS Department (HoD - AS) ---MMDM-4

Biological Data Analytics (Floated by the Department of Applied Science)				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	DA201	Proteomics and Genomics	3	3-0-0
IV	DA202	Next Generation Sequencing	3	3-0-0
V	DA303	Cheminformatics for Engineers	3	3-0-0
VI	DA304	Molecular Structure Prediction	3	3-0-0
Total			12	

Revised (updated version at the end of Annexure)

5. Course Proposer: AS Department (HoD - AS) ---MMDM-5

Medical Diagnostics and Therapeutic Technology (Floated by the Department of Applied Science)				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	DA211	Basics of Human Anatomy & Physiology	3	3-0-0
IV	DA212	Biomedical Instrumentation	3	3-0-0
V	DA313	Bio-MEMs and Nanotechnology	3	3-0-0
VI	DA314	Medical Imaging	3	3-0-0
Total			12	

6. Course Proposer: AS Department (HoD - AS) ---MMDM-6

Mathematical Analysis (Floated by the Department of Applied Science)				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	DA221	Real Analysis	3	3-0-0
IV	DA222	Introduction to Topology	3	3-0-0
V	DA323	Differential Geometry of Curves and Surfaces	3	3-0-0
VI	DA324	Functional Analysis	3	3-0-0
Total			12	

7. Course Proposer: AS Department (HoD - AS) ---MMDM-7

Frontiers in Physics (Floated by the Department of Applied Science)				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	DA231	Light Matter Interaction	3	3-0-0
IV	DA232	Physics of Space and Time	3	3-0-0
V	DA333	Quantum Materials & Devices	3	3-0-0
VI	DA334	Green Energy Physics	3	3-0-0
Total			12	

8. Course Proposer: AS Department (HoD - AS) ---MMDM-8

Quantum Technologies (Floated by the Department of Applied Science)				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	DA241	Survey of Quantum Technologies and Applications	3	3-0-0
IV	DA242	Foundation of Quantum Technologies	3	3-0-0
V	DA343	Introduction to Quantum Materials	3	3-0-0
VI	DA344	Solid State Physics for Quantum Technologies	3	3-0-0
Total			12	

There is typo error where L-T-P-S, only L-T-P part is typed , it should be read '0' on S Part

9. Course Proposer: (Office Dean Academic Affairs) ---MMDM-9

Bharatiya Knowledge System(Floated by the IKS)				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	DD241	Foundations of Bhartiya Mathematics	3	2-0-0-1
IV	DD242	Kautilya's Arthashastra	3	2-0-0-1
V	DD343	Selected Topics from Paninian Grammer	3	2-0-0-1
VI	DD344	Indian Astronomy & Physics	3	2-0-0-1
Total			12	

10. Course Proposer: (Office of Dean Academic Affairs) ---MMDM-10

Kumbh Mela (Floated by the IKS)				
Semester	Course Code	Course Title	Credits	Hours
				L-T-P-S
III	DD241	Kumbh Mela- Faith, Science and Spectacle	3	2-0-0-1
IV	DD242	Kumbh Mela- A 'Religious Tourism Management'	3	2-0-0-1
V	DD343	Technology Deployment in Kumbh Mela	3	2-0-2-0
VI	DD344	Kumbh Mela- Learnings & Assorted Case Studies	3	2-0-2-0
Total			12	

The following is the complete list of courses in the desired order for these two MDM baskets.

A. Minor in Medical Diagnostics and Therapeutic Technology Curriculum

Semester	Course Name	Credit	L-T-P-S
III	Basics of Human Anatomy & Physiology	3	3-0-0-0
IV	Medical Imaging	3	3-0-0-0
V	Biomedical Instrumentation	3	3-0-0-0
VI	Bio-MEMs and Nanotechnology	3	3-0-0-0
	Total	12	

B. Minor in Biological Data Analytics Course Curriculum

Sl. No.	Course Name	Credit	LTPS
III	Proteomics and Genomics	3	3-0-0
IV	Molecular Structure & Prediction	3	3-0-0
V	Cheminformatics for Engineers	3	3-0-0
VI	Next Generation Sequencing	3	3-0-0
	Total	12	

Signature
27/4/26

**Guidelines for Supervision of Ph.D. Students of Other Institutes/ Universities****1. Phd supervision without MOU.****(a) Where IIITA faculty would act as Co-supervisor**

A faculty member of IIIT-Allahabad may act as a Supervisor/Co-Supervisor for Ph.D. students registered at other institutes/universities, subject to the following conditions:

1. Maximum Supervision Load

The maximum permissible supervision load for an IIIT-Allahabad faculty member shall be ten (10) Ph.D. scholars, including:

1. Institute Fellowship scholars
2. External Fellowship scholars
3. Joint Ph.D. scholars (excluding Working Professionals)

In addition, Working Professional Ph.D. scholars may be supervised as per institute norms and shall not be included in the above capping.

2. Limit on External Ph.D. Scholars (Within 10)

The number of externally registered Ph.D. scholars under any IIIT-Allahabad faculty member shall not exceed two (02) at any point in time, with the following distribution:

1. One (01) scholar from an Institute of National Importance (INI)
2. One (01) scholar from a non-INI institution

3. Time Limit for Addition of Co-Supervisor

The addition of an IIIT-Allahabad faculty member as Co-Supervisor shall be permitted only before the successful completion of the State-of-the-Art (SOTA) seminar or two (02) years from the date of registration, whichever is earlier.

4. Eligibility of Host Institution

The host institute/university must be:

1. Recognized by MHRD/UGC/AICTE, or
2. A foreign institute/university of repute, including Institutes of National Importance (INI).

5. Forwarding of Request

The request for Co-Supervision must be formally forwarded by the competent authority of the host institution, such as AR/DR/HoD/Dean/In-charge Ph.D. Cell, or an equivalent authority.

6. Eligibility of IIITA Faculty

The concerned IIIT-Allahabad faculty member must have guided or be currently guiding at least one Ph.D. scholar registered at IIIT-Allahabad.

7. Institute Responsibilities

Grant of this facility shall not adversely affect the academic, administrative, or research responsibilities of the faculty member at IIIT-Allahabad.

8. Leave and Official Duties



If the IIIT-Allahabad faculty member is required to visit the host institute in connection with supervision duties, prior approval for leave must be obtained as per institute rules. The faculty member shall remain fully accountable for all responsibilities assigned by IIIT-Allahabad.

9. Use of IIIT-Allahabad Facilities by External Scholar

1. If an external Ph.D. scholar wishes to avail IIIT-Allahabad facilities for a period exceeding two (02) months in a year, he/she shall be required to pay:
 - a. Full semester tuition fees, and
 - b. Hostel and mess charges as applicable.
2. If the stay is up to two (02) months in a year, only hostel and mess charges shall be payable as per institute policy.
3. For stays of less than two months in a year, use of IIIT-Allahabad facilities including laboratories, library, and other infrastructure shall be chargeable, and the cost shall be borne by the candidate or the host institution (To be decided by AR (A&R) in consultation with Dean (R&I)).

4. No financial liability shall be borne by IIIT-Allahabad in any case.

10. Intimation and Supervision Weightage

Upon fulfillment of all conditions, the IIIT-Allahabad Co-Supervisor shall formally inform the R&D Section regarding the co-supervision of the external Ph.D. scholar.

1. The external scholar shall be counted as one (01) Ph.D. candidate.
2. The supervision weightage for the IIIT-Allahabad faculty member shall be 0.5 for such a scholar.

11. Honorarium and Financial Disclosure

Any honorarium or financial remuneration received by the IIIT-Allahabad Co-Supervisor in connection with such supervision must be explicitly declared.

1. Any income arising therefrom shall attract a 30% contingency charge payable to IIIT-Allahabad.
2. Failure to declare such income shall result in debarment from future co-supervision provisions, and may also invite disciplinary action as per institute rules.

12. Intellectual Property and Publications

All matters related to patents, publications, and intellectual property arising from such research work shall be governed by the IIIT-Allahabad National Intellectual Property and Startup (NISP) Policy.



Form-I

INFORMATION TO BE PROVIDED BY THE HOST INSTITUTION FOR CONSIDERATION OF SUPERVISION OF THE PH.D. WORK OF THEIR CANDIDATES BY THE FACULTY OF IIIT ALLAHABAD.

1	Name of the Candidate.	
2	Qualification of the candidate	
3	Percentage of the Marks Obtained by the candidate at the qualifying examination i.e Master's Degree.	
4	Name of the Institution where the candidate is registered for Ph.D. degree.	
5	Whether the candidate is a faculty member or a regular Full-Time student at the host institution	
6	Name, Position & Address of supervisor from host Institution.	
7	Details of research facilities available at the host institution (please attach separate sheet).	
8	Whether the institution is approved by the UGC/AICTE/MHRD or recognized by IIITA.	
9	Regulations of the degree awarding Institution for evaluation of thesis. (attach copy)	
10	Any other information.	

Note: Application of part time candidates will not be considered for co-supervision by IIITA.

AR/DR/HoD/Dean/In-charge Ph.D. Cell, or an equivalent authority of Host Institution



Form-II
APPLICATION FOR SUPERVISING Ph.D. STUDENT OF INSTITUTIONS OTHER THAN IIITA

1	Name and Designation of the Faculty Member													
2	Department / Centre of IIITA													
3	Name of the Candidate & Departmental Address													
4	Name of the Host Institute / University													
5	Is the host Institute recognized by MHRD/UGC/AICTE													
6	Whether the request is duly forwarded by the Competent authority Head/Registrar/Dean of the Host Institution? if yes, please enclose the request													
7	Kindly attach the profile of the host Institute with research facilities including major equipment and list of faculty with their qualifications	Yes/No												
8	Give details of supervising Ph.D. students in the following table.	Numbers of Research Scholars being guided <table border="1"> <thead> <tr> <th></th> <th>Singly</th> <th>Jointly</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>IIITA</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Other Institute/University</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Singly	Jointly	Total	IIITA				Other Institute/University			
	Singly	Jointly	Total											
IIITA														
Other Institute/University														
9	Honorarium / Financial Declaration	Any honorarium involved: Yes / No If yes, details: I understand that 30% contingency shall be payable to IIITA as per rules.												
10	Declaration	I confirm that: 1. My total Ph.D. supervision is within the prescribed capping 2. External scholars under me do not exceed two 3. IIITA academic responsibilities shall not suffer												

SIGNATURE OF APPLICANT (FACULTY OF IIITA)

Recommendations of the R&D Cell _____

SIGNATURE OF HEAD OF THE R&D

SIGNATURE OF HEAD OF INSTITUTE



(b) Case where IIITA faculty is the Main Supervisor and the Co-Supervisor is an External Faculty Member

As per the NEP-Aligned PhD Ordinance (already approved by IIITA Senate), the following provisions shall apply regarding the appointment of thesis supervisors:

1. Identification of Supervisor
The identification of the thesis supervisor for PhD/Dual Degree students shall be completed before the end of the first semester (PhD) or third semester (Dual Degree), as applicable. Until a supervisor is formally allotted, the student shall register for courses from the pool of courses offered to the M.Tech./MBA programmes by the concerned department.
2. Number of Supervisors
A PhD student shall not normally have more than two supervisors at any given time. The supervisory structure may consist of:
 - One Supervisor, or
 - Two Supervisors, or
 - One Supervisor with one Co-Supervisor.
3. Induction of Additional Supervisor / Co-Supervisor
The induction of an additional Supervisor or Co-Supervisor, if required, shall be:
 - Identified and recommended by the existing Supervisor, and
 - Approved by the Chairman, Senate, before the end of the fourth semester of the PhD programme.
4. Mandatory Co-Supervisor in Case of Superannuation
In cases where the selected Supervisor is expected to superannuate within the next three years, the appointment of a Co-Supervisor shall be mandatory at the time the student opts for supervision under the retiring faculty member.
5. Eligibility and Approval of External Co-Supervisor
 - The thesis Supervisor(s) shall be chosen by the student from among the faculty members (including the Director) of the concerned department at IIITA, based on mutual research interests.
 - If a Co-Supervisor is proposed from outside IIITA, prior approval of the Chairman, Senate shall be mandatory.



(c) Supervision Arising Out of Project-Based Funding (e.g. Erasmus+, Externally Funded Projects, etc.)

As per the NEP-Aligned PhD Ordinance (already approved by IIITA Senate), the following provisions shall govern PhD supervision arising from project-based funding:

1. Definition of Project Funding Fellowship
A *Project Funding Fellowship* refers to a fellowship awarded to a PhD student under an externally funded Research & Development (R&D) project granted to the Institute by a government, international, or private funding agency (e.g., Erasmus+, DST, SERB, MeitY, Industry-sponsored projects, etc.).
2. Eligibility of Supervisor under Project Funding
In cases where a PhD student is supported through:
 - a. Any externally sponsored project, or
 - b. Any consultancy project offered by an external agency to a faculty member of the Institute, and where the project/consultancy includes explicit provision for engagement of JRF/SRF, the Principal Investigator (PI) and/or Co-Principal Investigator (Co-PI) of the concerned project shall be the only eligible Supervisor and/or Co-Supervisor for such PhD students.
3. Applicability Condition
This provision shall apply only in cases where the proposed Supervisor is himself/herself the PI or Co-PI of the project or consultancy under which the PhD student is admitted or supported.
4. Financial Responsibilities of the Project
 - a. The PI (Supervisor) shall ensure that all consumable requirements of the enrolled PhD student are met exclusively from the respective project or consultancy funds
 - b. Non-consumable items / LTAS (Long-Term Asset Support) requirements, if any, may be met from available Institute resources, subject to availability, without any additional financial requisition from Institute funds.
5. Compliance with Institute and NEP Guidelines
All such project-based PhD admissions and supervisory arrangements shall remain in compliance with:
 - a. The NEP-Aligned PhD Ordinance of IIITA, and
 - b. Applicable funding agency norms and guidelines.

Corrigendum in the PhD NEP Policy:

Pg. No. 5/31, Point no. 8 (f)- *Any student admitted through institute fellowship and with external (including project) fellowship is eligible to receive institute fellowship after exhausting external (including project) duration. In any case the total duration of fellowship will not exceed more than 4 years extendable by one year as per institute policy. The external fellowship candidate will be considered as institute fellowship student after completion of external fellowship duration.*



**(d) Where supervision is from the outcome of a MoU (bilateral arrangement)
Already decided in one senate agenda only.**

As per NEP Aligned Ordinance (already approved by IIITA Senate),

Joint PhD Programs at IIIT Allahabad:

1. **Background** – IIIT Allahabad intends to put in place an opportunity for Joint PhD. degree program in collaboration with other National/International Institutions having similar/higher reputation to open the benefits of dual institutional experience while utilizing the infrastructure at both the partnering institutions for students of either or both of them, who so willfully decide to utilize of the opportunity. This shall be at no additional cost to IIIT Allahabad. The present Ordinance would therefore lay the broad contours for the offer of such Joint PhD. Degree Program at IIIT Allahabad.
2. **Definition** – The Joint PhD. Degree program of IIIT Allahabad shall refer to a program, which is jointly offered by two institutions, one of whom shall essentially be IIIT Allahabad. The two institutions involved shall be mutually referred to as the Partnering Institutions, with more or less Equal rights and privileges. Accordingly, therefore, upon the completion of the Joint PhD. degree program requirements, the enrolled Scholar shall be eligible to get one Single Degree, in a joint Convocation, bearing the Names and Logos of both the partnering Institutions and duly signed by the Persons Competent to do so in the irrespective Institutions.
1. (1). **The above shall be subject to:**
 - a. Preferring of an agreement/Memorandum of Understanding (MOU) being initially signed between the two Partnering Institutions, to the effect of committing themselves to JOINTLY offer PhD. Degree to the Scholars enrolled under this provision, as per this Ordinance. Once signed, the Agreement/MOU shall be effective necessarily till the completion of the successful award of the Joint PhD. Degree to the last Scholar enrolled under the Agreement/MOU. In case student specific Agreement/MOUs are required to be signed, under the Institutional Agreement/MOU, they shall be signed by the respective Supervisor(s) or in absence such other persons as may be delegated by the two institutions mutually.
 - b. Agreeing upon the Supervisor Identification modality - All such persons, who are so entitled under the rules of the respective Partnering Institutions, shall be duly entitled to act as Supervisor(s). There shall be one supervisor each from the two partnering Institutions, with both having equal rights and privileges. In case the work demands that any additional person should be also engaged in active supervision, s/he shall then be classed as a co-supervisor. Number of co-supervisors shall not exceed two; either from one Institution or both the partnering institutions put together. The Number of Supervisors and co-supervisors put together shall in no case exceed a total of four. The thesis credit, if required to be calculated, shall also be so divided that the sum total of credit of one PhD produced shall also be one only. In respect of any enrolled scholar,



the competent authority of both the partnering institutions,(the Chairman Senate Allahabad in case of IIITA), shall fix the supervisor and intimate to all concerned, within a period of three months of the date of enrolment of the scholar, into the program.

- c. Agreeing upon the Number of Seats Available under the Joint PhD. Degree Program – Each of the partnering institutions shall, during the period 1 st January to 31 st March each year, come out with the number of seats they jointly wish to make available under this Joint PhD. degree program, along with the privileges that they would offer to the enrolled Scholars, like Fellowship, etc. Also, it shall be spelled out then that out of the seats available, how many each shall be distributed among the two partnering institutions. The numbers may vary from year to year.
- d. Agreeing upon the policy for Admission of Students and Academic Plan – After clarity on the number of seats available being in place, each of the partnering institutions shall be free to undertake the admissions process as per their institutional norms. The student selections may take place round the year. After having selected the candidates, the lists shall be shared among the partnering institutions. Subsequently, within the next ninety days, the Scholar specific detailed program and calendar of events, for the initial three years shall be prepared jointly by the Supervisors from the partnering institutions and made known to the respective authorities of both the Institutions (concerned Dean of IIIT Allahabad).
- e. Provided further that–(1) the selections made by each of the Institution on the approved seats under the program, shall be binding upon the other partnering institution. (2) At the time of deciding the three-year schedule, the periods that would be spent by the Scholar at each of the partnering institutions, should also be indicated. (3) Both the partnering institutions shall be mutually obliged to respect the Scores / Grades / Assessment(s) /Evaluation(s) awarded by each other. (4) There should be complete clarity on who is going to bear the financial liabilities, in each and every respect. On its part IIIT Allahabad shall stand indemnified of any financial liabilities that have not been a priori agreed upon by it).
- f. Mutually Agreeing upon the Rules applicable on the Enrolled Student – In all academic matters, the enrolled Scholar under this Joint PhD. degree program, shall be governed by the Ordinances/Rules of the institution who is initially selecting the Scholar. The partnering institution shall assist the other institution in getting them met, through the Scholar. For General Conduct / Discipline / Hostel and Mess Rules, the Scholar shall be governed by the rules of the Institution / Law of the land, where s/he is physically present.
- g. Both the institutions shall agree to put in place a Redressal mechanism, to iron out the difficulties that may arise during the studentship of a candidate or in between the two partnering institutions.



- h. Provided further, that if the partnering Institution abroad is situated in a country that requires prior permission from the Gol, the same shall be requested for and any MOU Signed by the Institute only after the due clearance.

(2). Other Generalities for Enrolled Scholars

- a. Candidates selected into the program by IIITA, shall first be required to register themselves as PhD Scholars at IIIT Allahabad. This shall make them eligible for all the approved fellowship etc. and privileges, irrespective of the fact that whether subsequently, s/he is in India or abroad.
- b. All privileges extended by Gol approved agencies like GATE, CSIR- JRF/SRF, etc agencies, shall be extendable only when there are no prior pending academic / financial dues upon the Scholar.
- c. Generally, IIIT Allahabad would offer Hostel facility to all its enrolled Scholars. The same would also be extended to the Scholars enrolled under this Joint PhD. Degree Program, for the periods they are here on campus, on prevailing institutional rates. Scholars from partnering institutions will also be provided suitable on campus accommodation facilities when they are at IIIT-A campus.
- d. Under the Joint PhD. Program, in order to avail the Scholarship / Fellowship from the partnering institution abroad, if it is required that the Scholar should also register with them concurrently and independently, the expenses on the same shall be required to be met by the respective Scholar himself/the supervisor of the partnering institutions. This may then be in addition to the full time registration at IIIT Allahabad, which also has to be borne by the candidate himself.
- e. In case the Scholar is enrolled by the partnering institution and s/he visits IIIT Allahabad to meet the academic objectives, the scholar shall be liable to pay for the courses, based upon the number of credits s/he is enrolled for at IIIT Allahabad.
- f. In cases where the partnering institution other than IIITA, confirms to pay only monthly fellowship, while the student is on their campus , BUT doesn't commit for VISA, Travel fare, Insurance expenses, then to meet the partial expenses on account of VISA, Travel fare, Insurance, etc, IIITA may support the student by a sum equivalent to six months fellowship. This support can be requested by the Scholar, only when a Scholar will visit the partnering institution abroad for a joint PhD. work, for a minimum period of six months.
- g. Date of this Ordinance taking effect–From the date the Ordinance is approved, provided further that the Chairman Senate shall be free to extend the benefits herein, to any already existing agreement/MOU.



Step: 1

Supervision of Ph.D. Students from Other Institutes / Universities

Step1: Communication with IIITA faculty regarding supervision of Ph.D. students from other institutes/universities

Step2: Submission of Form-I and Form-II to the Research & Innovation (R&I) Section

Step3: Presentation of the proposal by the Dean (R&I) before the Research Council

Step4: Submission to the Hon'ble Chairman, Senate for approval

Step 5: Reporting in the Senate and communication of approval to the candidate and the supervisor.

Step: 2

Supervision of IIITA Ph.D. Students by Faculty from Other Institutes / Universities

Step 1: Communication by IIITA faculty regarding supervision of Ph.D. students in collaboration with faculty from other institutes/universities

Step 2: Submission of consent from the faculty of the other institute/university along with their Curriculum Vitae (CV) and the Institute Supervisor Consent Form

Step 3: Presentation of the proposal by the Dean (Research & Innovation) before the Research Council

Step 4: Submission of the recommendation to the Hon'ble Chairman, Senate for approval

Step 5: Reporting in the Senate and communication of approval to the candidate and the supervisor

Step: 3

Standard Process for Signing Memorandum of Understanding (MoU) with Institutes / Universities

Step 1: Proposal Initiation

Concerned faculty member(s) shall submit a proposal for MoU in the prescribed standard format, along with the required details and justification to Dean (A&ER).

Step 2: Process Initiation by R&I Section

Upon receipt of the proposal, the Innovation & Research (R&I) Section shall initiate and coordinate the MoU process through Dean (A&ER).

Step 3: Mutual Consent and Draft Finalization

The draft MoU shall be shared with the concerned Institute/University, and revisions shall be carried out until mutual consent is reached by both parties.

Step 4: Legal and Administrative Vetting

After finalization of the draft, the Institute shall conduct legal and administrative scrutiny. Any required modifications shall be incorporated at this stage.

Step 5: Signing of MoU

Upon completion of all approvals and vetting, the MoU shall be signed by the Director// Registrar/Dean (A&ER) of the Institute on behalf of IIITA.

The record will be maintained by the Dean A&ER office.



Working Professional Requirements for Ph.D. Admission

Corrigendum (page no. 1/28, 1)

*The minimum percentage for aspirants should be at least 60% or 6 CGPI for UG/PG.
Other all term conditions are the same as mentioned in PhD WP ordinance.*

ADD-ON: Post-PhD Transitional Scholarship Support for Regular PhD students *

** Post-PhD Transitional Scholarship Support Scheme for regular Ph.D. students, in line with best practices adopted at premier institutions such as IIT Kanpur and IIIT Gwalior. (attached)*

A PhD scholar shall be eligible for Thesis Submission for a six-month post-PhD transitional scholarship upon submission of Ph.D. Thesis, subject to the following conditions:

1. The scholar must have submitted the Ph.D. Thesis within the prescribed maximum duration of **4.0** years.
 2. The purpose of the transitional scholarship shall be to provide financial and academic support to the scholar during the interim period for:
 - a. Preparation and submission of post-doctoral fellowship applications, and/or
 - b. Seeking suitable academic, research, or industry positions.
 3. During this six-month period after thesis submission, the scholar shall be permitted to utilize Institute facilities, as per applicable rules, to support research dissemination, publications, and career advancement activities.
 4. The detailed terms, eligibility criteria, and modalities for availing the post-PhD transitional scholarship shall be framed separately and approved by the competent authority of the Institute.
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Indian Institute of Information Technology Allahabad

UPDATED UG/PG Seats Matrix – 2025 AND 2026 (Onwards)

UPDATED As per the 36th Senate Meeting held on 10/12/2025

Sl. No.	Program Name	Sanctioned Seats							
		(CSAB / CCMT / Instt Entrance Exam)		DASA		SII		Total	
		2025-2026	2026 & Onwards	2025-2026	2026 & Onwards	2025-2026	2026 & Onwards	2025-2026	2026 and Onwards
1.	Electronics and Communication Engineering (4 Years, Bachelor of Technology)	132	121	13	18 [#]	12	12	157	151
2.	Information Technology (4 Years, Bachelor of Technology)	267	242	27	36 [#]	29	29	323	307
3.	Information Technology-Business Informatics (4 Years, Bachelor of Technology)	40	40	6	6	0	0	46	46
4.	Dual Degree B. Tech. (ECE)- M. Tech (ECE) (Seats carved out of the Existing BTech ECE Program)	New Programs launched w.e.f. July 2026	11	-	2 [#]	-	-	0	13
5.	Dual Degree B. Tech. (IT)- M. Tech (IT) (Seats carved out of the Existing BTech IT Program)		25	-	4 [#]	-	-	-	29
6.	Dual Degree B. Tech. (IT- Bin)- (MBA) (Seats carved out of the Existing MBA Program)		22	-	3 [#]	-	-	-	25
7.	M.Tech. ECE with specialization in Communication Engineering Renamed as M.Tech. ECE with specialization in Communication and Signal Processing	23	-	*5 (3)	-	*3(2)	-	28	-
		-	23	-	3	-	2	-	28
8.	M.Tech. ECE with specialization in Microelectronics Renamed as M.Tech. ECE with specialization in Microelectronics and VLSI	22	-	*5 (2)	-	*3(1)	-	25	-
		-	22	-	2	-	1	-	25
9.	M.Tech. Biomedical Engineering Renamed as M.Tech. Biomedical Analytics and Engineering	20	-	-	-	-	-	20	-
		-	20	-	-	-	-	-	20
10.	M.Tech Bioinformatics	22	22	1	1	2	2	25	25
11.	M.Tech. IT with specialization in Machine Learning, Robotics and Human Computer Interaction Group Renamed as	48	-	* (7)3	-	* (12)4	-	55	-
	a) M.Tech. IT with specialization in Artificial Intelligence and Machine Learning	-	16	-	1	-	2	-	19
	b) M.Tech. IT with specialization in Robotics and Artificial Intelligence	-	16	-	1	-	1	-	18
	c) M.Tech. IT with specialization in Human Machine Interaction and Immersive Technologies	-	16	-	1	-	1	-	18
12.	M.Tech. IT with specialization in Software and Data Engineering Group Renamed as	32	-	* (7)2	-	* (12)4	-	38	-
	a) M.Tech. IT with specialization in Software Engineering and Automation	-	16	-	1	-	2	-	19
	b) M.Tech. IT with specialization in Data Engineering	-	16	-	1	-	2	-	19
13.	M.Tech. IT with specialization in Network and Security Group Renamed as	32	-	* (7)2	-	* (12)4	-	38	-
	a) M.Tech. IT with specialization in Networks Systems and Computing	-	16	-	1	-	2	-	19
	b) M.Tech. IT with specialization in Cyber Laws and Information Security	-	16	-	1	-	2	-	19
14.	M. Tech. Quantum Information and Technologies	New Program launched w.e.f. July 2026		-	-	-	-	-	25
15.	Dual Degree M.Tech.- Ph.D. in Bioinformatics	3	3	-	-	-	-	3	3
16.	Dual Degree M.Tech. -Ph.D. in ECE with specialization in Microelectronics Renamed as : Dual Degree M.Tech. -Ph.D. in ECE with specialization in Microelectronics and VLSI	3	-	-	-	-	-	3	-
		-	3	-	-	-	-	-	3
17.	Dual Degree M.Tech. - Ph.D. in ECE with Specialization in Communication Engineering Renamed as :	2	-	-	-	-	-	2	-

Sl. No.	Program Name	Sanctioned Seats							
		(CSAB / CCMT / Instt Entrance Exam)		DASA		SII		Total	
		2025-2026	2026 & Onwards	2025-2026	2026 & Onwards	2025-2026	2026 & Onwards	2025-2026	2026 and Onwards
	Dual Degree M.Tech. – Ph.D. in ECE with Specialization in Communication and Signal Processing	-	2	-	-	-	-	-	2
18.	Dual Degree M.Tech. - Ph.D. in IT with specialization in Machine Learning, Robotics and Human Computer Interaction Group <u>Renamed as :</u>	5	-	-	-	-	-	5	-
	a) Dual Degree M.Tech. - Ph.D. in IT with specialization in Artificial Intelligence and Machine Learning	-	2					-	2
	b) Dual Degree M.Tech. - Ph.D. in IT with specialization in Robotics and Artificial Intelligence	-	2					-	2
	c) Dual Degree M.Tech. - Ph.D. in IT with specialization in Human Machine Interaction and Immersive Technologies	-	1					-	1
19.	Dual Degree M.Tech. - Ph.D. in IT with specialization in Software and Data Engineering Group <u>Renamed as :</u>	4	-	-	-	-	-	4	-
	a) Dual Degree M.Tech. - Ph.D. in IT with specialization in Software Engineering and Automation	-	2						2
	b) Dual Degree M.Tech. - Ph.D. in IT with specialization in Data Engineering	-	2						2
20.	Dual Degree M.Tech. - Ph.D. in IT with specialization in Network and Security Group <u>Renamed as :</u>	4	-	-	-	-	-	4	-
	a) Dual Degree M.Tech. - Ph.D. in IT with specialization in Networks Systems and Computing	-	2						2
	B) Dual Degree M.Tech. - Ph.D. in IT with specialization in Cyber Laws and Information Security	-	2						2
21.	Master of Business Administration, (MBA)	95	73	4	4	10	10	109	87
		754	779	63	86	68	68	885	933

*Denotes Seats available at Consolidated M. Tech. level and not specialization wise.

Total Sanctioned Seats in July 2025= **885**; Total proposed Sanctioned Seats for July 2026 = **933**, total increase = **48**

Increased seat breakup:

- ✓ DASA: B. Tech. IT=9, B. Tech. ECE= 5, DD B.Tech(ECE)- M.Tech(ECE) = 2, DD B.Tech(IT)- M.Tech(IT) = 4
DD B.Tech(IT- Bin)-(MBA) = 3, Total = **23** (As per approval dated 15-7-2025 copy attached)
- ✓ Proposed Seat for New Program launched w.e.f. July 2026 in M. Tech. Quantum Information and Technologies= **25**

Denotes proportional Seats calculated for DASA candidates in line with approval on Note dated 15.7.2025 from the office of Dean (A&R) in response to communication received from LOC, DASA/CSAB-2025.

Indian Institute of Information Technology, Allahabad

Seat Matrix (Academic Year 2025-26)

Insti- tute Code	Institute Name	Program Code	Program Name	Seat Pool (State Quota or Other State/All India Quota)	Seat Pool (Gender-Neutral or Female-only)	OPEN	OPEN- PwD	GEN- EWS	GEN-EWS- PwD	SC	SC- PwD	ST	ST- PwD	OBC- NCL	OBC-NCL- PwD	Total (includes Female Supernumerary)	Program-Total	
																	Seat Capacity	Female Supernumerary
309	Indian Institute of Information Technology Allahabad	4114	Electronics and Communication Engineering (4 Years, Bachelor of Technology)	All India	Gender-Neutral	40	2	10	1	15	1	8	0	27	1	105	132	0
					Female-only (including Supernumerary)	10	1	3	0	4	0	2	0	7	0	27 (including "0" Supernumerary)		
309	Indian Institute of Information Technology Allahabad	4146	Information Technology (4 Years, Bachelor of Technology)	All India	Gender-Neutral	83	4	20	1	30	2	15	1	55	3	214	267	0
					Female-only (including Supernumerary)	21	1	5	0	8	0	4	0	13	1	53 (including "0" Supernumerary)		
309	Indian Institute of Information Technology Allahabad	4186	Information Technology-Business Informatics (4 Years, Bachelor of Technology)	All India	Gender-Neutral	12	1	3	0	5	0	2	0	8	1	32	40	0
					Female-only (including Supernumerary)	3	0	1	0	1	0	1	0	2	0	8 (including "0" Supernumerary)		
Total						169	9	42	2	63	3	32	1	112	6	439	439	0

UG Seat Matrix (Academic Year 2026-27)

Institute Code	Institute Name	Program Code	Program Name	Seat Pool (State Quota or Other State/All India Quota)	Seat Pool (Gender-Neutral or Female-only)	OPEN	OPEN-PwD	GEN-EWS	GEN-EWS-PwD	SC	SC-PwD	ST	ST-PwD	OBC-NCL	OBC-NCL-PwD	Total (includes Female Supernumerary)	Program-Total	
																	Seat Capacity	Female Supernumerary
309	Indian Institute of Information Technology Allahabad	4114	Electronics and Communication Engineering (4 Years, Bachelor of Technology)	All India	Gender-Neutral	38	2	9	1	14	1	7	0	25	2	99	132-11=121	0
					Female-only (including Supernumerary)	9	0	2	0	3	0	2	0	6	0	22 (including "0" Supernumerary)		
309	Indian Institute of Information Technology Allahabad	4146	Information Technology (4 Years, Bachelor of Technology)	All India	Gender-Neutral	74	4	18	1	28	2	14	1	50	2	194	267-25=242	0
					Female-only (including Supernumerary)	19	1	5	0	7	0	3	0	12	1	48 (including "0" Supernumerary)		
309	Indian Institute of Information Technology Allahabad	4186	Information Technology-Business Informatics (4 Years, Bachelor of Technology)	All India	Gender-Neutral	12	1	3	0	5	0	2	0	8	1	32	40	0
					Female-only (including Supernumerary)	3	0	1	0	1	0	1	0	2	0	8 (including "0" Supernumerary)		
					Total	155	8	38	2	58	3	29	1	103	6	403	403	0

Dual Degree Seat Matrix (Academic Year 2026-27)

Institute Code	Institute Name	Program Code	Program Name	Seat Pool (State Quota or Other State/All India Quota)	Seat Pool (Gender-Neutral or Female-only)	OPEN	OPEN-PwD	GEN-EWS	GEN-EWS-PwD	SC	SC-PwD	ST	ST-PwD	OBC-NCL	OBC-NCL-PwD	Total (includes Female Supernumerary)	Program-Total	
																	Seat Capacity	Female Supernumerary
309	Indian Institute of Information Technology Allahabad		Dual Degree B. Tech. (ECE)- M. Tech (ECE) (3+2=5 Year)	All India	Gender-Neutral	3	0	1	0	2	0	1	0	2	0	9	11	0
					Female-only (including Supernumerary)	1	0	0	0	0	0	0	0	1	0	2 (including "0" Supernumerary)		
309	Indian Institute of Information Technology Allahabad		Dual Degree B. Tech. (IT)- M. Tech (IT) (3+2=5 Year)	All India	Gender-Neutral	7	1	2	0	3	0	2	0	6	0	21	25	0
					Female-only (including Supernumerary)	2	0	0	0	1	0	0	0	1	0	4 (including "0" Supernumerary)		
309	Indian Institute of Information Technology Allahabad		Dual Degree B. Tech. (IT- Bin)- (MBA) (3+2=5 Year)	All India	Gender-Neutral	7	0	2	0	2	0	2	0	5	0	18	22	0
					Female-only (including Supernumerary)	2	0	0	0	1	0	0	0	1	0	4 (including "0" Supernumerary)		
Total						22	1	5	0	9	0	5	0	16	0	58	58	0

Recommened & forwarded
to Honorable Director for kind
Approval pls.
16/02/2026

Director/Chairman Senate: 
18.2.26

PG Seat Matrix for Year 2026-27 through CCMT

S. No.	Institute	Department	PG Program	OPEN	OPEN-PWD	EWS	EWS-PWD	SC	SC-PWD	ST	ST-PWD	OBC	OBC-PWD	Total
1	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Applied Sciences	M.Tech Bioinformatics	8	1	2	0	3	0	2	0	6	0	22
2	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Applied Sciences	Dual Degree M.Tech.- Ph.D. in Bioinformatics	1	0	0	0	1	0	0	0	1	0	3
3	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Applied Sciences	M.Tech. Biomedical Analytics and Engineering	7	1	2	0	3	0	2	0	5	0	20
4	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Applied Sciences	M. Tech. Quantum Information and Technologies	9	1	2	0	4	0	2	0	7	0	25
5	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Electronics and Communication Engineering	M.Tech. ECE with specialization in Microelectronics and VLSI	8	1	2	0	3	0	2	0	6	0	22
6	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Electronics and Communication Engineering	M.Tech. ECE with specialization In Communication and Signal Processing	9	1	2	0	3	0	2	0	6	0	23
7	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Electronics and Communication Engineering	Dual Degree M.Tech. -Ph.D. in ECE with specialization in Microelectronics and VLSI	1	0	0	0	1	0	0	0	1	0	3
8	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Electronics and Communication Engineering	Dual Degree M.Tech. - Ph.D. in ECE with Specialization in Communication and Signal Processing	1	0	0	0	0	0	0	0	1	0	2
9	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Networks Systems and Computing	7	0	2	0	2	0	1	0	4	0	16
10	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization In Cyber Laws and Information Security	7	0	2	0	2	0	1	0	4	0	16
11	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Software Engineering and Automation	7	0	2	0	2	0	1	0	4	0	16
12	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Data Engineering	7	0	2	0	2	0	1	0	4	0	16
13	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Artificial Intelligence and Machine Learning	7	0	2	0	2	0	1	0	4	0	16
14	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Robotics and Artificial Intelligence	7	0	2	0	2	0	1	0	4	0	16
15	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	M.Tech. IT with specialization in Human Machine Interaction and Immersive Technologies	7	0	2	0	2	0	1	0	4	0	16
16	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization In Networks Systems and Computing	1	0	0	0	0	0	0	0	1	0	2
17	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Cyber Laws and Information Security	1	0	0	0	0	0	0	0	1	0	2
18	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Software Engineering and Automation	1	0	0	0	0	0	0	0	1	0	2
19	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Data Engineering	1	0	0	0	0	0	0	0	1	0	2
20	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Artificial Intelligence and Machine Learning	1	0	0	0	0	0	0	0	1	0	2
21	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Robotics and Artificial Intelligence	1	0	0	0	0	0	0	0	1	0	2
22	Indian Institute of Information Technology Allahabad, Prayagraj	Department of Information Technology	Dual Degree M.Tech. - Ph.D. in IT with specialization in Human Machine Interaction and Immersive Technologies	1	0	0	0	0	0	0	0	0	0	1
Total				100	5	24	0	32	0	17	0	67	0	245

[Signature]
24/03/2026

[Signature]
24/3/2026

[Signature]
24.3.26

DASA UG Seat Matrix (Academic Year 2026-27)

Annexure VI

Institute Code	Institute Name	Program Code	Program Name	Total CIWG Seats	Total General seats	Total Seats (CIWG+General)
309	Indian Institute of Information Technology Allahabad		B.Tech (IT)	12	24	36
309	Indian Institute of Information Technology Allahabad		B.Tech (ECE)	6	12	18
309	Indian Institute of Information Technology Allahabad		B.Tech (IT-Business Informatics)	2	4	6
309	Indian Institute of Information Technology Allahabad		Dual Degree B. Tech. (IT) - M. Tech (IT)	1	3	4
309	Indian Institute of Information Technology Allahabad		Dual Degree B. Tech. (ECE)- M. Tech (ECE)	1	1	2
309	Indian Institute of Information Technology Allahabad		Dual Degree B. Tech. (IT- Bin)- (MBA)	1	2	3
			Total	23	46	69

NOTE: IF PROGRAM CODE IS NOT AVAILABLE, KINDLY KEEP IT BLANK

Aw - Chakraborty
24/03/2024

S. S. S.



DASA PG Seat Matrix (Academic Year 2026-27)

Annexure X

Institute Code	Institute Name	Program Code	Program Name	Total General seats
309	Indian Institute of Information Technology Allahabad		M.Tech Bioinformatics	1
			Dual Degree M.Tech.- Ph.D. in Bioinformatics	0
			M.Tech. Biomedical Analytics and Engineering	0
			M. Tech. Quantum Information and Technologies	0
			M.Tech. ECE with specialization in Microelectronics and VLSI	2
			M.Tech. ECE with specialization in Communication and Signal Processing	3
			Dual Degree M.Tech. -Ph.D. in ECE with specialization in Microelectronics and VLSI	0
			Dual Degree M.Tech. - Ph.D. in ECE with Specialization in Communication and Signal Processing	0
			M.Tech. IT with specialization in Networks Systems and Computing	1
			M.Tech. IT with specialization in Cyber Laws and Information Security	1
			M.Tech. IT with specialization in Software Engineering and Automation	1
			M.Tech. IT with specialization in Data Engineering	1
			M.Tech. IT with specialization in Artificial Intelligence and Machine Learning	1
			M.Tech. IT with specialization in Robotics and Artificial Intelligence	1
			M.Tech. IT with specialization in Human Machine Interaction and Immersive Technologies	1
			Dual Degree M.Tech. - Ph.D. in IT with specialization in Networks Systems and Computing	0
			Dual Degree M.Tech. - Ph.D. in IT with specialization in Cyber Laws and Information Security	0
			Dual Degree M.Tech. - Ph.D. in IT with specialization in Software Engineering and Automation	0
			Dual Degree M.Tech. - Ph.D. in IT with specialization in Data Engineering	0
			Dual Degree M.Tech. - Ph.D. in IT with specialization in Artificial Intelligence and Machine Learning	0
			Dual Degree M.Tech. - Ph.D. in IT with specialization in Robotics and Artificial Intelligence	0
			Dual Degree M.Tech. - Ph.D. in IT with specialization in Human Machine Interaction and Immersive Technologies	0
			Master of Business Administration (MBA)	4
			Total	17

NOTE: IF PROGRAM CODE IS NOT AVAILABLE, KINDLY KEEP IT BLANK

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24/03/2026

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