



B.Tech. in CSE Artificial Intelligence & Machine Learning

COURSE STRUCTURE & SYLLABUS (R20)

Applicable From 2020-21 Admitted Batch

Structure Breakup

S.No	Category	Breakup of credits(Total 160 credits)
1	Humanities and social sciences including management courses (HSMC)	10
2	Basic Sciences Courses (BS)	22
3	Engineering sciences courses including workshop, drawing basics of electrical/mechanical/computer etc.(ES)	19
4	Professional core courses (PC)	68
5	Professional Electives (PE)	18
6	Open Electives (OE)	9
7	Project work, seminar and internship in industry or elsewhere (PS)	14
8	Mandatory Courses	-
	TOTAL	160

I YEAR I SEMESTER

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2010001	Engineering Mathematics - I	BS	3	1	0	4	30	70	100
2	2010008	Engineering Chemistry	BS	3	1	0	4	30	70	100
3	2010501	Programming for Problem Solving	ES	3	1	0	4	30	70	100
4	2010371	Engineering Drawing practice	ES	1	0	4	3	30	70	100
5	2010372	Engineering workshop	ES	1	0	3	2.5	30	70	100
6	2010073	Engineering Chemistry Lab	BS	0	0	3	1.5	30	70	100
7	2010571	Programming for Problem Solving Lab	ES	0	0	3	1.5	30	70	100
Total Credits				11	3	13	20.5	210	490	700

I YEAR II SEMESTER

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2020002	Engineering Mathematics - II	BS	3	1	0	4	30	70	100
2	2020006	Applied Physics	BS	3	1	0	4	30	70	100
3	2020502	Data Structures	ES	3	0	0	3	30	70	100
4	2020009	Communicative English	HSMC	2	0	0	2	30	70	100
5	2020071	Applied Physics Lab	BS	0	0	3	1.5	30	70	100
6	2020572	Data Structures Lab	ES	0	0	2	1	30	70	100
7	2020074	Communicative English Lab	HSMC	0	0	2	1	30	70	100
8	2020021	Environmental Science	MC	2	0	0	0	-	-	-
Total Credits				13	2	07	16.5	210	490	700

II Year I Semester

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2036601	Discrete Mathematics	PC	3	1	0	4	30	70	100
2	2036602	Operating systems	PC	3	0	0	3	30	70	100
3	2036603	Digital Logic Design & computer Organization	PC	3	1	0	4	30	70	100
4	2030004	Probability & Statistics	BS	3	0	0	3	30	70	100
5	2036604	Python Programming	PC	3	0	0	3	30	70	100
6	2036671	Operating systems Lab	PC	0	0	3	1.5	30	70	100
7	2036672	ITWorkshop & computer Organization Lab	PC	0	0	3	1.5	30	70	100
8	2036673	Python Programming Lab	PC	0	0	3	1.5	30	70	100
9	2030025	Gender Sensitization & Community Participation	MC	2	0	0	0	-	-	-
Total Credits				17	2	9	21.5	240	560	800

II Year – II Semester

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2046605	Artificial Intelligence	PC	2	0	0	2	30	70	100
2	2046606	Database Management Systems	PC	3	0	0	3	30	70	100
3	2040201	Basic Electrical Engineering	ES	3	0	0	3	30	70	100
4	2046607	Design and Analysis of Algorithms	PC	3	0	0	3	30	70	100
5	2046608	JAVA Programming	PC	3	0	0	3	30	70	100
6	2046609	Computer Vision	PC	3	0	0	3	30	70	100
7	2046674	Database Management Systems Lab	PC	0	0	3	1.5	30	70	100
8	2040271	Basic Electrical Engineering Lab	ES	0	0	2	1	30	70	100
9	2046675	JAVA Programming Lab	PC	0	0	3	1.5	30	70	100
10	2040023	Constitution of India	MC	2	0	0	0	-	-	-
Total Credits				19	0	8	21	270	630	900

III Year – I Semester

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2056610	Computer Networks	PC	3	0	0	3	30	70	100
2	2056611	Automata Theory& Language Processors	PC	3	0	0	3	30	70	100
3	2056612	Machine Learning	PC	3	0	0	3	30	70	100
4	2056613	Software Engineering	PC	3	0	0	3	30	70	100
5		Open Elective I	OE	3	0	0	3	30	70	100
6	2056676	Computer Networks Lab	PC	0	0	3	1.5	30	70	100
7	2056677	Machine Learning Lab using Python	PC	0	0	3	1.5	30	70	100
8	2056678	Case Tools Lab	PC	0	0	2	1	30	70	100
9	2056683	Internship*	PS	0	0	2	1	30	70	100
10	2020024	Intellectual Property Rights	MC	2	0	0	0	-	-	-
Total Credits				17	0	10	20	270	630	900

III Year – II Semester

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2060010	Business Economics and Financial Analysis	HSMC	3	0	0	3	30	70	100
2	2066615	Soft Computing	PC	3	0	0	3	30	70	100
3	2066616	Web Technologies	PC	3	0	0	3	30	70	100
4		Professional Elective I	PE	3	0	0	3	30	70	100
5		Open Elective II	OE	3	0	0	3	30	70	100
6	2066679	Web Technology Lab	PC	0	0	3	1.5	30	70	100
7	2066680	Soft Computing Lab	PC	0	0	3	1.5	30	70	100
8	2060075	Advanced English Communication Lab	HSMC	0	0	2	1	30	70	100
9		Professional Ethics	MC	2	0	0				
Total Credits				17	0	8	19	240	560	800

*Students have to complete internship in II Year- II Semester Summer break, Evaluation is carried in III-I semester.

IV Year – I Semester

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2076617	Fundamentals of Management	HSMC	3	0	0	3	30	70	100
2	2076618	Deep Learning	PC	2	0	0	2	30	70	100
3	2076619	Expert Systems	PC	3	0	0	3	30	70	100
4		Professional Elective II	PE	3	0	0	3	30	70	100
5		Professional Elective III	PE	3	0	0	3	30	70	100
6		Open Elective III	OE	3	0	0	3	30	70	100
7	2076681	Deep Learning Lab	PC	0	0	2	1	30	70	100
8	2076682	Expert Systems Lab	PC	0	0	3	1.5	30	70	100
9	2076684	Industry Oriented Mini Project**	PS	0	0	4	2	30	70	100
Total Credits				17	0	9	21.5	270	630	900

IV Year – II Semester

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1		Professional Elective IV	PE	3	0	0	3	30	70	100
2		Professional Elective V	PE	3	0	0	3	30	70	100
3		Professional Elective VI	PE	3	0	0	3	30	70	100
4	2086685	Technical Seminar	PS	0	0	2	1	30	70	100
5	2086686	Major Project	PS	0	0	20	10	30	70	100
Total Credits				9	0	22	20	150	350	500

****Students have to complete industry oriented mini project in III Year- II Semester Summer break, Evaluation is carried in IV-I semester.**

PE I - Professional Elective I

S.No	Course Code	Course Title
1	2066641	Natural Language Processing
2	2066642	Internet Protocol & Networking
3	2056643	Mobile Computing
4	2056644	Software project Management

PE II - Professional Elective II

S.No	Course Code	Course Title
1	2076645	Data Mining
2	2076646	Big Data Analytics
3	2076647	Cryptography and Network Security
4	2076648	Information Retrieval Systems

PEIII – Professional Elective III

S.No	Course Code	Course Title
1	2076649	Intelligent Agents
2	2076650	Mobile & Wireless Security
3	2076651	Cyber Forensics
4	2076652	Biometrics

PE IV - Professional Elective IV

S.No	Course Code	Course Title
1	2086653	Distributed System
2	2086654	Digital Image Processing
3	2086655	Semantic Web
4	2086656	Cloud Computing

PE V - Professional Elective V

S.No	Course Code	Course Title
1	2086657	Internet of Things
2	2086658	Pattern Recognition
3	2086659	Virtual Reality
4	2086660	Block Chain Technology

PE VI - Professional Elective VI

S.No	Course Code	Course Title
1	2086661	Social Media Analysis
2	2086662	Ethical Hacking
3	2086663	Web Services
4	2086664	Audio & Video Processing

Open Electives

	Course Code	Course Title
1	Open Elective 1	2056620- OOPS with C++
		2056603- Operating Systems
2	Open Elective 2	2066611- Computer Networks
		2066605-Python Programming
3	Open Elective 3	2076613-Machine Learning
		2076621- R Programming

