



REGULATIONS 2019 and REGULATIONS 2024
FLEXIBLE CHOICE BASED CREDIT SYSTEM

LIST OF MINOR COURSES

S.No	Offered by	Specialization in	Category	Course Code R2024	Course Code R2019	Course Title	Prerequisite	Theory Credits	Practical Credits	Total Credits	CGPA / Non - CGPA	Course Type
1	Chemical	Sustainable Engineering	OE(Minor)	CH0625	19CH625	Environmental Remediation Technologies	-	3	0	3	CGPA	Theory
2	Chemical	Sustainable Engineering	OE(Minor)	CH0626	19CH626	Waste Minimization and Pollution Prevention	-	3	0	3	CGPA	Theory
3	Chemical	Sustainable Engineering	OE(Minor)	CH0627	19CH627	Principles of the Circular Economy	-	3	0	3	CGPA	Theory
4	Chemical	Sustainable Engineering	OE(Minor)	CH0628	19CH628	Safety Engineering and Risk Management	-	3	0	3	CGPA	Theory
5	Chemical	Sustainable Engineering	OE(Minor)	CH0629	19CH629	Industrial Safety	-	3	0	3	CGPA	Theory
6	Chemical	Sustainable Engineering	OE(Minor)	CH0503	19CH503	Energy Technology	-	3	0	3	CGPA	Theory
7	Mech	3D Printing Technology	OE(Minor)	ME0534	19ME534	Fundamentals of 3D Printing Technologies	-	3	0	3	CGPA	Theory
8	Mech	3D Printing Technology	OE(Minor)	ME0535	19ME535	Reverse Engineering and CAD Modelling	19ME534/ ME0534	3	1	4	CGPA	TIP (6 Expts)
9	Mech	3D Printing Technology	OE(Minor)	ME0536	19ME536	Design for 3D Printing	19ME534, ME0534	3	1	4	CGPA	TIP (6 Expts)
10	Mech	3D Printing Technology	OE(Minor)	ME0537	19ME537	3D Printing Machines and Systems	19ME534, ME0535	3	0	3	CGPA	Theory
11	Mech	3D Printing Technology	OE(Minor)	ME0538	19ME538	Materials for 3D Printing	19ME534, ME0534	3	0	3	CGPA	Theory
12	Civil	Environmental Sustainability	OE(Minor)	CE0548	19CE548	Energy Efficient Buildings	-	3	0	3	CGPA	Theory
13	Civil	Environmental Sustainability	OE(Minor)	CE0538	19CE538	Climate Change Adaptation and Mitigation	-	3	0	3	CGPA	Theory
14	Civil	Environmental Sustainability	OE(Minor)	CE0540	19CE540	Environmental Health and Safety	-	3	0	3	CGPA	Theory
15	Civil	Environmental Sustainability	OE(Minor)	CE0549	19CE549	Rainwater Harvesting	-	3	0	3	CGPA	Theory
16	Civil	Environmental Sustainability	OE(Minor)	CE0550	19CE550	Smart Cities and Urban Analytics	-	3	0	3	CGPA	Theory
17	Civil	Environmental Sustainability	OE(Minor)	CE0551	19CE551	Transport and Environment	-	3	0	3	CGPA	Theory
18	Civil	Environmental Sustainability	OE(Minor)	CE0552	19CE552	Environment, Policy and Legislations	-	3	0	3	CGPA	Theory
19	ECE	VLSI	OE(Minor)	EC1410	19EC410	VLSI Design	19EC303 / EC1801 / EC2404	3	1	4	CGPA	TIP (6 Expts)
20	ECE	VLSI	OE(Minor)	EC1517	19EC517	Low Power VLSI Design	19EC410 / EC1410	3	0	3	CGPA	Theory
21	ECE	VLSI	OE(Minor)	EC1522	19EC522	Physical Design for VLSI	19EC410 / EC1410	2	1	3	CGPA	TIP (6 Expts)
22	ECE	VLSI	OE(Minor)	EC1519	19EC519	Testing of VLSI Circuits	19EC410 / EC1410	3	0	3	CGPA	Theory
23	ECE	VLSI	OE(Minor)	EC1822	19EC822	VLSI Technology	EC1410 / 19EC410	3	0	3	CGPA	Theory
24	ECE	VLSI	OE(Minor)	EC1523	19EC523	Verilog HDL	19EC303 / EC1801 / EC2404	2	1	3	CGPA	TIP (6 Expts)
25	ECE	VLSI	OE(Minor)	EC1521	19EC521	System Verilog for Design and Verification	19EC523 / EC1523	2	1	3	CGPA	TIP (6 Expts)
26	BME	Biomedical Technology	OE(Minor)	EC4533	19BM533	Human Physiology	-	3	0	3	CGPA	Theory
27	BME	Biomedical Technology	OE(Minor)	EC4534	19BM534	Medical Instrumentation	-	3	0	3	CGPA	Theory

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28	BME	Biomedical Technology	OE(Minor)	EC4535	19BM535	Medical Imaging Technology	-	3	0	3	CGPA	Theory
29	BME	Biomedical Technology	OE(Minor)	EC4526	19BM526	Medical Waste Management	-	3	0	3	CGPA	Theory
30	BME	Biomedical Technology	OE(Minor)	EC4536	19BM536	Diagnostic and Therapeutic Equipment	-	3	0	3	CGPA	Theory
31	BME	Biomedical Technology	OE(Minor)	EC4537	19BM537	Hospital Management and Safety	-	3	0	3	CGPA	Theory
32	BME	Biomedical Technology	OE(Minor)	EC4538	19BM538	Biometric Technology	-	3	0	3	CGPA	Theory
33	EEE	Electric Vehicle Technology	OE(Minor)	EC2526	19EE526	Introduction to Fundamentals of Electric Vehicles	-	3	0	3	CGPA	Theory
34	EEE	Electric Vehicle Technology	OE(Minor)	EC2527	19EE527	Electric Vehicle Powertrain and Integration	19EE526/EC2526	2	1	3	CGPA	TIP (6 Expts)
35	EEE	Electric Vehicle Technology	OE(Minor)	EC2528	19EE528	Electric Vehicle Charging Infrastructure	19EE526/EC2526	3	0	3	CGPA	Theory
36	EEE	Electric Vehicle Technology	OE(Minor)	EC2529	19EE529	Electric Vehicle Grid Integration	19EE526/EC2526	2	1	3	CGPA	TIP (6 Expts)
37	EEE	Electric Vehicle Technology	OE(Minor)	EC2530	19EE530	Embedded IoT for Electric Vehicles	EC2526	2	1	3	CGPA	TIP (6 Expts)
38	EEE	Electric Vehicle Technology	OE(Minor)	EC2531	19EE531	Embedded AI for Electric Vehicles	19EE526/EC2526	2	1	3	CGPA	TIP (6 Expts)
39	EEE	Electric Vehicle Technology	OE(Minor)	EC2532	19EE532	Battery Technologies and Management Systems for Electric Vehicles	19EE526/EC2526	3	0	3	CGPA	Theory
40		Data Science	OE(Minor)	CS3403	19AI403	Introduction to Data Science	19CS301	2	1	3	CGPA	TIP (6 Expts)
41		Data Science	OE(Minor)	SH2211	19MA211	Statistics and Numerical Methods	-	3	1	4	CGPA	TIP (6 Expts)
42		Data Science	OE(Minor)	CS3555	19AI555	Exploratory Data Analysis	-	2	1	3	CGPA	TIP (6 Expts)
43		Data Science	OE(Minor)	CS3556	19AI556	Recommender Systems	-	2	1	3	CGPA	TIP (6 Expts)
44		Data Science	OE(Minor)	CS3557	19AI557	Neural Networks and Deep Learning	-	2	1	3	CGPA	TIP (6 Expts)
45		Data Science	OE(Minor)	CS3558	19AI558	Text and Speech Analysis	-	2	1	3	CGPA	TIP (6 Expts)
46		Data Science	OE(Minor)	CS3517	19AI517	Business Analytics	-	2	1	3	CGPA	TIP (6 Expts)
47		Data Science	OE(Minor)	CS3559	19AI559	Image and Video Analytics	-	2	1	3	CGPA	TIP (6 Expts)
48		Data Science	OE(Minor)	CS3503	19AI503	Computer Vision	19CS301	2	1	3	CGPA	TIP (6 Expts)
49		Data Science	OE(Minor)	CS3516	19AI516	Big Data Mining and Analysis	19AI408/ 19CS410/19IT405	2	1	3	CGPA	TIP (6 Expts)
50		Data Science	OE(Minor)	CS3301	19AI301	Python Programming	-	2	1	3	CGPA	TIP (6 Expts)
51		Data Science	OE(Minor)	CS1408	19CS408	Software Engineering	-	3	1	4	CGPA	TIP (6 Expts)
52		Data Science	OE(Minor)	CS1556	19CS556	Core Computing Concepts	-	2	1	3	CGPA	TIP (6 Expts)
53		Full Stack Development	OE(Minor)	CS3414	19AI414	Fundamentals of Web Application Development	-	3	2	5	CGPA	TIP (10 Expts)
54		Full Stack Development	OE(Minor)	CS1548	19CS548	Cloud Services Management	-	2	1	3	CGPA	TIP (6 Expts)
55		Full Stack Development	OE(Minor)	CS1549	19CS549	UI and UX Design	-	2	1	3	CGPA	TIP (6 Expts)
56		Full Stack Development	OE(Minor)	CS1551	19CS551	Software Testing and Automation	-	2	1	3	CGPA	TIP (6 Expts)
57		Full Stack Development	OE(Minor)	CS1552	19CS552	DevOps	-	2	1	3	CGPA	TIP (6 Expts)
58		Full Stack Development	OE(Minor)	CS1567	19CS567	Cloud Native App Development	-	2	1	3	CGPA	TIP (6 Expts)

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59		Full Stack Development	OE(Minor)	CS1553	19CS553	Web Application Security	-	2	1	3	CGPA	TIP (6 Expts)
60		Full Stack Development	OE(Minor)	CS1554	19CS554	Stream Processing	-	2	1	3	CGPA	TIP (6 Expts)
61		Full Stack Development	OE(Minor)	CS1404	19CS404	Database Management System and its Applications	19AI307/19AIS04/19CS301/19CS302/19CS302	3	1	4	CGPA	TIP (6 Expts)
62		Full Stack Development	OE(Minor)	CS3512	19AI512	NoSQL Database Design	19CS301	2	1	3	CGPA	TIP (6 Expts)
63		Full Stack Development	OE(Minor)	CS1408	19CS408	Software Engineering	-	3	1	4	CGPA	TIP (6 Expts)
64		Full Stack Development	OE(Minor)	CS3545	19AI545	Modern Web Application Development	19CS410	2	1	3	CGPA	TIP (6 Expts)
65		Full Stack Development	OE(Minor)	CS3552	19AI552	Web Application User Interface Development	-	2	1	3	CGPA	TIP (6 Expts)
66		Full Stack Development	OE(Minor)	CS3553	19AI553	Advanced Java Web Applications	19AI307	2	1	3	CGPA	TIP (6 Expts)
67		Full Stack Development	OE(Minor)	CS3546	19AI546	Web Server Programming	19CS401	2	1	3	CGPA	TIP (6 Expts)
68		Full Stack Development	OE(Minor)	CS3307	19AI307	Object Oriented Programming using Java	19AI304	2	1	3	CGPA	TIP (6 Expts)
69		Full Stack Development	OE(Minor)	CS3308	19AI308	Object Oriented Programming using C#	-	2	1	3	CGPA	TIP (6 Expts)
70		Full Stack Development	OE(Minor)	CS3539	19AI539	Mobile User Interface Development	19CS401	2	1	3	CGPA	TIP (6 Expts)
71		Full Stack Development	OE(Minor)	CS3540	19AI540	Programming Mobile Devices	19CS401	2	1	3	CGPA	TIP (6 Expts)
72		Full Stack Development	OE(Minor)	CS1556	19CS556	Core Computing Concepts	-	2	1	3	CGPA	TIP (6 Expts)
73		Cyber security	OE(Minor)	CS1417	19CS417	Ethical Hacking Techniques	-	2	1	3	CGPA	TIP (6 Expts)
74		Cyber security	OE(Minor)	CS1415	19CS415	Cryptography	-	2	1	3	CGPA	TIP (6 Expts)
75		Cyber security	OE(Minor)	CS1416	19CS416	Cloud Security	-	2	1	3	CGPA	TIP (6 Expts)
76		Cyber security	OE(Minor)	CS1418	19CS418	Cyber Law and Compliance	-	3	0	3	CGPA	Theory
77		Cyber security	OE(Minor)	CS1419	19CS419	Digital Forensics and Digital Investigations	-	2	1	3	CGPA	TIP (6 Expts)
78		Cyber security	OE(Minor)	CS1534	19CS534	Prevention Methodology for Cybersecurity	-	2	1	3	CGPA	TIP (6 Expts)
79		Cyber security	OE(Minor)	CS1535	19CS535	Trusted Network Systems	-	3	0	3	CGPA	Theory
80		Cyber security	OE(Minor)	CS1537	19CS537	Secure Software Engineering	-	2	1	3	CGPA	TIP (6 Expts)
81		Cyber security	OE(Minor)	CS1538	19CS538	System Security	-	3	0	3	CGPA	Theory
82		Cyber security	OE(Minor)	CS1539	19CS539	Hardware Security	-	3	0	3	CGPA	Theory
83		Cyber security	OE(Minor)	CS1547	19CS547	Fundamentals of Cryptocurrency	-	3	0	3	CGPA	Theory
84		Cyber security	OE(Minor)	CS1545	19CS545	Open Source Operating System	-	2	1	3	CGPA	TIP (6 Expts)
85		Cyber security	OE(Minor)	CS1556	19CS556	Core Computing Concepts	-	2	1	3	CGPA	TIP (6 Expts)
86		Cyber security	OE(Minor)	CS1558	19CS558	Data Privacy and Protection	-	2	1	3	CGPA	TIP (6 Expts)
87		Cyber security	OE(Minor)	CS1536	19CS536	Firewalls and Intrusion Detection System	-	2	1	3	CGPA	TIP (6 Expts)
88		Emerging Technologies	OE(Minor)	CS1535	19CS535	Trusted Network Systems	-	3	0	3	CGPA	Theory
89		Emerging Technologies	OE(Minor)	CS1549	19CS549	UI and UX Design	-	2	1	3	CGPA	TIP (6 Expts)

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90		Emerging Technologies	OE(Minor)	CS3509	19AI509	Concepts of Virtual And Augmented Reality	-	2	1	3	CGPA	TIP (6 Expts)
91		Emerging Technologies	OE(Minor)	CS1565	19CS565	Robotic Process Automation	-	2	1	3	CGPA	TIP (6 Expts)
92		Emerging Technologies	OE(Minor)	CS1529	19CS529	Quantum Computing	19CS301/19CS303	3	0	3	CGPA	Theory
93		Emerging Technologies	OE(Minor)	CS1547	19CS547	Fundamentals of Cryptocurrency	-	3	0	3	CGPA	Theory
94		Emerging Technologies	OE(Minor)	CS3513	19AI513	Game Programming	19CS401	2	2	4	CGPA	TIP (10 Expts)
95		Emerging Technologies	OE(Minor)	CS3545	19AI545	Modern Web Application Development	19CS410	2	1	3	CGPA	TIP (6 Expts)
96		Emerging Technologies	OE(Minor)	CS1417	19CS417	Ethical Hacking Techniques	-	2	1	3	CGPA	TIP (6 Expts)
97		Emerging Technologies	OE(Minor)	CS3308	19AI308	Object Oriented Programming using C#	-	2	1	3	CGPA	TIP (6 Expts)
98		Emerging Technologies	OE(Minor)	CS3410	19AI410	Introduction to Machine Learning	-	2	1	3	CGPA	TIP (6 Expts)
99		Emerging Technologies	OE(Minor)	CS3306	19AI306	Object Oriented Programming using C++	-	2	1	3	CGPA	TIP (6 Expts)
100		Emerging Technologies	OE(Minor)	CS1556	19CS556	Core Computing Concepts	-	2	1	3	CGPA	TIP (6 Expts)
101		3D Printing Technology	OE(Minor)	ME0534	19ME534	Fundamentals of 3D Printing Technologies	-	3	0	3	CGPA	Theory
102		3D Printing Technology	OE(Minor)	ME0535	19ME535	Reverse Engineering and CAD Modelling	19ME534/ME0534	3	1	4	CGPA	TIP (6 Expts)
103		3D Printing Technology	OE(Minor)	ME0536	19ME536	Design for 3D Printing	19ME534, ME0534	3	1	4	CGPA	TIP (6 Expts)
104		3D Printing Technology	OE(Minor)	ME0537	19ME537	3D Printing Machines and Systems	19ME534, ME0535	3	0	3	CGPA	Theory
105		3D Printing Technology	OE(Minor)	ME0538	19ME538	Materials for 3D Printing	19ME534, ME0534	3	0	3	CGPA	Theory
106		3D Printing Technology	OE(Minor)	ME0539	19ME539	3D Printing for Medical Applications	19ME534, ME0534	3	1	4	CGPA	TIP (6 Expts)