



Course Name: Bachelor of Technology (B. Tech) in Computer Science and Engineering (CSE) with Specialization (Hons.) in Artificial Intelligence (AI) & Machine Learning (ML)

## Course Structure

### First Year Semester – I

S. No	Course Title	L	T	P	Contact Hrs/week	Credits
1.	Engineering Mathematics-I	3	1	0	4	4
2.	Applied Science	3	0	0	3	3
3.	Introduction to Programming /Electrical and Electronics Technology	3	0	0	3	3
4.	HSSM –I (English Communication-I)	3	0	0	3	3
5.	HSSM –II (Human Values & Ethics and Psychology) / Life Sciences	3	0	0	3	3
6.	Applied Science Lab	0	0	3	3	2
7.	Programming Lab / Electrical and Electronics Technology Lab	0	0	3	3	2
8.	Engineering Drawing and CAD/ Engineering Workshop	0	0	3	3	2
9.	Communication and Collaboration Skill -I	0	0	2	2	1
10.	Avant Grade Project-I	0	0	2	2	1

### Semester – II

S. No	Course Title	L	T	P	Contact Hrs/week	Credits
1.	Engineering Mathematics– II	3	1	0	4	4
2.	Electrical and Electronics Technology / Introduction to Programming	3	0	0	3	3
3.	Life Sciences/ (Human Values & Ethics and Psychology)	3	0	0	3	3
4.	Engineering Mechanics	3	1	0	4	4
5.	Environmental Science	3	0	0	3	3
6.	Electrical and Electronics Technology Lab / Programming Lab	0	0	3	3	2
7.	Engineering Workshop/ Engineering Drawing and CAD	0	0	3	3	2

8.	Communication and Collaboration Skill -II	0	0	2	2	1
9.	Avant Grade Project-II	0	0	2	2	1

**Total Credit (First Year): 47**

**Second Year  
Semester - III**

S. No	Subject Name	L	T	P	Contact Hrs/week	Credits
1.	Probability, Statistics and Numerical Methods	3	1	0	4	4
2.	HSSM –IV (Economics for Engineers)	3	0	0	3	3
3.	Data Structures and Algorithms (Prof. Core- I)	3	0	0	3	3
4.	Switching Circuits and Logic Design (Prof. Core-II)	3	0	0	3	3
5.	Formal Languages and Automata Theory (Prof. Core- III)	3	0	0	3	3
6.	Data Structures and Algorithms Lab (Prof. Core-I Lab)	0	0	3	3	2
7.	Interdisciplinary Project AU	1	0	2	3	3
8.	Design Thinking-I	0	0	3	3	2
9.	Avant Grade Project-III	0	0	2	2	1
10.	#Adamas Foundation (CSR Activity)	--	--	-	--	1

**Semester – IV**

S. No	Subject Name	L	T	P	Contact Hrs/week	Credits
1.	Operations Research	3	0	0	3	3
2.	Design & Analysis of Algorithm (Prof. Core- IV)	3	0	0	3	3
3.	Object Oriented Programming (Prof. Core- V)	3	0	0	3	3
4.	Software Engineering (Prof. Core- VI)	3	0	0	3	3
5.	Computer Architecture (Prof. Core- VII)	3	0	0	3	3
6.	Numerical Techniques Lab	0	0	3	3	2
7.	Design & Analysis of Algorithm Lab (Prof. Core- IV Lab)	0	0	3	3	2

8.	Object Oriented Programming Lab (Prof. Core- V Lab)	0	0	3	3	2
9.	Design Thinking-II	0	0	3	3	2
10.	Avant Grade Project-IV	0	0	2	2	1

**Total Credit (Second Year): 49**

**Third Year**  
**Semester - V**

S. No	Subject Name	L	T	P	Contact Hrs/week	Credits
1.	Computer Networks (Prof. Core- XI)	3	0	0	3	3
2.	Database Management Systems (Prof. Core- IX)	3	0	0	3	3
3.	Operating Systems (Prof. Core- X)	3	0	0	3	3
4.	Algorithm for Intelligent System and Robot	3	1	0	4	4
5.	Prof. Elective- I	3	0	0	3	3
6.	Computer Networks Lab (Prof. Core- XI Lab)/	0	0	3	3	2
7.	Database Management Systems Lab (Prof. Core- IX Lab)	0	0	3	3	2
8.	Operating Systems Lab (Prof. Core- X Lab)	0	0	3	3	2
9.	Algorithm for Intelligent System and Robot Lab	0	0	3	3	2
10.	Venture Ideation	0	0	2	2	1
11.	Avant Grade Project-V	0	0	2	2	1

**Semester - VI**

S. No	Subject Name	L	T	P	Contact Hrs/week	Credits
1.	Compiler Design (Prof. Core- VIII)	3	0	0	3	3
2.	Artificial Intelligence and Machine Learning (Prof. Core- XII)	3	0	0	3	3
3.	Prof. Elective- II	3	0	0	3	3
4.	Open Elective- I	2	0	0	2	2

5.	Application of machine learning in industries and Anomaly Detection	3	1	0	4	4
6.	Data Analysis & Modelling Technique	3	0	0	3	3
7.	Compiler Design Lab (Prof. Core- VIII Lab)	0	0	3	3	2
8.	Artificial Intelligence and Machine Learning Lab (Prof. Core- XII Lab)	0	0	3	3	2
9.	Prof. Elective- II Lab	0	0	3	3	2
10.	Application of machine learning in industries and Anomaly Detection Lab	0	0	3	3	2

**Total Credit (Third Year): 52**

**Fourth Year**  
**Semester - VII**

S. No	Subject Name	L	T	P	Contact Hrs/week	Credits
1.	HSSM –V (Industrial Management)	3	0	0	3	3
2.	Prof. Elective- III	3	0	0	3	3
3.	Prof. Elective- IV	3	0	0	3	3
4.	Open Elective- II	3	0	0	3	3
5.	Open Elective- III	3	0	0	3	3
6.	Neural Network and Deep Learning Fundamentals	3	0	0	3	3
7.	Prof. Elective- IV Lab	0	0	3	3	2
8.	Neural Network and Deep Learning Fundamentals Lab	0	0	3	3	2
9.	#Summer Internship	--	--	--	--	2
10.	Minor Project	0	0	6	6	3

**# Summer Internship for 30 days will be taken at the end of 6<sup>th</sup> semester, and will be evaluated in the 7<sup>th</sup> semester.**

**Semester - VIII**

S. No	Subject Name	L	T	P	Contact Hrs/week	Credits
1.	Overview of Recent Trends in AI/ML	3	0	0	3	3

2.	Industry Work Experience / SIRE* / Major Project	0	0	0	12 (For Major Project only)	5
3.	Comprehensive Viva Voce	-----	-----	-----	-----	2
4.	Specialization Viva Voce	-----	-----	-----	-----	2

**\*SIRE: Scientific Investigation & Research Experience**

**Total Credits (Fourth Year): 39**

**Total Credits (Over four years): 47+49+52+39 = 187 = 162+ 25 (Specialization / Hons.)**

**Total Credit (Fourth Year): 39**

**Total Credits (Over four years): 187**

**List of Electives: -**

**PE I (Theory): Applied Graph Theory (ECS43111)  
Communication Network (ECS43113)  
Big Data Analytics (ECS43115)**

**PE II (Theory): High Performance Computer Architecture (ECS43110)  
Pattern Recognition (ECS43112)  
Computational Geometry (ECS43114)**

**PE III (Theory): Image Processing (ECS44101)  
Cloud Computing (ECS44103)  
Information Retrieval (ECS44105)  
Computer Graphics (ECS44107)  
Artificial Neural Network and Deep Learning (ECS44109)**

**PE III (Lab): Image Processing Lab (ECS44201)  
Cloud Computing Lab (ECS44203)  
Information Retrieval Lab (ECS44205)  
Computer Graphics Lab (ECS44207)  
Artificial Neural Network and Deep Learning Lab (ECS44209)**

**PE IV (Theory): Cryptography & Cyber Security (ECS44111)  
Internet of Things (IoT) (ECS44113)  
5G Wireless Communication Network (ECS44115)**

**OE I (Theory): Artificial Intelligence (ECS43116)/ Computational Geometry (ECS43114)**

**OE II (Theory): Machine Learning (ECS44117)**

**OE III (Theory): Internet of Things (IoT) (ECS44113)**

**OE IV (Theory): Computer Graphics (ECS44121)**