

2026 onwards Course Structure for B.Tech. in Artificial Intelligence & Data Science

FIRST SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	BSC	XXXXXXXX	Mathematics-1	3	1	0	4	4
2	BSC	XXXXXXXX	Physics-1	3	1	0	4	4
3	BSC	XXXXXXXX	Physics Lab-1	0	0	2	2	1
4	ESC	XXXXXXXX	Software Development Fundamentals-I	3	1	0	4	4
5	ESC	XXXXXXXX	Software Development Fundamentals Lab-I	0	0	2	2	1
6	ESC	XXXXXXXX	Basic Electronics	3	1	0	4	4
7	ESC	XXXXXXXX	Basic Electronics Lab	0	0	2	2	1
8	HSC	XXXXXXXX	English	1	0	2	3	2
9	ESC	XXXXXXXX	Workshop	0	0	3	3	1.5
Total							28	22.5

SECOND SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	BSC	XXXXXXXX	Mathematics-2	3	1	0	4	4
2	BSC	XXXXXXXX	Physics-2	3	1	0	4	4
3	BSC	XXXXXXXX	Physics Lab-2	0	0	2	2	1
4	ESC	XXXXXXXX	Software Development Fundamentals-II	3	1	0	4	4
5	ESC	XXXXXXXX	Software Development Fundamentals Lab-II	0	0	2	2	1
6	HSC	XXXXXXXX	Life Skills & Professional Communication Lab	0	0	2	2	Qualifying
7	ESC	XXXXXXXX	Engineering Drawing & Design	0	0	3	3	1.5
8	HSC	XXXXXXXX	Universal Human Values (UHV)	2	1	0	3	3
Total							24	18.5

THIRD SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	BSC	XXXXXXXX	Mathematical Foundations for Artificial Intelligence and Data Science	3	1	0	4	4
2	PCC	XXXXXXXX	Artificial Intelligence	3	1	0	4	4
3	PCC	XXXXXXXX	Artificial Intelligence Lab	0	0	2	2	1
4	PCC	XXXXXXXX	Data Structures	3	1	0	4	4
5	PCC	XXXXXXXX	Data Structures Lab	0	0	2	2	1
6	PCC	XXXXXXXX	Database Management Systems	3	0	0	3	3
7	PCC	XXXXXXXX	Database Management Systems Lab	0	0	2	2	1
8	PCC	XXXXXXXX	Python Programming Lab	0	0	2	2	1
9	HSC	XXXXXXXX	Economics	2	1	0	3	3
10	PRC	XXXXXXXX	Summer Training-I (4 weeks)*	0	0	0	0	2
11	PCC	XXXXXXXX	Competitive Programming-I	0	0	2	2	1
Total							28	25

FOURTH SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	HSC	XXXXXXXX	HSS Elective	2	1	0	3	3
2	PCC	XXXXXXXX	Machine Learning and Pattern Recognition	3	1	0	4	4
3	PCC	XXXXXXXX	Machine Learning and Pattern RecognitionLab	0	0	2	2	1
4	PCC	XXXXXXXX	Software Engineering	3	0	0	3	3
5	PCC	XXXXXXXX	Design and Analysis of Algorithms	3	1	0	4	4
6	PCC	XXXXXXXX	Design and Analysis of Algorithms Lab	0	0	2	2	1
7	PCC	XXXXXXXX	Operating Systems	3	0	0	3	3
8	PCC	XXXXXXXX	Operating Systems Lab	0	0	2	2	1
9	PCC	XXXXXXXX	Competitive Programming– II	0	0	2	2	1
10	PEC	XXXXXXXX	Discipline Elective – 1	2	0	0	2	2
11	PEC	XXXXXXXX	Discipline Elective – 1 Lab	0	0	2	2	1
12	OMC	XXXXXXXX	Environmental Studies	3	0	0	3	Quali fying
Total							32	24

FIFTH SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	PCC	XXXXXXXX	Deep Learning Foundations	3	0	0	3	3
2	PCC	XXXXXXXX	Deep Learning Lab	0	0	2	2	1
3	PCC	XXXXXXXX	Intelligent Techniques for Predictive Data Analytics	3	0	0	3	3
4	PCC	XXXXXXXX	Intelligent Techniques for Predictive Data Analytics Lab	0	0	2	2	1
5	PCC	XXXXXXXX	AI Prompting and Vibe Coding Lab	0	0	2	2	1
6	PEC	XXXXXXXX	Discipline Elective – 2	2	0	0	2	2
7	PEC	XXXXXXXX	Discipline Elective – 2 Lab	0	0	2	2	1
8	PEC	XXXXXXXX	Discipline Elective – 3	2	0	0	2	2
9	PEC	XXXXXXXX	Discipline Elective – 3 Lab	0	0	2	2	1
10	BSC	XXXXXXXX	Science Elective	3	0	0	3	3
11	OMC	XXXXXXXX	Indian Constitution & Traditional Knowledge	3	0	0	3	Qualifying
12	PRC	XXXXXXXX	Summer Training-II (6 weeks) *	0	0	0	0	2
13	PCC	XXXXXXXX	Competitive Programming-III	0	0	2	2	1
14	HSC	XXXXXXXX	Logical and Quantitative Techniques-I	2	0	0	2	2
Total							30	23

SIXTH SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	PCC	XXXXXXXX	Generative AI and Emerging Trends	3	0	0	3	3
2	PCC	XXXXXXXX	Generative AI Lab	0	0	2	2	1
3	PCC	XXXXXXXX	Data Mining and Knowledge Discovery	3	0	0	3	3
4	PCC	XXXXXXXX	Data Mining and Knowledge Discovery Lab	0	0	2	2	1
5	PCC	XXXXXXXX	Graph Analytics	3	0	0	3	3
6	PEC	XXXXXXXX	Discipline Elective – 4	3	0	0	3	3
8	PEC	XXXXXXXX	Discipline Elective – 5	3	0	0	3	3
9	OEC	XXXXXXXX	Open Elective – 1	3	0	0	3	3
10	Value Added	XXXXXXXX	Selected Value-Added Course	2	0	0	2	Audit
11	HSC	XXXXXXXX	Soft Skills for Employability	0	0	2	2	1
12	PRC	XXXXXXXX	Minor Project	0	0	4	4	2
13	HSC	XXXXXXXX	Logical and Quantitative Techniques-II	2	0	0	2	2
Total							32	25

SEVENTH SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	PEC	XXXXXXXX	Discipline Elective – 6	3	0	0	3	3
2	OEC	XXXXXXXX	Open Elective – 2	3	0	0	3	3
3	PRC	XXXXXXXX	Major Project Part – 1	0	0	0	8	4
4	PRC	XXXXXXXX	Summer Training - III (6 weeks) *	0	0	0	0	4
Total							14	14

EIGHTH SEMESTER

S. No.	Course			Contact Hours				Credits
	Category	Course Code	Course Title	L	T	P	Total	
1	PEC	XXXXXXXX	Discipline Elective –7	3	0	0	3	3
2	OEC	XXXXXXXX	Open Elective –3	3	0	0	3	3
3	PRC	XXXXXXXX	Major Project Part –2	0	0	0	16	8
Total							22	14

***To be completed during the summer vacation.**

Total Program Credits: $22.5 + 18.5 + 25 + 24 + 23 + 25 + 14 + 14 = 166$

Bucket Wise Tentative List of Discipline Electives (To be updated time to time)

Discipline Elective – 1 and Discipline Elective – 1 Lab (offered in 4th Semester)

S. No.	Course Code	Course Title	L	T	P	Total	Credits
1	XXXXXXXX	Data Engineering	2	0	0	2	2
2	XXXXXXXX	Data Engineering Lab	0	0	2	2	1
3	XXXXXXXX	Foundation of Data Science and Visualization	2	0	0	2	2
4	XXXXXXXX	Foundation of Data Science and Visualization Lab	0	0	2	2	1

Discipline Elective – 2 and Discipline Elective – 2 Lab (offered in 5th Semester)

S. No.	Course Code	Course Title	L	T	P	Total	Credits
1	XXXXXXXX	Big Data Analytics	2	0	0	2	2
2	XXXXXXXX	Big Data Analytics Lab	0	0	2	2	1
3	XXXXXXXX	Intelligent Robotics and Autonomous Systems	2	0	0	2	2
4	XXXXXXXX	Intelligent Robotics and Autonomous Systems Lab	0	0	2	2	1

Discipline Elective – 3 and Discipline Elective – 3 Lab (offered in 5th Semester)

S. No.	Course Code	Course Title	L	T	P	Total	Credits
1	XXXXXXX	Image Processing and Computer Vision	2	0	0	2	2
2	XXXXXXX	Image Processing and Computer Vision Lab	0	0	2	2	1
3	XXXXXXX	Computational Data Analysis	2	0	0	2	2
4	XXXXXXX	Computational Data Analysis Lab	0	0	2	2	1
5	XXXXXXX	Embedded Software Development	2	0	0	2	2
6	XXXXXXX	Embedded Software Development Lab	0	0	2	2	1

Discipline Elective – 4 (offered in 6th Semester)

S. No.	Course Code	Course Title	L	T	P	Total	Credits
1	XXXXXXX	Reinforcement Learning	3	0	0	3	3
2	XXXXXXX	Responsible AI and AI Ethics	3	0	0	3	3

Discipline Elective – 5 (offered in 6th Semester)

S. No.	Course Code	Course Title	L	T	P	Total	Credits
1	XXXXXXX	Statistical Analysis and Computing	3	0	0	3	3
2	XXXXXXX	Time Series Analysis and Forecasting	3	0	0	3	3
3	XXXXXXX	Retrieval Augmented Generation	3	0	0	3	3

Discipline Elective – 6 (offered in 7th Semester)

S. No.	Course Code	Course Title	L	T	P	Total	Credits
1	XXXXXXX	Explainable AI	3	0	0	3	3
2	XXXXXXX	Probabilistic Graphical Models	3	0	0	3	3
3	XXXXXXX	AI for IoT	3	0	0	3	3

Discipline Elective – 7 (offered in 8th Semester)

S. No.	Course Code	Course Title	L	T	P	Total	Credits
1	XXXXXXX	AI for Finance	3	0	0	3	3
2	XXXXXXX	Agentic AI	3	0	0	3	3