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

Course Curriculum for B. Tech. Program in Computer Science and Engineering (Data Science)

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	L	T	P	Total	Credits
1.	HS103	HSS	Techniques for decision making	2	1	-	3	3
2.	CS103	CSE	Data Structures	3	1	-	4	4
3.	CSXXX	CSE	Statistical Methods	3	-	-	3	3
4.	CS104	CSE	Database Systems	3	1	-	4	4
5.	CS203	CSE	Data Structures lab	-	-	2	2	1
6.	CSXXX	CSE	Statistical Methods 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	L	T	P	Total	Credits
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 - II	3	-	-	3	3
2.	CSXXX	CSE	Data Analysis and Visualization	3	1	-	4	4
3.	CSXXX	CSE	Big Data System	3	-	-	3	3
4.		CSE	Discipline Elective – II	3	-	-	3	3
5.	CS215	CSE	Minor Project-I	-	-	6	6	3
6.	CSXXX	CSE	Data Analysis and Visualization 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	CS303	Artificial Intelligence	3	0	0	3	3
3	CS305	Neural Networks	3	0	0	3	3

4	CS306	Cryptography	3	0	0	3	3
5	CS307	Blockchain Technology	3	0	0	3	3
6	CS308	Intrusion Detection and Prevention Systems	3	0	0	3	3
7	CS309	Software Testing	3	0	0	3	3
8	CS310	Web Engineering	3	0	0	3	3
9	CS311	Full Stack Development	3	0	0	3	3
10	CS312	Mobile Application Development	3	0	0	3	3
11	CS313	Natural Language Processing	3	0	0	3	3
12	CS314	Soft Computing	3	0	0	3	3
13	CS315	Operation Research	3	0	0	3	3
14	CS316	Digital Signal Processing	3	0	0	3	3
15	CS317	Statistical Inferences	3	0	0	3	3
16	CS318	Information Retrieval Systems	3	0	0	3	3
17	CS319	Logic In Computer Science	3	0	0	3	3
18	CS320	Augmented and Virtual Reality	3	0	0	3	3
19	CS321	Data Mining	3	0	0	3	3
20	CS322	Agile and Secure Software Engineering	3	0	0	3	3

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