



Indian Institute of Information Technology - Allahabad

Deoghat, Jhalwa- 211015, Prayagraj, Uttar Pradesh

Department of Information Technology

NEP-2020 Based Dual Degree B.Tech-M.Tech-IT

with Specialization in Data Engineering

(With effect from July 2026 Batch)

Total Credit : 200

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

1. Degree: Dual Degree B.Tech-M.TechIT

2. Duration: The total duration of the program will be 5 years

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

Semester		I	II	III	IV	V	VI	VII	VIII	IX	X	Total Credits	
Basic Science Course	BSC/ESC	04	04	04	--	--	02	--	--	--	--	14	23
Engineering Science Course		09	--	--	--	--	--	--	--	--	--	09	
Programme Core Course (PCC)	Programme Courses	--	15	14	19	15	04	04	08	04	--	83	101
Programme Elective Course (PEC)		--	--	--	--	--	06	03	03	06	--	18	
Open/School Elective (OE/SE) other than particular program	Multi-disciplinary	--	--	--	--	--	--	03	--	--	--	03	15
Multidisciplinary Minor (MD M)		--	--	03	03	03	03	--	--	--	--	12	
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	--	02	--	--	--	--	--	--	--	--	02	02
Ability Enhancement Course (AEC-01)	Humanities Social Science and Management	02	--	02	--	02	--	--	--	--	--	06	14
Indian Language (AEC-02)		--	--	--	--	--	02	--	--	--	--	02	
Entrepreneurship/Economics/ Management Courses		--	02	--	--	--	--	--	--	--	--	02	
Indian Knowledge System (IKS)		--	--	--	--	--	--	02	--	--	--	02	
Value Education Course (VEC)		01	01	--	--	--	--	--	--	--	--	02	
Research Methodology (RM)	Experiential Learning Courses	--	--	--	--	--	--	05	--	--	--	05	45
Internship		--	--	--	--	--	--	--	--	03	--	03	
Project/Dissertation/Independent Study/Thesis		--	--	--	--	03	04	04	05	05	15	36	
Community Engagement Activity (CEA)/Field Project		--	--	01	--	--	--	--	--	--	--	01	
Co-curricular & Extracurricular Activities (CCA)	Liberal Learning Course	--	--	--	--	--	--	--	--	--	--	00	00
Total Credits		16	24	24	22	23	21	21	16	18	15	200	200

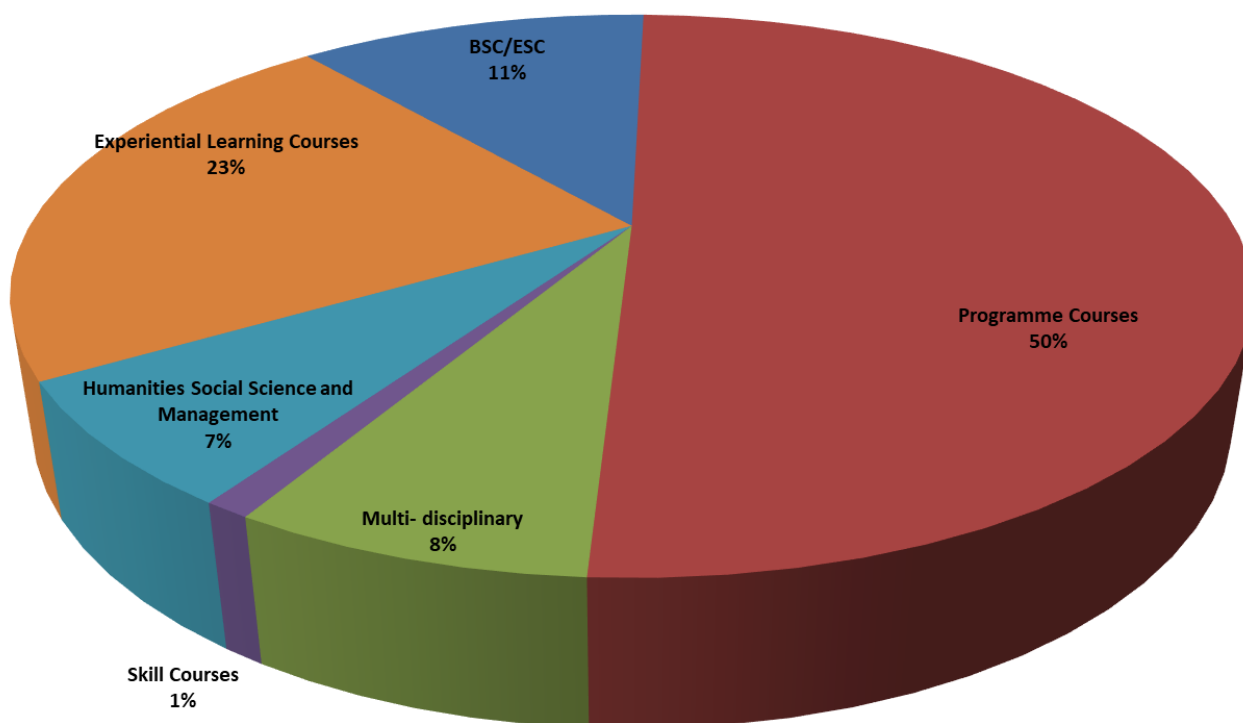


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Credit Distribution





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Semester 1					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Engineering Physics (For Section C)	AS101	BSC	4	3–0–2-0
2	Linear Algebra (For Section A & B)	AS102	BSC	4	3–1–0-0
3	Problem Solving with Programming	IT101	ESC	5	3–0–4-0
4	Fundamentals of Electrical & Electronics Engineering	EC101	ESC	4	3–0–2-0
5	Technical Communication Skills	MS101	HSMC (AEC)	2	1–0–2-0
6			HSMC (VEC)	1	1-0-0-0
	Constitution of India				
	Universal Human Values				
	Professional Ethics				
	Art of Living				
Total				16	11-0-10-0/11–1–8-0 21/20

Semester 2					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Engineering Physics (For Section A & B& Branch Change from IT to ECE)	AS101	BSC	4	3–0–2-0
2	Linear Algebra (For Section C1, C2, C3 & Branch Change from C to IT)	AS102	BSC	4	3–1–0-0
3	Discrete Mathematical Structures	IT102	PCC	4	3–1–0-0
4	Computer Organization and Architecture	IT103	PCC	4	3–0–2-0
5	Data Structures and Algorithms	IT104	PCC	4	3–0–2-0
6	Web Development	IT105	VSEC	2	0-0-4-0
7	Principles of Data Communication	EC107	ESC	3	3–0–0-0
8	Principles of Management	MS102	HSMC (AEC)	2	2–0–0-0
9			HSMC (VEC)	1	1-0-0-0
	Constitution of India				
	Environmental Studies				
	Professional Ethics				
	Physical Education(Sports)				
Total				24	15–1–8-0
					24

Sec. A, B: B.Tech. IT (Max. 154 and 153 students), **Sec. C1:** Dual Degree B. Tech.-IT-M.Tech.-IT (Max. 29 students), **Sec. C2:** B.Tech.-IT(BIn) (Max. 46 students), **Sec. C3:** Dual Degree B.Tech.-IT(Bin)-MBA (Max. 25 students)



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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.

Semester 3					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Probability and Statistics	AS201	BSC	4	3-1-0-0
2	Object Oriented Methodologies	IT201	PCC	4	3-0-2-0
3	Theory of Computation	IT202	PCC	3	2-1-0-0
4	Operating System	IT203	PCC	4	3-0-2-0
5	Software Engineering	IT204	PCC	3	2-0-2-0
6	<i>Multi-Disciplinary Minor-1</i>		MDM	3	3-0-0-0
7	<i>Entrepreneurship Development</i>	MS508	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	IT205	PCC	4	3-0-2-0
2	Principles of Programming Language	IT206	PCC	3	3-0-0-0
3	Computer Networks	IT207	PCC	4	3-0-2-0
4	Computer Graphics and Visualization	IT208	PCC	4	3-0-2-0
5	Database Management System	IT209	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.



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Semester 5					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Cyber Security	IT301	PCC	4	3-0-2-0
2	Introduction to Machine Learning	IT302	PCC	4	3-0-2-0
3	Image and Video Processing	IT303	PCC	4	3-0-2-0
4	Artificial Intelligence	IT304	PCC	3	2-0-2-0
5	Micro Project	IT305	ELC	3	0-0-6-0
6	<i>Multi-Disciplinary Minor-3</i>		MDM	3	3-0-0-0
7	<i>Design Thinking and Innovation</i>	IT306	HSMC (AEC)	2	1-0-2-0
Total				23	15-0-16-0 31

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	IT307	PCC	4	3-0-2-0
2	Mini Project	IT308	ELC	4	0-0-8-0
3	Biology for Engineers	AS301	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.ScEngg. 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.



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Semester 7					
Sl.No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1	Minor Project	IT401	ELC	4	0-0-8-0
2	Elective-3		PEC	3	3-0-0-0
3	Advanced Data Analytics	IT506	PCC	4	3-0-2-0
4	Open Elective-1		OEC	3	3-0-0-0
5	<i>History of Indian Civilizations/ Kautilya's Arthashastra/ Vedic Mathematics/ Vedic Corpus/ Wisdom from the Ages/ Panini's Grammar</i>		HSMC (IKS)	2	2-0-0-0
6	AI Tools for Research	IT504	ELC	3	0-1-4-0
7	Research Methodology & IPR	IT505	ELC	2	2-0-0-0
Total				21	13-1-14-0
					28

Semester-8					
Sl. No.	Course Name	Code	Type	Credit	Hours
					L-T-P-S
1.	Deep Generative Models	IT513	PCC	4	3-0-2-0
2.	Big Data Analytics	IT514	PCC	4	3-0-2-0
3.	Elective-4		PEC	3	3-0-0-0
4.	Dissertation Phase-I	IT550	ELC	3	0-1-4-0
5.	Independent Study#	IT551 **	ELC	2	0-0-4-0
Total				16	9-1-12-0
					22

** "Topic Of Study"- Will be mention on grade card

Advised by the Supervisor

Exit option 1: After successful completion of Eight semesters, a student may get an exit option (B.ScEngg. 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)



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Summer Semester					
Sl.No.	Course Name	Code	Type	Credit	
1	Internship	IT402	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.	High Performance Computing	IT601	PCC	4	3-0-2-0
2.	Elective-5		PEC	3	3-0-0-0
3.	Elective – 6##		PEC	3	0-0-0-3
4.	Dissertation Phase-II	IT650	ELC	5	0-2-6-0
5.	Internship	IT402	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	IT651	ELC	15	0-2-26-0
Total				15	0-2-26--0 28 Hrs./week
Cumulative Degree Credits				200	



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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#	IT404	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	IT402	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.