

Curriculum for B.Tech. in Mathematics and Computing (2026 onwards)

Category – BSC: Basic Science Courses, **ESC:** Engineering Science Courses including Workshop, Drawing, etc., **HSC:** Humanities & Social Sciences including Management Courses, **CBC:** Common Basic Core. **PCC:** Professional Core Courses, **PEC:** Professional Elective Courses Relevant to Chosen Specialization/Branch, **OEC:** Open Subjects–Electives, **PRC:** Project Work, Seminar & Internship, **OMC:** Mandatory Courses

FIRST SEMESTER

S. No.	COURSE			Contact Hours				Credits
	Category	Course Title	Course Code	L	T	P	Total	
1.	BSC	Mathematics-1	15B11MA111	3	1	0	4	4
2.	BSC	Physics-1	15B11PH111	3	1	0	4	4
3.	BSC	Physics Lab-1	15B17PH171	0	0	2	2	1
4.	ESC	Software Development Fundamentals-I	15B11CI111	3	1	0	4	4
5.	ESC	Software Development Fundamentals Lab-I	24B15CS111	0	0	2	2	1
6.	HSC	English	15B11HS112	1	0	2	3	2
7.	ESC	Engineering Drawing & Design	18B15GE111	0	0	3	3	1.5
8.	ESC	Basic Electronics	24B11EC111	3	1	0	4	4
9.	ESC	Basic Electronics Lab	24B15EC111	0	0	2	2	1
TOTAL							28	22.5

SECOND SEMESTER

S. No.	COURSE			Contact Hours				Credits
	Category	Course Title	Course Code	L	T	P	Total	
1.	BSC	Mathematics-2	15B11MA211	3	1	0	4	4
2.	BSC	Physics-2	15B11PH211	3	1	0	4	4
3.	BSC	Physics Lab-2	15B17PH271	0	0	2	2	1
4.	ESC	Software Development Fundamentals-II	15B11CI121	3	1	0	4	4
5.	ESC	Software Development Fundamentals Lab-II	24B15CS121	0	0	2	2	1
6.	HSC	Life Skills & Professional Communication Lab	24B16HS111	0	0	2	2	Qualifying
7.	ESC	Workshop	18B15GE112	0	0	3	3	1.5
8.	HSC	Universal Human Values (UHV)	24B11HS111	2	1	0	3	3
TOTAL							24	18.5

THIRD SEMESTER

S. No.	COURSE			Contact Hours				Credits
	Category	Course Title	Course Code	L	T	P	Total	
1.	BSC	Introduction of Probability and Statistics	26B11MA230	3	1	0	4	4
2.	PCC	Discrete Mathematics and its Applications	26B11MA229	3	0	0	3	3
3.	PCC	Data Structures	15B11CI311	3	1	0	4	4
4.	PCC	Data Structures Lab	15B17CI371	0	0	2	2	1
5.	PCC	Database Management Systems	24B11CS213	3	0	0	3	3
6.	PCC	Database Management Systems Lab	24B15CS213	0	0	2	2	1
7.	PCC	Object Oriented Programming using Java	24B15CS215	0	0	2	2	1
8.	HSC	Economics	15B11HS211	2	1	0	3	3
9.	PRC	Summer Training-I (at least 4 weeks)	24B37MA211	0	0	0	0	4
TOTAL							23	24

FOURTH SEMESTER

S. No.	COURSE			Contact Hours				Credits
	Category	Course Title	Course Code	L	T	P	Total	
1.	HSC	HSS Elective – 1	XXXXXX	2	1	0	3	3
2.	PCC	Artificial Intelligence and Machine Learning	24B11CS222	3	0	0	3	3
3.	PCC	Artificial Intelligence and Machine Learning Lab	24B15CS222	0	0	2	2	1
4.	PCC	Numerical Methods in Scientific Computing	26B11MA231	3	0	0	3	3
5.	PCC	Numerical Methods in Scientific Computing Lab	26B15MA232	0	0	2	2	1
6.	PCC	Design and Analysis of Algorithms	24B11CS221	3	1	0	4	4
7.	PCC	Theory and Applications of Linear Algebra	25B11MA231	3	1	0	4	4
8.	PCC	Design and Analysis of Algorithms Lab	24B15CS221	0	0	2	2	1
9.	OMC	Environmental Studies	19B13BT211	3	0	0	3	Audit
TOTAL							26	20

FIFTH SEMESTER

S. No.	COURSE			Contact Hours				Credits
	Category	Course Title	Course Code	L	T	P	Total	
1.	PCC	Real and Complex Analysis	26B11MA318	3	1	0	4	4
2.	PCC	Computer Networks	24B11CS313	3	1	0	4	4
3.	PCC	Computer Networks Lab	24B15CS313	0	0	2	2	1
4.	PCC	Operating Systems	24B11CS312	3	0	0	3	3
5.	PCC	Operating Systems Lab	24B15CS312	0	0	2	2	1
6.	PEC	Discipline Elective-1	XXXXXX	3	0	0	3	3
7.	BSC	Science Elective	XXXXXX	3		0	3	3
8.	OMC	Indian Constitution & Traditional Knowledge	20B13HS311	3	0	0	3	Audit
9.	PRC	Summer Training-II (at least 4 weeks)	24B37MA311	0	0	0	0	4
TOTAL							24	23

SIXTH SEMESTER

S. No.	COURSE			Contact Hours				Credits
	Category	Course Title	Course Code	L	T	P	Total	
1.	PCC	Web Technology	24B11CS321	3	0	0	3	3
2.	PCC	Web Technology Lab	24B15CS321	0	0	2	2	1
3.	PCC	Statistical Methods and Applications	XXXXXXXXXX	3	0	0	3	3
4.	PCC	Theory of Computation	24B31MA312	3	0	0	3	3
5.	PEC	Discipline Elective – 2	XXXXXX	2	0	0	2	2
6.	PEC	Discipline Elective – 2 Lab	XXXXXX	0	0	2	2	1
7.	OEC	Open Elective - 1	XXXXXX	2	0	0	2	2
8.	Value added	Selected Value-Added Course	XXXXXX	2	0	0	2	Audit
9.	PCC	Statistical Methods and Applications Lab	XXXXXXXXXX	0	0	2	2	1
10.	HSC	Soft Skill for Employability	24B15HS311	0	0	2	2	1
11.	PRC	Minor Project	24B37MA312	0	0	4	4	2
TOTAL							27	19

SEVENTH SEMESTER

S. No.	COURSE			Contact Hours				Credits
	Category	Course Title	Course Code	L	T	P	Total	
1.	PEC	Discipline Elective – 3	XXXXXX	3/2	0	0/2	3/4	3
2.	PEC	Discipline Elective – 4	XXXXXX	3/2	0	0/2	3/4	3
3.	PEC	Discipline Elective – 5	XXXXXX	3/2	0	0/2	3/4	3
4.	OEC	Open Elective - 2	XXXXXX	3	0	0	3	3
5.	PRC	Major Project Part-1	24B37MA411	0	0	0	8	4
6.	PRC	Summer Training-III (At least 4 weeks)	24B37MA412	0	0	0	0	4
TOTAL							20/23	20

EIGHTH SEMESTER

S. No.	COURSE			Contact Hours				Credits
	Category	Course Title	Course Code	L	T	P	Total	
1.	PEC	Discipline Elective -6	XXXXXX	3/2	0	0/2	3/4	3
2.	PEC	Discipline Elective – 7	XXXXXX	3/2	0	0/2	3/4	3
3.	OEC	Open Elective -3	XXXXXX	3	0	0	3	3
4.	PRC	Major Project Part-2	24B37MA413	0	0	16	16	8
TOTAL							25/27	17

Total Credits: 164

Mandatory Internships/Summer Trainings

Summer Training -I (at least 4 weeks) (In summer vacation after second semester)

Sr. No.	Course		Course Category	Contact Hours				Credits
	Code	Title		L	T	P	Total	
1.	24B37MA211	Inter/Intra institutional activities (Training with higher Institutions; Soft skill training organized by Training and Placement Cell of the respective institutions; contribution at incubation/ innovation /entrepreneurship cell of the institute; participation in conferences/ workshops/ competitions etc.; Learning at Departmental Lab/ Tinkering Lab/ Institutional workshop; Working for consultancy/ research project within the institutes and Participation in all the activities of Institute’s Innovation Council for eg: IPR workshop/ Leadership Talks/ Idea/Design/ Innovation/ Business Completion/ Technical Expos etc.)	PRC	0	0	8	8	4
		TOTAL					8	4

Summer Training -II (at least 4 weeks) (In summer vacation after fourth semester)

Sr. No.	Course		Course Category	Contact Hours				Credits
	Code	Title		L	T	P	Total	
1.	24B37MA311	Industrial/Govt./ NGO/MSME/Rural Internship/ Innovation /Entrepreneurship (Students may choose either to work on innovation or entrepreneurial activities resulting in start-up or undergo internship with industry/ NGO's/ Government organizations/ Micro/ Small/Medium enterprises to make themselves ready for the industry. In case student want to pursue their family, business and don't want to undergo internship, a declaration by a parent may be submitted directly to the TPO.)	PRC	0	0	8	8	4
		TOTAL					8	4

Summer Training -III (at least 4 weeks) (In summer vacation after sixth semester)

Sr. No.	Course		Course Category	Contact Hours				Credits
	Code	Title		L	T	P	Total	
1.	24B37MA412	Industrial/Govt./ NGO/MSME/Rural Internship/ Innovation /Entrepreneurship (Students may choose either to work on innovation or entrepreneurial activities resulting in start-up or undergo internship with industry/ NGO's/ Government organizations/ Micro/ Small/Medium enterprises to make themselves ready for the industry. In case student want to pursue their family business and don't want to undergo internship, a declaration by a parent may be submitted directly to the TPO.)	PRC	0	0	8	8	4
		TOTAL					8	4

Tentative List of Discipline Electives

S. No.	Course Code	Course Title	L	T	P	Total	Credits
1.	25B12MA223	Time Series Analysis and Forecasting	3	0	0	3	3
2.	25B12MA222	Fuzzy Sets, Logic and Applications	3	0	0	3	3
3.	26B12MA312	Optimization Methods and Applications	3	0	0	3	3
4.	26B12MA311	Number Theory and Cryptography with Applications	3	0	0	3	3
5.	XXXXXXXX	Fundamentals of Soft Computing	2	0	0	2	2
6.	XXXXXXXX	Fundamentals of Computer and Cyber Security	2	0	0	2	2
7.	XXXXXXXX	Data Mining and Data Warehousing	2	0	0	2	2
8.	XXXXXXXX	Agile Software Development Process	2	0	0	2	2
9.	XXXXXXXX	IoT Analytics	2	0	0	2	2
10.	XXXXXXXX	Fundamentals of Soft Computing Lab	0	0	2	2	1
11.	XXXXXXXX	Fundamentals of Computer and Cyber Security Lab	0	0	2	2	1
12.	XXXXXXXX	Data Mining and Data Warehousing Lab	0	0	2	2	1
13.	XXXXXXXX	Agile Software Development Process Lab	0	0	2	2	1
14.	XXXXXXXX	IoT Analytics Lab	0	0	2	2	1
15.	22B12CS419	Cryptocurrency Technologies	3	0	0	3	3
16.	16B1NCI648	Information Retrieval and Semantic Web	3	0	0	3	3
17.	22B12CS422	Cloud Computing Essentials: Azure and AWS	3	0	0	3	3
18.	18B12CS428	Introduction to Deep Learning	3	0	0	3	3
19.	21B12CS417	Machine Learning and Big Data	3	0	0	3	3
20.	21B12CS415	Secure Design of Software Systems	3	0	0	3	3
21.	21B12CS413	Fog and Edge Computing	3	0	0	3	3
22.	17B1NCI731	Machine Learning and Natural Language Processing	3	0	0	3	3
23.	21B12CS418	Ethical Hacking & Prevention	3	0	0	3	3
24.	21B12CS314	Introduction to Large Scale Database Systems	3	0	0	3	3
25.	19B12CS427	Introduction to DevOps	3	0	0	3	3
26.	22B12CS411	Industrial Automation and IOT	3	0	0	3	3
27.	22B12CS415	AI for Healthcare & Smart Systems	3	0	0	3	3
28.	22B12CS412	Digital Forensics and Cyber Laws	3	0	0	3	3
29.	15B1NCI732	Social Network Analysis	3	0	0	3	3
30.	22B12CS420	Software Construction using Kubernetes and Micro-services	3	0	0	3	3