



Minutes of the 30th Meeting of Senate

The 30th Meeting of the Senate was held on 23.07.2024 from 11:00 AM onwards in hybrid mode (physical / online) in the Board Room of the Institute. The members in attendance were as follows:

Members who attended in Physical Mode:

1. Prof. Mukul S. Sutaone, Director IIITA	Chairman
2. Prof. U.S. Tiwary, Dean (FA)	Member
3. Prof. Shekhar Verma, Dean (SDA)	Member
4. Prof. Anupam, Dean (Alumni Affairs)	Member
5. Prof. Manish Goswami, Dean (A & R)	Member
6. Prof. O.P. Vyas, Dean (TD) & (IWD)	Member
7. Prof. Madhvendra Misra, Dean (I&NR)	Member
8. Prof. Ranjit Singh, Dean (SA)	Member
9. Prof. K.P. Singh HOD (IT)	Member
10. Dr. Sanjai Singh, HOD (ECE)	Member
11. Dr. Pramod Kumar, HOD (AS)	Member
12. Dr. Pragya Singh, (HoD MS)	Member
13. Prof. Tapobrata Lahiri	Member
14. Prof. Vijaishri Tewari	Member
15. Prof. Neetesh Purohit	Member
16. Prof. Vrijendra Singh	Member
17. Prof. Pritish Varadwaj	Member
18. Prof. Vikram M. Gadre, Professor, Dept. of Electrical Engr. IIT Bombay	Member
19. Sh. Prakash Kajave, Principal Specialist, Training & Capability Development Tech Mahindra, Pune	Member
20. Dr. Satish Singh	Member Secretary

Members who attended in ONLINE Mode:

1. Sh. Niranjana A. Pol, Sr. Engineering Director, Seagate Research Group Seagate Technology HDD(India) Pvt Ltd, Cluster E, EON SEZ, Kharadi, Pune	Member
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Members who couldn't attend the meeting:

1. Prof. G.C. Nandi	Member
2. Prof. Pavan Chakraborty	Member
3. Dr. P.S. Sathidevi, Professor (HAG), ECE Dept, NIT Calicut.	Member

Prof. Abhay Gandhi, Professor, Dept. of Electronic Engr. VNIT Nagpur and Dr. Upendra Kumar Singh, Distinguished Scientist and Director General Life Sciences DRDO, Government of India

requested for leave of absence due to preoccupation intimating the same through Email to Secy Senate, and thus were granted the same.

At the outset, the Secretary Senate welcomed the members and sought permission of the Chairman Senate to start the meeting.

In continuation thereof, the Chairman Senate welcomed the members present in the meeting. He appreciated the senate members, who in the last meeting, had suggested the incorporation of probable prospective dates Senate meetings in annual academic calendar of the Institute, well in advance, so that members can plan accordingly.

The Chairman further informed the members about Institute's national level achievement in India Today Ranking-2024, as the "Top Institute in Students' Placements with Best Average Salary Package" which was received with applause. He, however, expressed that the Institute should categorically exert in guiding students for pursuing the entrepreneurial and research careers as well, rather than contented with placements with corporate and MNCs. Whereas, he further appreciated the faculty members for their focused R & D performance, outreach and international collaborations, he expressed his concern on the sincerity and rigor to be observed in the academic (T-L-E) processes, in terms of from curriculum design, proper sequencing of courses therein, overall presentation of the curriculum for internal stakeholders & outside world, content delivery etc. and stressed on need of uniformity in these aspects, across academic programs/departments. The Chairman Senate also informed that a one-day leadership workshop was held at AICTE HQ, on 'Implementation of ME-ME and ABC features of NEP-2020', wherein IITA's NEP compliant Curriculum was well-acknowledged, with the prospective initiation of Credit transfer and ME-ME amongst CF-IIITs.

The Chairman Senate then allowed Secretary Senate, to present the Agenda Items for the meeting:

ITEM NO. 30.01	To confirm the Minutes of the 29th Meeting of Senate held on 01.06.2024
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Resolution: S-30/01 - The Senate perused and ratified the same.

ITEM NO. 30.02	To receive the Action Taken Report on the Minutes of the 29th Meeting of Senate held on 01.06.2024
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Resolution: S-30/02 - The action taken report on the minutes of 29th Senate meeting was presented to the Senate. The Senate had detailed discussions on Item No. 29.09 of the ATR which was related to approval of curriculum & syllabus for various programs of the Institute wherein, in the last (29th) Senate, the Senate had authorized Chairman Senate for refinement and approval of syllabi.

Since the issue was to be taken up as a separate Agenda Item at Item No. 30.09 in this Senate meeting, deliberations and resolutions on this ATR point have been detailed at Agenda Item No. 30.09.

With the above noting, the Senate received the ATR.

ITEM NO. 30.03	To consider and adopt the Outcome based Education and Accreditation (OBE & A) – Philosophy and Processes for academic programs running at IIITA
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The Chairman Senate debriefed the members about the concept of OBE & A as an educational philosophy set of standard academic process to be observed in the HEIs, to ensure the quality in imparting the education to the learners. He informed that India, as a country, became the signatory to the 'Washington Accord', a decade ago, along with most of the western and oriental countries, which is an agreement to adhere to the globally recognized 'Graduate Attributes and Professional Competencies'. The OBE system mandates to define 'Course Outcomes-COs' for every course in the curriculum and 'Program Outcomes-POs' for every academic program offered by the Institute to the learners it admits. The defined COs and POs are to be 'Attained' based on the performance of the students in the course and program, as defined in terms of standard tools and metrics, the Chairman explained. The accreditation systems/bodies in India for academic programs or Institute, such as NBA or NAAC, follow OBE and thus if Institute decides to submit itself for accreditation, out of mandate/regulation or voluntarily, it must assimilate OBE philosophy and adopt OBE processes, he further said.

He further informed that, an awareness Seminar will be arranged for IIITA faculty on the OBE-Philosophy and Processes, in nearest future.

Resolution: S-30/03 - The Senate considered and decided to adopt the 'Outcome based Education and Accreditation (OBE & A) – Philosophy and Processes' for academic programs running at IIITA, as early as possible.

ITEM NO. 30.04	To consider and approve offering PG diploma programs for working professionals and other eligible aspiring learners, as a part of Continuing Education and Outreach Initiative of IIITA, in the Self-finance mode
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The Senate deliberated on the pros and cons of starting collaborative self-financed short term certificate (Six months)/PG diploma (One year)/ PG Degree (Two years) programs for aspiring eligible learners across the society/working professionals, in various relevant verticals of Science/Technology/Management. It was informed by Dean (A&R) that the certificate programs have been approved in the 12th Senate, while in the 26th meeting of Senate, collaborative MBA/MTech program for working professionals were approved. Whereas majority of the Senate members were in favor of such initiatives, the external member-Prof. Gadre supported the proposal, as a noble gesture of reaching out to the masses by the institute like IIITA, on the lines of other INIs in the country. He expressed that such programs should be offered in online-non-residential mode, with a limited commitment from the Institute, to host such learners on campus, in vacation period, and with mandatory involvement of internal faculty members to drive and command such initiative. He further suggested on seeking permissions/approvals of statutory authorities (BoG), while freezing on the financial models of such programs. One of the members shared the earlier initiative of the Institute on this front, with its modalities and requested the Chairman to peruse the model. The Chairman, after hearing to the suggestions of the members, consented on constituting the department-wise committees for in-depth study on

societal need analysis, education and financial model, selection of probable competent partner, eligibility of learners for enrollment etc., before launching the program.

Resolution: S-30/04 - The Senate approved, in principle, to offer PG diploma programs for working professionals and other eligible aspiring learners, along with earlier approved Certificate and PG Degree programs, with their probable launch, after the in-depth study of each of such proposal for its feasibility, societal need, sustainability etc.

ITEM NO. 30.05	To consider and approve the number of seats per faculty in Ph.D. with Institute scholarships / fellowships
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The Dean- A& R informed that as per Ministry approval, the number of Institute supported fellowships is 200 as of now. Also, as per the Ph.D Ordinance point 19 (e), upto a maximum of 10 students are permitted to be registered under a supervisor. However, the number of Ph.D. seats per faculty with institute fellowship (included in number 10) is not properly defined.

With the increase in the number of new faculty, there is natural demand for more number of PhD fellowships, which has been taken up at appropriate levels with Ministry / BOG but not yet agreed or sanctioned. Hence, as of now, the ratio of institute supported fellowships, stands at $200/75 = 2.67$ in which fractional component of 0.67 could be made 3 (fixed integer) instead of 0.67 for ease of implementation practically. The members had unanimously opined that although entry of M.Tech – Ph.D. dual degree program is different than regular Ph.D. program, it should also be included while deciding the number of fellowship per faculty in Ph.D.

Resolution: S-30/05—After deliberations on above, the Senate considered and approved 4 Ph.D. students with institute fellowships per faculty, including M.Tech-Ph.D. dual degree students, as a sole supervisor. However, for joint supervision, the fellowship count will be 0.5 each per faculty. This would be effective from July 2024.

ITEM NO. 30.06	To consider and approve the date of 19th Convocation Ceremony of the Institute with the names of Chief Guest, Guest of Honors
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The Chairman Senate informed that for the upcoming 19th Convocation scheduled on 14th September, 2024, Hon'ble President of India has been invited, in her capacity of Visitor of the Institute, through proper channel (MoE), however, the dates are yet to be confirmed by her good office. Also, in view of association with IIIT-A as the Chairman BOG, Dr. Anand Deshpande has been invited as a Guest of Honor. Also, Dr. Ravi Pandit, founder CEO of KPIT Technology Ltd. and Prof. Anil Sahasrabudhe, Chairman-NETF, NBA and NAAC have been approached for gracing the occasion as other Guests of Honor.

Resolution: S-30/06 – The Senate confirmed the date at present and welcomed the proposed names as above for the 19th Convocation.

ITEM NO. 30.07	Regarding the marks component of the MBA Master Project
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HoD (MBA) presented the Agenda. The final Sem Master Projects Policy and 26th DPGC meeting minutes were presented before the Senate.

Resolution: S-30/07 – The Senate approved the same.

ITEM NO. 30.08	Regarding MBA admission, DoMs for 2025 and onwards
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HoD (MBA) presented the Agenda. Prof. Shekhar Verma observed that instead of word "preceding", the resolution of 26th DPGC on the Agenda Item should read as "For getting admission in the MBA 60% marks will be considered in the "qualifying" degree for the general category and 55% for the reserved category respectively and as per the reservation rule by the Govt. of India". This was duly accepted by HoD (MBA).

Resolution: S-30/08 – The Senate approved the admission criteria for 2025 and onwards for MBA admissions at the Institute.

Items for Reporting and Ratification

ITEM NO. 30.09	To ratify the modified curriculum structures of various academic programs
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The Senate had detailed discussions on Item No. 29.09 of the ATR which was related to approval of curriculum & syllabus for various programs of the Institute wherein, in the last (29th) Senate, the Senate had authorized Chairman Senate for refinement and approval of syllabi.

It was informed that a Committee in consonance with HoDs was formed for review of syllabi of ECE, AS and MBA through Dean (A&R) Office (**Ann-1**) as follows:

- | | | |
|---|---|----------|
| 1. Head of Department | - | Chairman |
| 2. Two Professors from the Department | - | Member |
| 3. One Associate Professor from the Department | - | Member |
| 4. One External Faculty from NIT / IIT / IIM / IIIT | - | Member |
| 5. One Assistant Professor from the Department | - | Member |

HoD (ECE) presented the changes in B.Tech (ECE) curriculum to the Senate. He informed that changes have been effected from B.Tech (ECE) 2nd Semester onwards. In the 2nd Semester 'Probability and Statistics' course has been REPLACED with "Network Synthesis and Analog Filters" and has been MOVED to 4th Semester REPLACING 'Optical Communication' of B.Tech (ECE) program. Accordingly, 'Optical Communication' has been MOVED to 6th Semester as Program Elective-II.

Members pointed out that Probability and Statistics should have 1 tutorial component and accordingly the L-T-P-S hours / week should be 2-2-0-0.

HoD (MBA) presented the changes in MBA curriculum. She informed that now MBA program has total 82 credits as against 80 credits previously.

HoD (AS) presented the changes in M.Tech (BI), DD M.Tech-Ph.D. (BI), M.Tech (BME) curriculum. He informed that changes have been effected in Electives (Table 6).

Resolution: S-30/09 - The Senate unanimously perused and approved:

1. Revised / updated Titles of Courses 3rd& 4th Semester B.Tech (ECE) Program (with changes effected in 2nd Sem). (copy attached as **Ann-2**)
2. Revised / updated Titles of Courses MBA Program (copy attached as **Ann-3**)
3. Revised / updated Titles of Courses M.Tech (BI), DD M.Tech-Ph.D. (BI), M.Tech (BME) Program (copy attached as **Ann-4**)

Further, the Senate observed that still there is scope for uniformity and refinement in syllabus. Hence, it was resolved that a Committee of Prof. U.S. Tiwary, Prof. Shekhar Verma & Prof. Madhvendra Misra be constituted to review the syllabi of various programs as above and finalize the curricula, with uniformity in the presentation format, for all the programs running at IIITA.

ITEM NO. 30.10	To ratify the Ph.D. Admission for January 2024
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The Agenda item was slightly amended by Dean (A&R) for reporting Ph.D. Admission for January 2024 session only, since Ph.D. admissions for July 2024 session are still going on and its list could be placed after close of admissions only. Hence, full (all Departments) lists of Ph.D. Students admitted in session January 2024 & their supervisors was put up before the Senate.

Resolution: S-30/10—The Senate perused and ratified the same.

Any Other Item

ITEM NO. 30.11 (S1)	To consider the appeal rendered by Mr. Pravin Kumar Singh, who was admitted to 2023 Batch MBA Program, whose admission was later cancelled by the Senate
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Dean (A&R) presented the Agenda. The Senate was informed that admission of Mr. Pravin Kumar Singh (IMB2023002) was cancelled by Senate in its 29th meeting held on 1.6.2024, due to non-fulfilment of admission criteria of "declaration of final result by 1.7.2023". The student cleared his Back Paper on 10.01.2024 and his 4th Semester final result of B.Ele.Ed. was declared on 02.04.2024. The student has submitted an appeal against his cancellation, to the Chairman Senate along with other relevant documents.

Resolution: S-30/11/S1 –The Senate resolved that a Committee be formed to enquire about the issue which shall submit its report to the Chairman Senate within 15 days.

ITEM NO. 30.11 (S2)	To consider and ratify the modalities of admissions for seats offered under SII Program at IIIT Allahabad for 2023 and beyond
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Dean (A&R) presented the Agenda. He informed the Senate that the Institute offers few seats in B.Tech / M.Tech / MBA / Ph.D. under the Study in India Program Scheme of the Government of India. The list of applicants admitted in 2023 and application received for the year 2024 for various Programs was perused by Senate. Dean (A&R) further informed the Senate that admissions under SII Program are based on SAT Scores, TOEFL / IELTS etc. apart from 10th / 12th passing percentage criteria.




Resolution: S-30/11/S2 –The Senate considered and approved the admission modalities as adopted for 2023 admission, for years 2024 and beyond.

ITEM NO. 30.11 (S3)	To approve and adopt recent approval by MoE to include IIITA in the prestigious program CBDE (Capacity Building for DESIGN AND ENTREPRENEURSHIP)
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The Chairman Senate presented the Agenda. He informed the Senate that Ministry of Education (MoE) vide its letter no. 1-9/2024-PN. IIdated 01 Mar 2024, 21 Mar 2024, 7 May 2024, and 18 Jun 2024), has approved a consolidated list of institutions enrolled for CBDE program in which IIIT-Allahabad is also an entity. IIITDM Kancheepuram is the nodal centre for coordinating its implementation. The PIs & Co-PIs will be responsible for implementation of the CBDE program in their respective institutions as per the tripartite agreement signed by the institution, mentors and the nodal centre. The honorarium for mentors, upto a maximum of Rs 21.6 lakhs per annum and for two years, will be disbursed by the nodal centre to the mentors based on the reports submitted by the PIs.

The objective of the Capacity Building for Design and Entrepreneurship program is to enhance the capacity of faculty and HEIs for creative transformation with a specific focus towards design and entrepreneurship development. It will be achieved through one-on-one mentoring of faculty and promoting generative dialogue among faculty, student teams and HEI partners by a pool of expert mentors. Each participating HEI will be assigned a maximum of three mentors for a period of two years. Each mentor will devote about 40 person days to mentor 8-10 faculty members and an equivalent number of student teams from 3rd and 4th year UG, 2nd year PG and advanced years of PhD for one year. The nodal center for the program (Malaviya Mission Teacher Training Centre, IIITDM Kancheepuram) will allocate mentors to HEIs, conduct curated webinars to share best practices and resource material, monitor progress, and disburse honorarium to the mentors.

Resolution: S-30/11/S2 – The Senate welcomed the inclusion of IIITA by the MoE in the prestigious program CBDE (Capacity Building for DESIGN AND ENTREPRENEURSHIP).

The meeting ended with a Vote of Thanks.


(Dr Satish Kumar Singh)
Secretary Senate, IIIT Allahabad


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

1954
8/7/24



Ann-2

08/07/2024

Note

Ref: Agenda item no. 29.09 To consider and approve the syllabi for B.Tech, M.Tech and MBA under NEP 2023 Ordinance

The above agenda was discussed in the 29th Senate, held on 1st June 2024. As per the consensus developed in the senate meeting, it was resolved that a committee will be formed for the aforementioned agenda.

Accordingly following committee is hereby proposed for approval:

- HOD- Chairman
- 2 Professors from the deptt- Member
- 1 Associate Professors from the deptt- Member
- 1 External Faculty from NIT/IIT/IIM/IIT- Member
- 1 External expert from the industry- Member
- 1 Assistant Professor from the deptt- Member Secretary

Submitted for approval.

Manish Goswami
Prof Manish Goswami
Dean AR

Approved
[Signature]

- 1) HOD's are requested to finally form a committee & finalize the syllabus
- 2) As the semester is going to commence from 24th July 24 All HOD's are requested to finalize by 15th July '24
- 3) one final copy may finally be submitted to

8.7.24
The above task
may finally be submitted to
the Dean AR.

- ARSD (AS)
- HOD (MBA)
- HOD (ECE).

[Signature]
8/7/24

Committee to consider and approve the syllabi for B.Tech., M.Tech. and MBA Under NEP2023

1 message

Dean(A) Office <dao@iiita.ac.in>

Tue, Jul 9, 2024 at 2:02 PM

To: "HOD (AS) Hod (AS)" <hod.as@iiita.ac.in>, "HOD (MBA) Hod (MBA)" <hod.mba@iiita.ac.in>, HoD-ECE-IIITA <hod.ec@iiita.ac.in>

Cc: Dean Academic & Research <dean.ar@iiita.ac.in>

Respected All,
Kindly go through the attached document of the above subject for necessary action please.
With regards;

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Office of the Dean.(Academic & Research)

Indian Institute of Information Technology Allahabad, Prayagraj

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 **Syllabi Comm.pdf**
66K



Indian Institute of Information Technology - Allahabad
Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh
Department of Electronics and Communication Engineering

NEP-2020 Based B.Tech-ECE UG Curriculum

(With effect from July 2023)

NEP-2020- National Education Policy- 2020

Total Credit : 160

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

Curriculum B. Tech. (ECE) 2023 Batch and onwards

Total Credit: 160

Semester I Total Credit : 20					
S.No	Course Name	Code	Type	Credit	Hours/Week
					L-T-P-S
1	Linear Algebra	BS-AS-LAL101	BSC	4	3-1-0-0
2	Engineering Physics	BS-AS-EGP102	BSC	4	3-0-2-0
3	Problem Solving with Programming	ES-IT-PSP101	ESC/VSEC	5 (3/2)	3-0-4-0
4	Fundamentals of Electrical & Electronics Engineering	ES-EC-FEE101	ESC	4	3-0-2-0
5	Technical Communication Skills	HM-MS-TCS101	HSMC(AEC)	2	1-0-2-0
6	Constitution of India Universal Human Values Professional Ethics Art of Living	HM-xx-HSM107	HSMC(AEC)	1	1-0-0-0
Total				20	14-1-10-0
					25



Indian Institute of Information Technology - Allahabad
Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh
Department of Electronics and Communication Engineering

Semester 2 Total Credit : 20						
S.No.		Changed Course Name	Code	Type	Credit	Hours/Week
						L-T-P-S
1	Electronic Workshop	Electronic Workshop	ES-EC-ELW102	VSEC	1	0-0-2-0
2	Digital Electronics	Digital Logic Design with HDL	PC-EC-DLD101	PCC	3	2-0-2-0
3	Electronic Devices and Circuits	Electronic Devices and Circuits	ES-EC-EDC103	ESC	3	2-0-2-0
4	Electronics Measurements and Instrumentation	Electronics Measurements and Instrumentation	PC-EC-EMI103	PCC	3	2-0-2-0
5	Data Structures & Algorithms	Data Structures & Algorithms	EC-IT-DSA103	ESC	4	3-0-2-0
6	Probability and Statistics	Network Synthesis and Analog Filters	BS-AS-PNS201	BSC	3	3-0-0-0
7	Principles of Management	Principles of Management	HM-MS-POM102	HSMC(AEC)	2	1-0-2-0
8	Environmental Studies	Constitution of India Environmental Studies Professional Ethics Physical Education (Sports)	HM-xx-ENS105	HSMC(VEC)	1	1-0-0-0
Total					20	14-0-12-0
						26

Exit option to qualify for Certificate:

After successful completion of one year (first two semesters), students may get B Tech UG-ECE Certificate. They need to do "Skill based courses total of 6 credits" in summer before exit.



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Electronics and Communication Engineering

			Semester 3 Total Credit : 23			
S.No	Present (Changed) Course Name	Code	Type	Credit	Hours/Week	
					L	T-P-S
1	Electromagnetic Fields and Waves	PC-EC-EFW102	PCC	3	3	0-0-0
2	Analog Communication	PC-EC-DTS209	PCC	4	3	0-2-0
3	Analog Electronics	PC-EC-ANE205	PCC	4	3	0-2-0
4	Microprocessor Interface and Programming	PC-EC-MIP207	PCC	3	2	0-2-0
5	Biology for Engineers	BS-AS-BFE2xx	BSC	2	2	0-0-0
6	<i>Multi-Disciplinary Minor-1</i>	<i>Multi-Disciplinary Minor-1</i>	MD-xx-XXX201	MDM	3	3-0-0-0
7	Principles of Economics/ Introduction to Finance	Principles of Economics/ Introduction to Finance	HM-MS-POE208 HM-MS-ITF208	HSMC (AEC)	2	2-0-0-0
8	Community Services NCC, NSS, Yoga, Unnat Bharat Abhiyaan-UBA, Ek Bharat Shreshtha Bharat-EBSB, NGO, Prayas, etc.	Community Services	CE-xx-XXX209	HSMC (CEA)	2	0-0-0-4
		National Cadet Corps (NCC),				
		National Service Scheme (NSS),				
		Yoga,				
		Unnat Bharat Adhyayan (UBA),				
		Ek Bharat Shreshtha Bharat-(EBSB),				
		Non-Governmental Organization (NGO),				
Prayaas, etc.						
			Total		23	18-0-6-4
						28



Indian Institute of Information Technology - Allahabad
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Semester 4 Total Credit : 22						
S.No.		Present (Changed) Course Name	Code	Type	Credit	Hours/Week
						L-T-P-S
1	Control Systems	Control Systems	PC-EC-COS208	PCC	4	3-0-2-0
2	Discrete Time Signal and Systems	Analog Communication	PC-EC-ANC204	PCC	3	2-0-2-0
3	Digital IC Design	CMOS VLSI Design	PC-EC-CVD210	PCC	3	2-0-2-0
4	Optical Communication	Probability and Statistics	PC-EC-PAS314	PCC	3	3-0-0-0
5	Antenna and Wave Propagation	Antenna and Wave Propagation	PC-EC-AWP212	PCC	3	2-0-2-0
6		Integrated Circuit Technologies	PC-EC-ICT211	PCC	3	3-0-0-0
7	SMT Workshop	(Merge with Electronic Workshop in Sem II)				
8	<i>Multi-Disciplinary Minor-2</i>	<i>Multi-Disciplinary Minor-2</i>	MD-xx- XXX202	MDM	3	3-0-0-0
Total					22	18-0-8-0
						26

Exit option to qualify for Diploma:

After successful completion of 4 semesters, students may get an exit option with UG- Diploma Certificate. They need to do "Skill based courses total of 6 credits" before exit.



Indian Institute of Information Technology - Allahabad
Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh
Department of Electronics and Communication Engineering

Semester 5 Total Credit : 22						
S.No.		Present (Changed) Course Name	Code	Type	Credit	Hours/Week
						L-T-P-S
1	Integrated Circuit Technologies	Embedded System Design	PC-EC-ESD317	PCC	3	2-0-2-0
2	Digital Signal Processing	Digital Signal Processing	PC-EC-DSP313	PCC	4	3-0-2-0
3	Microwave Engineering	Microwave Engineering	PC-EC-MWE315	PCC	3	2-0-2-0
4	Digital Communication	Digital Communication	PC-EC-DCO316	PCC	4	3-0-2-0
5	Program Elective-I	Program Elective-I 1. Electrical Machines 2. Advanced Computer Architecture 3. AI and ML Techniques 4. Solid State Devices	PE-xx-OPS3xx	PEC	3	3-0-0-0
6	<i>Multi-Disciplinary Minor-3</i>	<i>Multi-Disciplinary Minor-3</i>	MD-xx-XXX303	MDM	3	3-0-0-0
7	Design Thinking and Innovation	Design Thinking and Innovation	HM-MS-DTI306	HSMC (AEC)	2	1-0-2-0
Total					22	17-0-10-0
						27



Indian Institute of Information Technology - Allahabad
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Semester 6 Total Credit : 18						
S.No.		Present (Changed) Course Name	Code	Type	Credit	Hours/Week
						L-T-P-S
1	Embedded System Design	Data Communication and Networking	PC-EC-DCN	PCC	3	2-0-2-0
2	Mobile and Wireless Communication	Mobile and Wireless Communication		PCC	3	2-0-2-0
3	Program Elective-II	Program Elective-II 1 Power Electronics 2 Testing and Verification 3 Optical Communication 4 Detection and Estimation Theory 5 Physics of Nanoscale Devices	PE-EC-xxx301	PEC	3	3-0-0-0
4	Project	Project	PP-EC-PRJ301	VSEC	4	0-0-8-0
5	Multi-Disciplinary Minor-4	Multi-Disciplinary Minor-4	MD-xx-XXX304	MDM	3	3-0-0-0
6	Indian/Foreign Language Regional Language, Sanskrit, German, Japanese, French	Indian/Foreign Language Regional Language, Sanskrit, German, Japanese, French	HM-xx-XXX304	HSMC (AEC)	2	1-0-2-0
Total					18	11-0-14-0 24

Exit option to qualify for BSc. (Engineering) Degree:

After successful completion of 6 semesters, students may get an exit option with B Sc (Engineering) Degree. They need to do "Skill based courses total of 6 credits" before exit.

Summer Semester Total Credit : 3					
S.No.	Course Name	Code	Type	Credit	
1	Internship	PC-EC-ITP353	ELC	3	Credit will be added in VII Sem.



Indian Institute of Information Technology - Allahabad
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		Semester 7 Total Credit : 21				
S.No.		Present (Changed) Course Name	Code	Type	Credit	Hours/wWeek
						L-T-P-S
1	Program Elective-III	Program Elective-III 1. Electrical Vehicles 2. FPGA Architecture 3. Image Processing and Image Vision 4. Multiple Input Multiple Output (MIMO) 5. Low Power System Design	PE-EC-xxx403	PEC	3	3-0-0-0
2	Program Elective-IV	Program Elective-IV 1. Radar and Satellite Communication 2. Micro-Electro Mechanical Systems 3. Speech Processing 4. Emerging Nanoscale Devices 5. 6G and Terahertz Communication	PE-EC-xxx404	PEC	3	3-0-0-0
3	Open Elective-I	Open Elective-I	OE-xx-xxx4xx	OEC	3	3-0-0-0
5	Mini Project	Mini Project	PP-EC-PRJ402	VSEC	4	0-0-8-0
6	<i>Multi-Disciplinary Minor-5</i>	<i>Multi-Disciplinary Minor-5</i>	MD-xx-XXX405	MDM	3	3-0-0-0
7	a) <i>History of Indian Civilizations</i> b) <i>Kautilya's Arthashastra</i> c) <i>Vedic Mathematics</i> d) <i>Vedic Corpus</i> e) <i>Wisdom from the Ages</i> f) <i>Panini's Grammar</i>	a) <i>History of Indian Civilizations</i> b) <i>Kautilya's Arthashastra</i> c) <i>Vedic Mathematics</i> d) <i>Vedic Corpus</i> e) <i>Wisdom from the Ages</i> f) <i>Panini's Grammar</i>	HM-MS-XXX408	HSMC (IKS)	2	2-0-0-0
8	Internship (Summer Semester)	Internship (Summer Semester)	PC-EC-ITP353	ELC	3	0-0-0-6
Total					21	14-0-8-6
						22+6



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Electronics and Communication Engineering

Semester 8 Total Credit : 14						
S.No.		Course Name	Code	Type	Credit	Hours/Week
						L-T-P-S
1	Major Project	Major Project	PP-EC-PRJ403	ELC	8	0-0-16-0
2	Program Elective-V	Program Elective-V 1. Internet of Things (IoT) 2. System on Chip	PE-EC-xxx405	PEC	3	0-0-0-6
3	Open Elective-II	Open Elective-II	OE-xx-xxx4xx	OEC	3	0-0-0-6
				Total	14	0-0-16-12
						28

8th Semester courses may be allowed to join via online mode (MOOC/ NPTEL, etc.). The list of such courses will be floated by the department.

“NEP Curriculum Design for MBA Program”

Presented by:-

Dr. Pragya Singh

HOD- Department of Management Studies

IIIT Allahabad

1. Introduction: The NEP Policy 2020 seeks to reform the Higher Education System by providing flexibility to students to choose different subjects and determine their academic pathways. The policy envisages broad bases, multi disciplinary, holistic academic programmes with creative combination of disciplines of study with multiple entry and exit points.

Thus, the curriculum proposed is flexible with myriad combination of subjects including development of skill based ecosystem and vocationalisation of education by integrating it with mainstream education.

2. Initiative for implementation of NEP 2020 :

Under the able guidance & leadership of Professor M. S. Sutaone, the mandate is to focus on the implementation of Multiple Entry & Exit guidelines in Post Graduate (PG) Course of the department along with offering the minor basket 5/6 subjects with 3 credits) to UG courses.

Thus the focus is to imbibe the concept of holistic education along with imparting vocational training to the post graduate students at the Department of Management Studies. The MBA students should be well equipped to work across time zones, languages, and cultures. Employability, innovation, theory to practice, connectedness are the focal of MBA curricular design and development.

The following course structure for all the four semesters of the MBA Program has been discussed under the following philosophy, the course offerings can be classified as:

- 1. Programme Core courses**
- 2. Programme Elective Courses**
- 3. Experiential Learning Courses**

After discussion, we arrived at the following conclusion:

Under NEP the program structure is designed under the following philosophy to integrate the subjects, It is concluded that under experiential Learning there will be 1 credit hour added to all the existing courses LTPE.

3. Programs offered by DoMS:

- a) DoMS is Currently having a regular MBA Program & Ph.D.
- b) Proposed programs are Integrated B.Tech-MBA, MBA- Ph.D. & MBA (Business Analytics)
- c) Proposed program under NEP FLEXIBLE STRUCTURE - 1 Yr. PG Diploma in Business Administration. There will only be one exit point for those who join the Two -Year Master's Programme. The students who exit after the first year will be awarded Post- graduate Diploma in Business Administration.

4. Program /course Structure:

Under NEP the program structure is designed under the following philosophy to integrate the subjects:

1. Program Core courses: Includes :

Financial Statements and Analysis, Business Statistics, Research Methodology, Economics, Management Thought & Environment, IT Infrastructure & Services Mgt, Organizational Behavior, Corporate Finance, Production & Operation Management, Operation Research, Human Resource Management, Marketing Management, Database Management System, Entrepreneurship Development, Strategic Management, Business Continuity Plan & DRP, Digital Transformation ,Product Management.

2. Program Elective Courses includes MARKETING MANAGEMENT, HUMAN RESOURCE MANAGEMENT, FINANCIAL MANAGEMENT, IT BASKET, OPERATION MANAGEMENT, ENTREPRENEURSHIP DEVELOPMENT

3. Experiential Learning Courses includes Summer Internship and Master Project

5. Course credit Distribution under NEP Curriculum:

- a) For Two yr. Masters program- MBA Program the total credit hours is = 82
- b) For 1 Yr. PG Diploma in Management the total credit hours is = 40

6. Detailed course structure:

Total Credits - 80

1 L= 1 Credit, 1 T= 1 Cr, 2 P= 1Cr, 1 E=1 Cr.

Semester - I		Total Credit - 80					
S. No.	Course Name	COURSE CODE	Credit	L	T	P	E
1	Financial Statements and Analysis	PC-MS-FSA-501	3	2	0	1	0
2	Business Statistics	PC-MS- BST-502	3	2	0	2	0
3	Research Methodology	PC-MS-REM-503	3	3	0	0	0
4	Economics	PC-MS-ECO-504	3	3	0	0	0
5	Management Thought and Environment	PC-MS-MTE-505	3	2	0	2	0
6	IT Infrastructure & Services Mgt.	PC-MS-ISM-506	3	2	0	0	1
7	Organizational Behavior	PC-MS-ORB-507	2	2	0	0	0
Total credits			20	16	0	5	1
PC^=Programme Core Course.							

Semester - II
 1 L= 1 Credit, 1 T= 1 Cr, 2 P= 1 Cr, 1E= 1 Cr,
 Total Credit = 19

S. No.	Course Name	Course Code	Credit	L	T	P	E
1	Corporate Finance	PC-MS-CFI-501	3	2	1	0	0
2	Production & Operations Management	PC-MS-POM-502	3	2	0	2	0
3	Operation Research	PC-MS-OPR-503	3	2	0	2	0
4	Human Resource Management	PC-MS-HRM-504	3	2	0	2	0
5	Marketing Management	PC-MS-MAM-505	3	2	0	2	0
6	Database Management Systems	PC-MS-DMS-506	3	2	0	2	0
7	Entrepreneurship Development	PC-MS-EDE-507	2	1	0	0	1
Total Credits			20	13	1	10	1

PC=Programme Core Course.

Semester - III

1 L= 1 Credit, 1 T= 1 Cr, 2 P= 1 Cr, 1E = 1 Cr.
Total Credit - 20

S. No.	Course Name	Course Code	Credit	L	T	P	E
1	Strategic Management Business	PC-MS-SMA-601	3	2	0	2	0
2	Continuity Plan & DRP Elective-I	PC-MS-BCPD-602	3	2	0	2	0
3	Elective- 1*	PE-MS-FIN-701	3	2	0	2	0
4	Elective- 2*	PE-MS-MAM-702	3	2	0	2	0
5	Elective-3*	PE-MS-HRM-703	3	2	0	2	0
6	Elective- 4*	PE-MS-EDE-704	3	2	0	2	0
7	Summer Internship	EL-MS-SME-801	2	0	0	0	2
Total Credits			20	12	0	12	2

NOTE* : Student has to select any two subject from elective basket given below

ELECTIVE BASKET: MARKETING MANAGEMENT, HUMAN RESOURCE
MANAGEMENT, FINANCIAL MANAGEMENT, IT BASKET, OPERATION
MANAGEMENT, ENTREPRENEURSHIP DEVELOPMENT

PC= Programme Core Course

PE= Programme Elective Course

EL= Experiential Learning Course

Semester - IV
 1 L= 1 Credit , 1 T= 1 Cr , 2 P= 1 Cr, 1L= 1Cr, 1E=1Cr.
 Total Credit - 20

S. No.	Course Name	Course Code	Credit	L	T	P	E
1	Digital Transformation	PC-MS-DIT-601	3	2	0	2	0
2	Product Management	PC-MS-PRM-602	3	2	0	2	0
3	Elective- 5	PE-MS-FIN-701	3	2	0	2	0
4	Elective- 6	PE-MS-MAM-702	3	2	0	2	0
5	Elective- 7	PE-MS-HRM-703	3	2	0	2	0
6	Elective- 8	PE-MS-OPR-704	3	2	0	2	0
7	Master Project	EL-MS-MPR-901	4	0	0	0	4
Total Credits			22	12		12	4

NOTE* : Student has to select any two subject from elective basket given below

MARKETING MANAGEMENT, HUMAN RESOURCE MANAGEMENT, FINANCIAL MANAGEMENT, IT BASKET, OPERATIONS MANAGEMENT, ENTREPRENEURSHIP DEVELOPMENT

- PCv=Programme Core course
- PE***= Programme Elective Course
- EL**=Experiential Learning courses.

CREDIT DISTRIBUTION

COURSE CODE	SEM1	SEM2	SEM3	SEM4	TOTAL CREDIT
PC	20	20	6	6	52
PE	0	0	12	12	24
EL	0	0	2	2	6
TOTAL CREDIT	20	20	20	22	82



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

Approved
 on behalf of Senate
 22.7.24
 1



Indian Institute of Information Technology-Allahabad

Deoghat, Jhalwa-211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

Annex 4

M.Tech Curriculum 2023-24 & Onwards

Department of Applied Science

(NEP based Curriculum)

Guidelines for M.Tech 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

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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

Bioinformatics (M.Tech)

Bioinformatics is one of the interdisciplinary courses which involve data analysis of biological systems using computer science and information technology approaches. Bioinformatics uses both computation and information extraction principles to collect and mine biological information. Broadly it covers the development of algorithms and tools suitable for creating multipurpose and advanced RDBMS, the design of data analytics frameworks using advanced AIML under systems engineering paradigm, advanced coding skills to deal with special data analytics including graph theoretic, networking, and systems biology approaches, and creation of digital analogs of real-life activities, e.g., “docking” through advanced simulation methods. M. Tech Bioinformatics at the Indian Institute of Information Technology – Allahabad, is a four-semester program designed to develop skills in Information Technology and Data science applied to Biological Data. M. Tech in Bioinformatics is an excellent avenue to build your career, which provides an interdisciplinary platform through the amalgamation of Information Technology, Statistics, Mathematics, and Biology. The coursework is designed to include a balance of functional knowledge as well as practical learning spread over four semesters covering, Computer programming, Data structure and Algorithms, Database Management Systems, Biological Information Systems and Management (Applied on Large-scale Scale Biological Data), Mathematics, Statistics, Machine Learning and emerging topics such as Big Data, Deep Learning, and Pattern Recognition as electives.

Total Credit Distribution

Semester	Semester I	Semester II	Summer Semester	Semester III	Semester IV	Total Credits
M.Tech	18	19	0	17	12	66
PG Diploma	18	19	5	-	-	42



Indian Institute of Information Technology - Allahabad

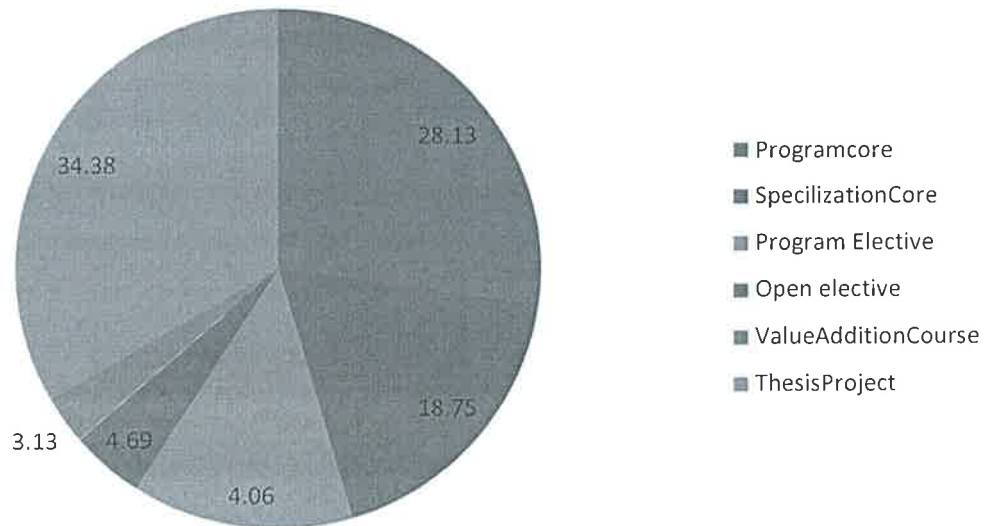
Deoghat, Jhalwa-211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

M.Tech BI, Credit Distribution

M.Tech BI	I	II	III	IV	Total Credits	
Programcore	6	12			18	28.13%
SpecializationCore	12				12	18.75%
ProgramElective		3	6		9	14.06%
OpenElective			3		3	4.69%
ValueAdditionCourse		2			2	3.13%
Thesis/Project		2	8	12	22	34.38%

1





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.	Data Analytics Fundamentals for Biology	AS502	PCC	4	3-0-2-0
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.	Research Methodology I (for M.Tech and M. Tech-PhD)	AS505	ELC	2	2-0-0-0
Total Credit:				18	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.	Information System and Management in Biology	AS508	PCC	4	3-0-2-0
4.	HSMC		VEC	2	2-0-0-0
5.	Elective-1		PEC	3	3-0-0-0
6.	Mini Project	AS509	ELC	2	0-0-4-0
Total Credit:				19	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** from summer semester for forwarding PG diploma, which is mandatory.



Indian Institute of Information Technology-Allahabad

Deoghat, Jhalwa-211015, Prayagraj, UttarPradesh

Department of Applied Sciences

Dual degree M. Tech-Ph.D.: Please note that there is a **Summer Semester** which will be between II and III Semester. For regular M. Tech students, there is no need of a summer semester.

Table 3: Summer Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Summer 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
3.	Summer Project(for M.Tech-PhD)	AS511	ELC	8	0-0-16-0
Total Credit:				5/8	7Hrs./week 16Hrs./week

Table 4: Third Semester (M.Tech)

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Elective II		PEC	3	3-0-0-0
2.	Elective III		PEC	3	3-0-0-0
3.	Open Electives		OEC	3	3-0-0-0
4.	Major Project	AS601	ELC	8	0-0-16-0
Total Credit:				17	25 11Hrs./week

Table 5: Fourth Semester (M.Tech)

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

Table 6: List of Electives

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	OPENELECTIVES				
1	Open Elective			3	



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 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=1hr/week, Tutorial (T):1Credit=1hr/week, Practical (P):1credit =2hr/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, an 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.iitit.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

Bioinformatics (Dual degree M.Tech-PhD)

Bioinformatics is one of the interdisciplinary courses which involve study of biology, computer science, and Information Technology. Bioinformatics uses both computation and assessment tools to collect and translate biological data. This is suitable for development of algorithms and tools suitable for large biological databases, design data frameworks, and develop and adjust algorithms. M. Tech Bioinformatics at the Indian Institute of Information Technology – Allahabad, is a four semester’s program designed to develop the skills in Information Technology and Data science applied on Biological Data. M. Tech in Bioinformatics is an excellent avenue to build your career, which provides an interdisciplinary platform through the amalgamation of Information Technology, Statistics, Mathematics and Biology. The coursework is designed to include a balance of functional knowledge as well as practical learning spread over four semesters covering, Computer programming, Data structure and Algorithms, Database Management System, Biological Information System and Management (Applied on Large Scale Biological Data), Mathematics, Statistics, Machine Learning and emerging topics such as Big Data, Deep Learning, Pattern Recognition as electives.

Total Credit Distribution

Semester	Semester I	Semester II	Summer Semester	Semester III	Semester IV	Total Credits
M.Tech	18	19	0	17	12	66
PG Diploma	18	19	5	-	-	42

Dual degree M. Tech-PhD*	20	19	*After Second semester, Dual degree M. Tech-PhD Students will follow PhD ordinance/Curriculum			
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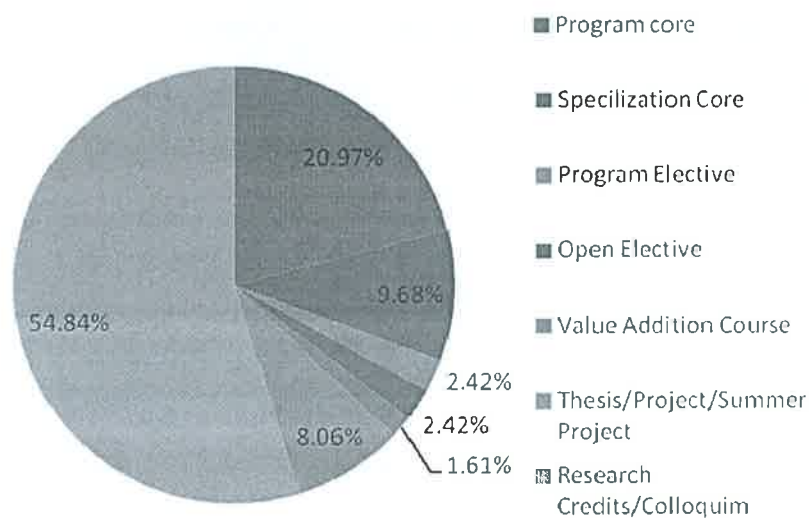
Indian Institute of Information Technology-Allahabad

Deoghat, Jhalwa-211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

Dual Degree M.Tech-PhD BI, Credit Distribution

M.Tech BI		I	II	III	IV	V	VI	VII	VIII	Total Credits	
1	Program core	6	12	8						26	20%
2	Specialization Core	12								12	10%
3	Program Elective		3							3	2.5%
4	Open Elective			3						3	2.5%
5	Value Addition Course		2							2	1.6%
6	Thesis/Project/Summer Project		2	8						10	8%
7	Research Credit/Colloquium			8	12	12	12	12	12	68	57%





Indian Institute of Information Technology-Allahabad

Deoghat, Jhalwa-211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

Table1: First Semester (Dual Degree M.Tech-PhD)

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	OMICS	AS501	PCC	4	3-0-2-0
2.	Data Analytics Fundamentals for Biology	AS502	PCC	4	3-0-2-0
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.	Research Methodology 1 (for M.Tech and M. Tech-PhD)	AS505	ELC	2	2-0-0-0
6.	Research Methodology 2 (for M.Tech-PhD)	MS518	ELC	2	2-0-0-0
Total Credit:				20	24Hrs./week 6Hrs./week

Table2: Second Semester (Dual Degree M.Tech-PhD)

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.	Information System and Management in Biology	AS508	PCC	4	3-0-2-0
4.	HSMC		VEC	2	2-0-0-0
5.	Elective-1		PEC	3	3-0-0-0
6.	Mini Project	AS509	ELC	2	0-0-4-0
Total Credit:				19	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** from summer semester for forwarding PG diploma, which is mandatory.



Indian Institute of Information Technology-Allahabad

Deoghat, Jhalwa-211015, Prayagraj, UttarPradesh

Department of Applied Sciences

Dual degree M. Tech-Ph.D.: After the end of II Semester the M. Tech-PhD student moves into the Ph. D Section of the Degree and will be henceforth governed by the Ph.D. ordinance. Please note that there is a **Summer Semester** which will be between II and III Semester. For regular M. Tech students there is no need of summer semester.

Table 3: Summer Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Summer Project(for PGDiploma)	AS510	ELC	2	0-0-4-0
2.	Systems Biology / Cheminformatics /NPTEL (for PG Diploma)	AS612/AS608	PCC	3	3-0-0-0
3.	Summer Project(forM.Tech-PhD)	AS511	ELC	8	0-0-16-0
Total Credit:				5/8	7Hrs./week 16Hrs./week

Table 4: Third Semester (M.Tech-PhD)

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Elective II	AS602	PCC	4	0-0-0-8
2.	Elective III	AS603	PCC	4	0-0-0-8
3.	Open Electives		OEC	3	3-0-0-0
4.	Research Credit	AS604	ELC	8	0-0-16-0
Total Credit:				19	35 Hrs./week

Table 5: Fourth Semester (M.Tech-PhD)

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Research Credit	AS606		12	0-0-24-0
Total Credit:				12	24 Hrs./week

Table 6: List of Electives

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	OPENELECTIVES				
1	Open Elective			3	



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 Engineering

The M. Tech Biomedical Engineering 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 Engineering course 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, 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	17	12	66
PG Diploma	18	19	5	-	-	42



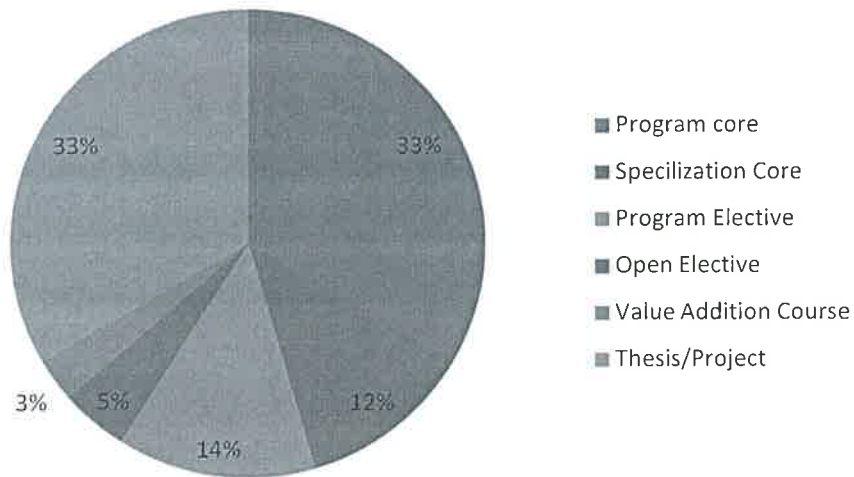
Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

M. Tech BME, 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	8	12	22	33%





Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

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.	Research Methodology 1	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** 1/2/3 (a single basket has to be chosen)*

Table 2: Second Semester

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Advanced Medical Instrumentation	AS519	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.	Mini Project	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.



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

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		OE	3	3-0-0-0
4.	Major Project	AS601	ELC	8	0-0-16-0
Total Credit:				17	²⁵ 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



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Applied Sciences

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

Basket 1: Medical/B.Pharma. /Pharmacology/Biotechnology/M.Sc. in Biology or Life Sciences/Applied Chemistry

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: Engineering/Technology/Instrumentation/Electronics/IT/CS/Physics/Applied Physics

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

Basket 3: Mathematics/Applied Math/Statistics

Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Anatomy & Physiology	AS517	PCC	4	3-0-2-0
2.	Biosignal Processing	AS518	PCC	4	3-0-2-0
Total Credit:				8	10 Hrs./week



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

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.	Soft Computing Tools for Biomedical Engineering	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	Survival Analysis	AS635	PEC	3	3-0-0-0
23	All the electives provided in M. Tech BI basket are available for M. Tech BME students			also	
	OPEN ELECTIVES				
24	Open Elective		OE	3	