

Part II: Course Structure & Semester wise Credit Distribution

First Semester (First Year)

Mandatory Induction Program- 3 Weeks Duration

Sl. No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	BS	BS-M101	Mathematics-I	3	1	0	4
2	BS	BS-PH101	Physics	3	1	0	4
3	ES	ES-CS101	Programming for Problem Solving	3	0	0	3
4	HM	HM-HU103	Inculcation of Human Values and Professional Ethics (MulyaPravah)	2	0	0	2
Total Theory				11	2	0	13
Practical/ Sessional/ Audit Course							
1	BS	BS-PH191	Physics Laboratory	0	0	3	1.5
2	ES	ES-CS191	Programming for Problem Solving Laboratory	0	0	4	2
3	ES	ES-ME191	Engineering Graphics and Design	0	0	4	2
4	AU	AU171	NSS/NCC	2	0	0	0
Total Practical/ Sessional/ Audit Course				2	0	11	5.5
Total of First Semester				13	2	11	18.5

Second Semester (First Year)

Sl. No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	BS	BS-M201	Mathematics-II	3	1	0	4
2	BS	BS-CH201	Chemistry	3	0	0	3
3	ES	ES-EE201	Basic Electrical and Electronics Engineering	2	1	0	3
4	HM	HM-HU201	Communication Skill (Jeevan Kaushal-I)	2	0	0	2
5	HM	HM-HU202	Introduction to Indian Knowledge System (Indian Knowledge System-I)	2	0	0	2
Total Theory				12	2	0	14

Practical/ Sessional/ Audit Course							
1	BS	BS-CH291	Chemistry Laboratory	0	0	3	1.5
2	ES	ES-EE291	Basic Electrical and Electronics Engineering Laboratory	0	0	4	2
3	ES	ES-ME292	Workshop/Manufacturing Practices	0	0	4	2
4	HM	HM-HU291	Communication Skill Laboratory	0	0	2	1
5	PW	PW-BS281	Ideation Laboratory	0	0	2	1
Total Practical/ Sessional/ Audit Course				0	0	15	7.5
Total of Second Semester				12	2	15	21.5

Third Semester (Second Year)							
Sl. No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PC	PC-CS301	Data Structures and Algorithms	3	1	0	4
2	PC	PC-CS(D)301	Introduction to Data Science	3	0	0	3
3	ES	ES-EC301	Digital Electronics	3	0	0	3
4	BS	BS-M301	Mathematics -III	3	0	0	3
5	BS	BS-M303	Vedic Math (Indian Knowledge System-II)	2	0	0	2
6	HM	HM-HU301	Universal Human Values-II (Jeevan Kaushal-IV)	2	0	0	2
Total Theory				16	1	0	17
Practical/ Sessional/ Audit Course							
1	PC	PC-CS391	Data Structures Laboratory	0	0	4	2
2	PC	PC-CS392	Python for Problem Solving Laboratory	0	0	4	2
3	ES	ES-EC391	Digital Electronics Laboratory	0	0	4	2
Total Practical/ Sessional/ Audit Course				0	0	12	6
Total of Third Semester				16	1	12	23

Fourth Semester (Second Year)							
Sl. No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PC	PC-CS401	Discrete Mathematics	3	0	0	3
2	PC	PC-CS402	Computer Organization and Architecture	3	0	0	3
3	PC	PC-CS403	Design and Analysis of Algorithms	3	0	0	3
4	PC	PC-CS404	Operating Systems	3	0	0	3
5	PC	PC-CS(D)401	Introduction to AI	2	0	0	2
6	BS	BS-M403	Basics of Indian Astronomy (Indian Knowledge System-III)	2	0	0	2
Total Theory				16	0	0	16
Practical/ Sessional/ Audit Course							
1	PC	PC-CS493	Algorithms Laboratory	0	0	4	2
2	PC	PC-CS494	Operating Systems Laboratory	0	0	3	1.5
3	PC	PC-CS(D)492	Data Visualization Laboratory	0	0	3	1.5
4	PW	PW-CS481	Mini Project	0	0	4	2
Total Practical/ Sessional/ Audit Course				0	0	14	7
Total of Fourth Semester				16	0	14	23

Fifth Semester (Third Year)							
Sl. No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PC	PC-CS501	Object-oriented Programming	3	0	0	3
2	PC	PC-CS(D)501	Machine Learning	3	1	0	4
3	PC	PC-CS(D)502	Computer Networks	3	0	0	3
4	BS	BS-M503	Introduction to Indian Astronomy (Indian Knowledge System-IV)	2	0	0	2
5	HM	HM-HU503	Leadership and Management Skills (JeevanKaushal-III)	2	0	0	2
Total Theory				13	1	0	14

Practical/ Sessional/ Audit Course							
1	PC	PC-CS591	Object-oriented Programming Laboratory	0	0	3	1.5
2	PC	PC-CS(D)591	Machine Learning Laboratory	0	0	4	2
3	PC	PC-CS(D)592	Computer Networks Laboratory	0	0	3	1.5
4	HM	HM-HU571	Aptitude Skill Development - I	1	0	0	1
<i>Total Practical/ Sessional/ Audit Course</i>				1	0	10	6
Total of Fifth Semester				14	1	10	20

Sixth Semester (Third Year)							
Sl. No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PC	PC-CS601	Database Management System	3	0	0	3
2	PC	PC-CS(D)601	Software Engineering	3	0	0	3
3	PC	PC-CS(D)602	Optimization Techniques	3	0	0	3
4	PC	PC-CS(D)603	Formal language and Automata Theory	3	0	0	3
5	HM	HM-HU603	Professional Skill (JeevanKaushal-II)	1	0	0	1
Total Theory				13	0	0	13
Practical/ Sessional/ Audit Course							
1	PC	PC-CS691	Database Management System Laboratory	0	0	4	2
2	PC	PC-CS(D)694	Cloud Management Laboratory	0	0	4	2
3	PW	PW-CS681	Project-I	0	0	4	2
4	HM	HM-HU671	Aptitude Skill Development - II	1	0	0	1
5	HM	HM-HU693	Professional Skill (JeevanKaushal-II) Laboratory	0	0	2	1
6	AU	AU671	Environmental Science	2	0	0	0
Total Practical/ Sessional/ Audit Course				3	0	14	8
Total of Sixth Semester				16	0	14	21

Seventh Semester (Fourth Year)							
Sl. No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PE	PE-CS(D)701	Professional Elective - I	3	0	0	3
2	PE	PE-CS(D)702	Professional Elective - II	3	0	0	3
3	OE	OE-XXXXX	Open Elective - I	3	0	0	3
4	BS	BS-BIO703	Biology for Engineers	2	0	0	2
Total Theory				11	0	0	11
Practical/ Sessional/ Audit Course							
1	PW	PW-CS781	Project-II	0	0	6	3
2	PW	PW-CS782	Summer Internship	0	0	6	3
Total Practical/ Sessional/ Audit Course				0	0	12	6
Total of Seventh Semester				11	0	12	17

Eighth Semester (Fourth Year)							
Sl. No.	Category	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	PE	PE-CS(D)801	Professional Elective - III	3	0	0	3
2	OE	OE-XXXXX	Open Elective - II	3	0	0	3
3	OE	OE-XXXXX	Open Elective - III	3	0	0	3
4	HM	HM-HU803	Entrepreneurship and Start-ups	2	0	0	2
Total Theory				11	0	0	11
Practical/ Sessional/ Audit Course							
1	PW	PW-CS881	Project-III	0	0	8	4
2	PW	PW-CS882	Comprehensive Viva-Voce	0	0	2	1
Total Practical/ Sessional/ Audit Course				0	0	10	5
Total of Eighth Semester				11	0	10	16

Part III: Specializations and corresponding List of Elective Papers

A. Specialization in Advanced Intelligent Learning

Sl. No.	Semester	Course Code	Course Name	Course Title	Contact Hours			Credits
					L	T	P	
Theory								
1	VII	PE-CS(D)701A	Professional Elective-I	A. Natural Language Processing B. Neural Network and Deep Learning	3	0	0	3
2	VII	PE-CS(D)702A	Professional Elective-II	A. Computer Vision B. Recommendation System	3	0	0	3
3	VIII	PE-CS(D)801A	Professional Elective-III	A. Generative AI B. Prompt Engineering and Foundation Model	3	0	0	3
Total Theory					9	0	0	9
Practical/ Sessional Course								
Total Practical/ Sessional Course					0	0	0	0
Total					9	0	0	9

B. Specialization in Advanced Data Analysis

Sl. No.	Semester	Course Code	Course Name	Course Title	Contact Hours			Credits
					L	T	P	
Theory								
1	VII	PE-CS(D)701B	Professional Elective-I	A. Big Data Analytics B. Data Science in Bioinformatics	3	0	0	3
2	VII	PE-CS(D)702B	Professional Elective-II	A. Pattern Recognition B. Data Mining and Data Warehousing	3	0	0	3
3	VIII	PE-CS(D)801B	Professional Elective-III	A. Social Network Analysis B. Time Series Analysis	3	0	0	3
Total Theory					9	0	0	9

Practical/ Sessional Course							
<i>Total Practical/ Sessional Course</i>					0	0	0
Total					9	0	9

C. Specialization in Smart Computing								
Sl. No.	Semester	Course Code	Course Name	Course Title	Contact Hours			Credits
					L	T	P	
Theory								
1	VII	PE-CS(D)701C	Professional Elective-I	A. High Performance Computing B. Advanced Algorithm	3	0	0	3
2	VII	PE-CS(D)702C	Professional Elective-II	A. Compiler Design B. Distributed System	3	0	0	3
3	VIII	PE-CS(D)801C	Professional Elective-III	A. Cryptography and Network Security B. Block chain Technologies	3	0	0	3
Total Theory					9	0	0	9
Practical/ Sessional Course								
Total Practical/ Sessional Course					0	0	0	0
Total					9	0	0	9

Part IV: List of Open Elective Papers								
Open Elective Papers offered by CSE department								
Sl. No.	Semester	Course Code	Course Name	Course Title	Contact Hours			Credits
					L	T	P	
Theory								
1	V	OE-CS501A	Open Elective-I	Introduction to Python Programming	2	0	0	2
2	VI	OE-CS601A	Open Elective-II	Data Structures and Algorithms	2	0	0	2
3	VII	OE-CS701A	Open Elective-III	Database Management System	2	0	0	2
4	VII	OE-CS701B		Object-oriented Programming	2	0	0	2
5	VIII	OE-CS801A	Open Elective-IV	Machine Learning	2	0	0	2
Total Theory					10	0	0	10
Practical/ Sessional Course								
1	V	OE-CS591A	Open Elective-I	Introduction to Python Programming Laboratory	0	0	2	1
2	VI	OE-CS691A	Open Elective-II	Data Structures Laboratory	0	0	2	1
3	VII	OE-CS791A	Open Elective-III	Database Management System Laboratory	0	0	2	1
4	VII	OE-CS791B		Object-oriented Programming Laboratory	0	0	2	1
5	VIII	OE-CS891A	Open Elective-IV	Machine Learning Laboratory	0	0	2	1
Total Practical/ Sessional Course					0	0	10	5
Total					10	0	10	15

Part V: Curriculum Structure for Minor Degree

A. Minor Degree in Advanced Web Development

Sl. No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	IV	MN-CS401A	Fundamentals of Front-end development	4	0	0	4
2	V	MN-CS501A	Server-Side Programming	4	0	0	4
3	VI	MN-CS601A	Advanced Front-end development	4	0	0	4
4	VII	MN-CS701A	Fundamentals of deployment	2	0	0	2
Total Theory				14	0	0	14
Practical/ Sessional Course							
1	IV	MN-CS491A	Fundamentals of Front-end development Laboratory	0	0	2	1
2	V	MN-CS591A	Server-Side Programming Laboratory	0	0	2	1
3	VI	MN-CS691A	Advanced Front-end development Laboratory	0	0	2	1
4	VII	MN-CS791A	Fundamentals of deployment Laboratory	0	0	6	3
Total Practical/ Sessional Course				0	0	12	6
Total				14	0	12	20