

JAYPEE UNIVERSITY OF ENGINEERING AND TECHNOLOGY, GUNA
Department of Computer Science & Engineering

**Course Curriculum for B. Tech. Program in Computer Science and
Engineering (Artificial Intelligence and Machine Learning)**

FIRST SEMESTER

S.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.	MA101	MATH	Engineering Mathematics	3	1	-	4	4
2.	PH101	PHY	Engineering Physics-I	3	1	-	4	4
3.	HS101	HSS	English	2	-	2	4	3
4.	CS101	CSE	Computer Programming	3	1	-	4	4
5.	PH201	PHY	Engineering Physics Lab-I	-	-	2	2	1
6.	CS201	CSE	Computer Programming Lab	-	-	4	4	2
7.	ME201	ME	Workshop Practices	-	-	3	3	1.5
8.	HS001	HSS	Value Added Course (Human Values and Professional Ethics)	2	0	0	2	2(Audit) Qualifying
TOTAL				27				19.5

SECOND SEMESTER

S.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.	HS104	HSS	Life Skills and Effective Communication	1	-	2	3	2
2.	MA104	MATH	Discrete Mathematics	3	1	-	4	4
3.	PH102	PHY	Engineering Physics-II	3	1	-	4	4
4.	EC101	ECE	Electrical Science	3	1	-	4	4
5.	CS102	CSE	Object Oriented Programming	3	1	-	4	4
6.	PH202	PHY	Engineering Physics Lab-II	-	-	2	2	1
7.	EC201	ECE	Electrical Science Lab	-	-	2	2	1
8.	CS202	CSE	Object Oriented Programming Lab	-	-	2	2	1
9.	ME202	ME	Engineering Drawing and Design Lab	-	-	3	3	1.5
10.			Value Added Course	2	0	0	2	2 (Audit)
TOTAL				30				22.5

THIRD SEMESTER

S.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.	HS103	HSS	Techniques for decision making	2	1	-	3	3
2.	CS103	CSE	Data Structures	3	1	-	4	4
3.	CSXXX	CSE	Foundation of AI	3	-	-	3	3
4.	CS104	CSE	Database Systems	3	1	-	4	4
5.	CS203	CSE	Data Structures lab	-	-	2	2	1
6.	CSXXX	CSE	AI Lab	-	-	2	2	1
7.	CS204	CSE	Database Systems Lab	-	-	2	2	1
8.	CS205	CSE	Unix Programming Lab	-	-	2	2	1
9.	CS206	CSE	Advanced Programming Lab-I	-	-	2	2	1
10.	GE101	GE	Value Added Course Environmental Science	2	-	-	2	2(Audit) Qualifying
11.		CSE	Internship/Summer Training (4 weeks - 160-180 hours)	-	-	-	-	4 (Audit, Optional)
12.			Value added course	2	-	-	2	2(Audit)
			TOTAL				28	19

FOURTH SEMESTER

Sr.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.		HSS	HSS Elective – I	3	-	-	3	3
2.	CS105	CSE	Software Engineering	3	-	-	3	3
3.	CS106	CSE	Algorithms and Problem Solving	3	1	-	4	4
4.	CSXXX	ECE	Digital Systems and Computer Organization	3	-	-	3	3
5.	CS108	CSE	Machine Learning	3	-	-	3	3
6.	CS207	CSE	Algorithms Lab	-	-	2	2	1
7.	CSXXX	ECE	Digital Systems and Computer Organization Lab	-	-	2	2	1
8.	CS209	CSE	Machine Learning Lab	-	-	2	2	1
9.	CS210	CSE	Mobile Application Development Lab	-	-	2	2	1
			TOTAL				24	20

FIFTH SEMESTER

S.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.		HSS	HSS Elective - II	3	-	-	3	3
2.	XXX	MATH	Probability Theory and Random Processes	3	-	-	3	3
3.		CSE	Discipline Elective -I	3	-	-	3	3
4.	CS109	CSE	Computer Networks	3	-	-	3	3
5.	CS111	CSE	Operating Systems	3	-	-	3	3
6.			Science Elective	3	-	-	3	3
7.	CS211	CSE	Minor Project – I	-	-	6	6	3
8.	CS212	CSE	Computer Networks Lab	-	-	2	2	1
9.	CS216	CSE	Operating Systems Lab	-	-	2	2	1
10.	CS213	CSE	Open Source Software Lab	-	-	2	2	1
11.	CS214	CSE	Advanced Programming Lab-II	-	-	2	2	1
12.		CSE	Internship/Summer Training (4 weeks - 160-180 hours)	-	-	-	-	4 (Audit) Qualifying
13.			Value added course	2	-	-	2	2(Audit)
			TOTAL				34	25

SIXTH SEMESTER

S.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.		HSS	HSS Elective - 3	3	-	-	3	3
2.	CSXXX	CSE	Deep Learning	3	1	-	4	4
3.	CSXXX	CSE	Modern AI/ML Applications	3	-	-	3	3
4.		CSE	Discipline Elective – II	3	-	-	3	3
5.	CS215	CSE	Minor Project-II	-	-	6	6	3
6.	CSXXX	CSE	Deep Learning Lab	-	-	2	2	1
7.	CS217	CSE	Advanced Programming Lab-III	-	-	2	2	1
8.			Open Elective-I	3	-	-	3	3
			TOTAL				26	21

SEVENTH SEMESTER

S.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.		All Branch	Open Elective -II	3	-	-	3	3
2.		CSE	Discipline Elective – III	3	-	-	3	3
3.		CSE	Discipline Elective – IV	3	-	-	3	3
4.		CSE	Discipline Elective – V	3		-	3	3
5.	CS218	CSE	Major Project Part-I	-	-	8	8	4
6.	CS001	CSE	Internship/Summer Training (6 weeks - 240-270 hours)	-	-	-	-	6 (Audit) Qualifying
			TOTAL				20	16

EIGHTH SEMESTER

S.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1.		Engg. Branch	Open Elective -III	3	-	-	3	3
2.		CSE	Discipline Elective -VI	3	-	-	3	3
3.		CSE	Discipline Elective -VII	3		-	3	3
4.	CS219	CSE	Major Project Part-II	-	-	16	16	8
			TOTAL				25	17

Total Credits for B. Tech. –160 (Value Added Courses (Audit courses) will not count for CGPA calculations.)

List of Electives

Value Added Courses								
S.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1	HS001	HSS	Human Values and Professional Ethics	2	-	-	2	2(Audit) Qualifying
2	HS003	HSS	Concept of Project Management	2	-	-	2	2(Audit)
3	HS002	HSS	Professional Communication Practice	-	-	2	2	2(Audit) Qualifying
4	HS004	HSS	Indian Constitution & Traditional Knowledge	2	-	-	2	2(Audit) Qualifying
5	GE101	GE	Environmental Science	2	-	-	2	2(Audit) Qualifying
6	HS011	HSS	Legal and Ethical Issues in Business	2	-	-	2	2(Audit)
7	HS009	HSS	Introduction to Financial Markets	2	-	-	2	2(Audit)
8	HS005	HSS	Academic Research And Paper Writing	2	-	-	2	2(Audit)

HSS Electives								
S.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1	HS304	HSS	Concepts of Digital Marketing	3	-	-	3	3
2	HS301	HSS	Concepts of Economics	2	1	-	3	3
3	HS305	HSS	Logical & Quantitative Technique	3	-	-	3	3
4	HS303	HSS	Knowledge management	3	-	-	3	3

Science Elective								
S.No.	Course Code	Dept.	Title of Course	Contact Hours				Credits
				L	T	P	Total	
1	MA301	MATH	Operation Research	3	0	0	3	3
2	MA303	MATH	Science of Web	3	0	0	3	3
3	MA304	MATH	Number System and Cryptography	3	0	0	3	3
4	MA305	MATH	Fuzzy Systems and Applications	3	0	0	3	3
5	PH301	PHY	Introduction to Quantum Computing	3	0	0	3	3
6	PH302	PHY	Nano Science	3	0	0	3	3
7	PH303	PHY	Materials Science and Applications	3	0	0	3	3
8	CH303	CHE	Biochemistry	3	0	0	3	3

Departmental Electives CS1-CS7							
S.No.	Course Code	Title of Course	Contact Hours				Credits
			L	T	P	Total	
1	CS301	Maths for Artificial Intelligence	3	0	0	3	3
2	CS302	Big Data Systems	3	0	0	3	3
3	CS303	Artificial Intelligence	3	0	0	3	3
4	CS304	Data Analysis and Visualization	3	0	0	3	3
5	CS305	Neural Networks	3	0	0	3	3

6	CS306	Cryptography	3	0	0	3	3
7	CS307	Blockchain Technology	3	0	0	3	3
8	CS308	Intrusion Detection and Prevention Systems	3	0	0	3	3
9	CS309	Software Testing	3	0	0	3	3
10	CS310	Web Engineering	3	0	0	3	3
11	CS311	Full Stack Development	3	0	0	3	3
12	CS312	Mobile Application Development	3	0	0	3	3
13	CS313	Natural Language Processing	3	0	0	3	3
14	CS314	Soft Computing	3	0	0	3	3
15	CS315	Operation Research	3	0	0	3	3
16	CS316	Digital Signal Processing	3	0	0	3	3
17	CS317	Statistical Inferences	3	0	0	3	3
18	CS318	Information Retrieval Systems	3	0	0	3	3
19	CS319	Logic in Computer Science	3	0	0	3	3
20	CS320	Augmented and Virtual Reality	3	0	0	3	3
21	CS321	Data Mining	3	0	0	3	3

Note- List of Electives courses will be updated from time to time