

List of Open and Program Elective Subjects Offered by the Departments for the Academic Session Spring 2023-24

Sr. No.	Branch	Sem	Name of the elective offered	Type of Elective (Open/Program)	Subject code	Name of the faculty and designation	Prerequisites (if any)	Max Number of Students	Exclusion criteria* (if more than maximum number of students opt the course)
1	Architecture	4	Theory of Design	Professional Elective	AR204201AR	Mr. Sayon Pramanik, Assistant Professor	Nil		Nil
2	Architecture	4	Art in Architecture	Professional Elective	AR204202AR	Dr. Abir Bandyopadhyay, Professor	Nil		Nil
3	Architecture	6	Earthquake Resistant Architecture	Open Elective	AR206301AR	Dr. Debashis Sanyal, Professor	Nil		Nil
4	Architecture	6	Universal Design	Open Elective	AR206302AR	Dr. Shruti Sharad Nagdeve, Assistant Professor	Nil		Nil
5	Architecture	6	Disaster Management and Mitigation Systems	Open Elective	AR206303AR	Mrs. Kabita Biswas Sharma, Assistant Professor	Nil		Nil
6	Architecture	10	Physical Planning, Theory and Techniques	Professional Elective	AR210201AR	Dr. Vivek Agnihotri, Assistant Professor	Nil		Nil
7	Architecture	10	Human Settlement and Spatial Organization	Professional Elective	AR210203AR	Mr. Sayon Pramanik, Assistant Professor	Nil		Nil
8	Architecture	10	Remote Sensing and Basic of GIS	Professional Elective	AR210204AR	Dr. Vivek Agnihotri, Assistant Professor	Nil		Nil
9	Architecture	10	Building Certification and Rating Systems	Professional Elective	AR210205AR	Mrs. Devanshi Gaur, Assistant Professor	Nil		Nil
10	Architecture	10	Building Economics and Sociology	Professional Elective	AR210206AR	Mr. Sachin Sahu, Assistant Professor	Nil		Nil
11	Biomedical Engineering	6	Database Management System	Program Elective - II	BM106203BM	Dr. Saurabh Gupta (Assistant Professor)	Nil	60	Based on CPI
12	Biomedical Engineering	6	Biomechanics	Program Elective - II	BM106302BM	Dr. M. Marieswaran (Assistant Professor)	Nil	60	Based on CPI
13	Biomedical Engineering	6	Machine Learning and Deep Learning in Healthcare & Lifescience	Open Elective -II	BM106303BM	Dr. Bikesh Kumar Singh (Associate Professor)	Nil	80	Based on CPI
14	Biomedical Engineering	8	Optical Fibre and Laser in Medicine	Program Elective - V	BM108206BM	Dr. Saurabh Gupta (Assistant Professor)	Nil	60	Based on CPI
15	Biomedical Engineering	8	Artificial Organs	Program Elective - VI	BM108201BM	Dr. Nishant Kumar Singh (Assistant Professor)	Nil	60	Based on CPI
16	Biomedical Engineering	8	Biofluid Dynamics	Open Elective -IV	BM108301BM	Dr. Arindam Bit (Associate Professor)	Nil	80	Based on CPI
17	Biomedical Engineering	8	3D Printing Technology	Open Elective - V	BM108303BM	Dr. M. Marieswaran (Assistant Professor)	Nil	80	Based on CPI
18	Biotechnology	6	Intellectual Property Rights (OE2)	Open	BT106302BT	Dr. Chinmaya Mahapatra Assistant Professor	-		CPI of external student should not be <8.5
19	Biotechnology	6	Biopharmaceutical Technology (PE2)	Program	BT106203BT	Dr. Awanish Kumar Associate Professor	Open to all Biotech Students and Maximum 20 Students from other Department.	49	-
20	Biotechnology	6	Membrane Technology (PE3)	Program	BT106205BT	Dr. D. Vasanth Assistant Professor		49	-
21	Biotechnology	8	Bioreactor Design and Analysis (OE4)	Open	BT108304BT	Temporary Faculty	-		CPI of external student should not be <8.5
22	Biotechnology	8	Interactomics(OE5)	Open	BT108305BT	Dr. Dijendra Nath Roy Assistant Professor	-		CPI of external student should not be <8.5
23	Chemical	6	Non-conventional Energy Sources	Open Elective	CHI06301CH	Contract Faculty			
24	Chemical	6	Process Equipment Design -II	Program Elective-I	CHI06201CH	Dr. M.S. Gaikwad, Assistant Prof.			
25	Chemical	6	Fluidization Engineering	Program Elective-II	CHI06251CH	Dr. P. K Chaudhari, Professor			
26	Chemical	8	Project Planning Evaluation and Management	Open Elective I	CHI08301CH	Dr. B. Mazumdar, Professor		90	
27	Chemical	8	Solid Waste Management	Open Elective II	CHI08351CH	Dr. J. Anandkumar, Asso. Prof.		90	
28	Chemical	8	Process Safety and Hazard Management	Program Elective-I	CHI08201CH	Contract Faculty			
29	Chemical	8	Fluidization Engineering	Program Elective-II	CHI08251CH	Dr. P. K Chaudhari, Prof.			
30	Civil Engineering	6	Construction Management	Open	CV106302CV	Dr. S.V. Deo, Professor	None	75	
31	Civil Engineering	6	Air & Noise Pollution and Control	Open	CV106301CV	Dr. A.V. Ahirwar, Associate Professor	None	95	Minimum 8.0 CGPA
32	Civil Engineering	6	Advanced Pavement Engineering	Program	CV106204CV	Dr. Sunny Deol G, Assistant Professor	Highway and Railway Engineering	75	
33	Civil Engineering	6	Advanced hydrology	Program	CV106202CV	Dr. Vikas Vidyarathi, Assistant Professor	Engineering Hydrology	75	
34	Civil Engineering	6	Advanced Structural Analysis	Program	CV106201CV	Dr. Alfia Bano, Assistant Professor	Structural Analysis -II	75	

35	Civil Engineering	6	Geo-synthetics and Reinforced soil	Program	CVI06203CV	Dr. Ansu Thomas, Assistant Professor	Geotechnical Engineering - I	75	
36	Civil Engineering	8	Remote Sensing, GIS & its applications	Open Elective - I	CVI08301CV	Dr A D Prasad, Assistant Professor	None	120	Cumulative overall % upto now and also equal proportion of all branch students opted for Students of the below branches: Civil, ECE, IT, CSE, MIN, ARCH
37	Civil Engineering	8	Stability of slopes & Ground improvement Techniques	Open Elective - II	CVI08351CV	Dr. Sandeep K Chouksey, Assistant Professor	None	75	Only Mining and Civil students
38	Civil Engineering	8	Airport, Tunnel & Harbour Engineering	Program Elective - I	CVI08202CV	Dr. Sunny Deol G, Assistant Professor	None	75	
39	Civil Engineering	8	Advanced Design of steel structures	Program Elective - I	CVI08201CV	Dr. Alfia Bano, Assistant Professor	Design of Steel Structures	75	
40	Civil Engineering	8	Prestressed Concrete	Program Elective - II	CVI08251CV	Dr. Meena Murmu, Assistant Professor	None	75	
41	Civil Engineering	8	Transportation Planning & Management	Program Elective - II	CVI08253CV	Dr. Sunny Deol G, Assistant Professor	None	75	
42	CSE	6	Computer Vision	Program Elective - II	CSI06203CS	Dr. Sonal Yadav			
43	CSE	6	Deep Learning	Program Elective - III	CSI07201CS	Dr. Pradeep Singh			
44	CSE	6	Applied Machine Learning	Open Elective - II	CSI06302CS	Dr. Dilip Singh Sisodia			
45	CSE	8	Real Time Systems	Program Elective - V	CSI08203CS	Dr. K. Jairam Naik			
46	CSE	8	Advanced Database Management System	Program Elective - VI	CSI08206CS	Mr. Vivek Kumar			
47	CSE	8	Evolutionary Computing	Open Elective - IV	CSI08302CS	Dr. Deepak Singh			cpi greater than 8.5
48	CSE	8	Quantum Computing	Open Elective - V	CSI08304CS	Dr. N.K. Nagwani	Basic Computing Subjects like Algorithm Design, Digital Logic Design, Computer Networks		Only for CSE and IT students
49	ECE	6	Machine Learning and Pattern Recognition	Open	ECI06301EC	S. Majumder, Asst. Professor	None	130	Min 8.0 CPI for non-ECE students.
50	ECE	6	Computer communication network	Program	ECI06202EC	A.S. Raghuvanshi, Asso. Professor	Digital Communication	130	None
51	ECE	6	Soft computing	Program	ECI06205EC	S. Chakraborty, Asst. Professor	None	130	None
52	ECE	8	Cryptography & Network Security	Open	ECI08302EC	B. Acharya, Asso. Professor	None	130	None
53	ECE	8	Computer Vision	Open	ECI08304EC	T. Meenpal, Asso. Professor	Digital image processing	130	Min 8.5 for Non-ECE Students
54	ECE	8	Semiconductor device modeling	Program	ECI08202EC	A. Kumar, Asst. Professor	VLSI	130	None
55	ECE	8	Analog IC design and simulation	Program	ECI08203EC	A. Naugarhiya, Asst. Professor	VLSI	130	None
56	Electrical Engg	6	Design of Photovoltaic Systems	Open Elective	ELI06301EL	Dr. S. Gupta, Professor	Basic Electrical Engineering (ELI01022EL), Power Electronics (ELI04103EL)]	30+20 (Out side)	CPI
57	Electrical Engg	6	Design and integration of Optional sensors in mechatronics systems	Open Elective	ELI06305EL	Dr. Ramya Selvaraj, (Assistant Profesor)	NIL	110+30 (Out side)	CPI
58	Electrical Engg	6	Power System protection & Switchgear	Program core	ELI06101EL	Dr. Suresh, (Assistant Professor)	Electrical Power System (ELI03105EL), Power System Analysis (ELI05103EL)]	115	CPI
59	Electrical Engg	6	High voltage Engineering	Program core	ELI06102EL	Dr. K. Chandrasekran, (Assistant Professor)	Electrical Machines - II (ELI05102EL), Electrical Power System (ELI03105EL)]	115	CPI
60	Electrical Engg	6	Electrical Machine III	Program core	ELI06103EL	Dr. P.D. Dewangan, Associate Professor	Electrical Machines-II (ELI05102EL)]	115	CPI
61	Electrical Engg	6	Advanced Electrical Drives	Program Elective	ELI06210EL	Dr. Rajan Kumar, (Assistant Professor)	Power Electronics (ELI04103EL), Electrical Machines-III (ELI06103EL)]	115	CPI
62	Electrical Engg	6	Simulation and Modelling of Electrical Systems	Program Elective	ELI06203EL	Dr. Venu sonti, (Assistant Profesor)	Basic Electrical Engineering (ELI01022EL), Power Electronics (ELI04103EL)]	115	CPI
63	Electrical Engg	8	Introduction to Hybrid and Electric Vehicles	Open Elective	ELI08304EL	Dr. Lalit Kumar Sahu Assistant Professor	NIL	115+20 (out side)	CPI
64	Electrical Engg	8	Mechatronics	Open Elective	ELI08306EL	Dr. S. Ghosh, Professor	Basic Electrical Engineering (ELI01022EL), Physics II (PHI01006PH)]	110+20 (Out side)	CPI

65	Electrical Engg	8	Installation , Mainteance and Testing of Electrical Appratus	Program Elective	ELI08204EL	Dr. Anamika Yadav, Professor	Electrical Power System (ELI03105EL), Electrical Measurement and Instrumentation (ELI03101EL), Electrical Machine -II (ELI03102EL)]	115	CPI
66	Electrical Engg	8	Power Converter Design	Program Elective	ELI08206EL	Dr. Sachin Jain , Professor	Power Electronics	115	CPI
67	HSS	6	Basic Entrepreneurship for Engineers	Open Elective	HSI06303HS	Dr. Sourabh Gupta, Asst. Prof., Bio-Med Deptt.			Only for UG Students
68	HSS	6	Basic Human Resource Management	Open Elective	HSI06305HS	Dr. Anoop Kumar Tiwari, Associate Professor			Only for UG Students
69	HSS	6	Cognitive Neuroscience of Language and Emotion	Open Elective	HSI06317HS	Dr. Shashikanta Tarai, Assistant Professor			Only for UG Students
70	HSS	6	Documentation and Communication Contexts (Includes a Minor Project)	Open Elective	HSI06318HS	Dr. Y. Vijaya Babu, Assistant Professor			Only for UG Students
71	HSS	6	Happiness based on co-existential Living	Open Elective	HSI06307HS	Dr. Heena Chawda, Temporary Faculty			Only for UG Students
72	HSS	6	Industrial Sociology and Social Change	Open Elective	HSI06310HS	Dr. Moksha Singh Assistant Professor			Only for UG Students
73	HSS	6	A Course on Organizational Behaviour	Open Elective	HSI06309HS	Dr. Chetna Sharma Rajput, Assistant Professor			Only for UG Students
74	HSS	8	Coexistence based Human Values and Ethics	Open Elective	HSI08312HS	Dr. Heena Chawda, Temporary Faculty			Only for UG Students
75	Information Technology	6	Cryptography and Network Security	Program Elective - II	ITI0620IIT	Dr. Rajesh Doriya (Assistant Professor)			
76	Information Technology	6	Cellular Mobile Computing	Program Elective -III		Dr. Pavan Kumar Mishra (Assistant Professor)			
77	Information Technology	6	Machine Learning	Open Elective - II	ITI0630IIT	Dr. Mridu Sahu (Assistant Professor)	Data Structure	114	>8.5 CPI for other branches
78	Information Technology	6	Data science and Statistics	Open Elective - II		Dr. Gyanendra Kumar Verma (Assistant Professor)	Nil	114	>8.0 CPI for other branches
79	Information Technology	8	Blockchain	Program Elective - V	ITI0820IIT	Dr. Govind Prasad Gupta (Assistant Professor)			
80	Information Technology	8	Cellular Mobile Computing	Program Elective -III	ITI08250IT	Dr. Pavan Kumar Mishra (Assistant Professor)			
81	Information Technology	8	Cloud Computing	Open Elective - IV	ITI08302IT	Dr. Jatoh Chandrashekar (Assistant Professor)	DBMS, Computer Network	114	>8.5 CPI for other branches
82	Information Technology	8	Deep Learning	Open Elective - V	ITI08350IT	Dr. Suwendu Rup (Associate Professor)	Machine Learning	114	>8.5 CPI for other branches
83	Computer Applications	4	Crtptography & Network Security	Program (Elective- 1)	CA404202CA	Dr. Mou Dasgupta Associate Professor	Elementary Number Theory, Computer networks	110	None
84	Computer Applications	4	Advance OS	Program (Elective- 1)	CA404204CA	Prof. Harendra Bikrol Associate Professor	NIL	110	None
85	Computer Applications	4	Web Technology- Advance Java	Program (Elective- 2)	CA404206CA	Dr. Shyam Sundar Associate Professor	NIL	110	None
86	Computer Applications	4	Advance Data Mining	Open (Elective- 1)	CA404302CA	Dr. Naem Ahmad Assistant Professor	NIL	110	None
87	Mechanical Engineering	6	Air Conditioning Techniques and System Design	Program Elective-III	MEI0620IME	Dr. A. K. Tiwari			
88	Mechanical Engineering	6	Operations Research	Program Elective-III	MEI06203ME	Dr. A. R. Singh			
89	Mechanical Engineering	6	Additive Manufacturing	Program Elective-IV	MEI0640IME	Dr. M. K. Pradhan			
90	Mechanical Engineering	6	Artificial Intelligence and Machine Learning for Mechanical Engineers	Program Elective-IV	MEI06404ME	Dr. Srinivasu G			
91	Mechanical Engineering	6	Robotics	Open Elective-II	MEI06303ME	Dr. S. Sanyal			
92	Mechanical Engineering	6	Smart Materials and Systems	Open Elective-II	MEI06304ME	Dr. Raj Kumar Sahu			
93	Mechanical Engineering	8	Additive Manufacturing	Program Elective-VI	MEI0820IME	Dr. M. K. Pradhan			
94	Mechanical Engineering	8	Computer Aided Design and Manufacturing	Program Elective-VI	MEI08202ME	Dr. S. Bhattacharya			
95	Mechanical Engineering	8	Automobile Engineering	Program Elective-VII	MEI08213ME	Dr. S.P.S. Matharu			
96	Mechanical Engineering	8	Alterantive fuels and emission control in internal combustion engines	Program Elective-VII	MEI08212ME	Dr. S. L. Sinha			
97	Mechanical Engineering	8	Welding Technology	Open Elective-IV	MEI08302ME	Dr. H. K. Narang			
98	Mining Engineering	6	Advanced Coal Mine Planning	Program	MII0640IMI	Dr. P. Y. Dhelne, Professor	No		

99	Mining Engineering	6	Mine Acquisition & Operationalization	Program	MI106402MI	Dr. M. Pradhan, Professor	No		
100	Mining Engineering	6	Computer application in Mining	Program	MI106451MI	Dr. R. K. Jade, Associate Professor	No		
101	Mining Engineering	6	Advanced Surface Mining	Program	MI106452MI	Dr. P. K. Dewangan, Professor	No		
102	Mining Engineering	6	Mineral Processing	Open	MI106301MI	Prof. B. R. Parate, Associate Professor	No	100	Mining Engg., Metallurgical and Materials Engg. & Chemical Engg. only
103	Mining Engineering	8	Mine Management	Program	MI108201MI	Dr. R. K. Jade, Associate Professor	No		
104	Mining Engineering	8	Computer applications in Mining	Program	MI108202MI	Dr. R. K. Jade, Associate Professor	No		
105	Mining Engineering	8	Advance Surface Mining	Program	MI108251MI	Dr. P. K. Dewangan, Professor	No		
106	Mining Engineering	8	Numerical methods in Mining	Program	MI108252MI	Dr. R. K. Jade, Associate Professor	No		
107	Mining Engineering	8	Occupational health and safety	Open	MI108301MI	Dr. A. K. Dash, Assistant Professor	No	100	All core branches only
108	MME	6	Fracture Mechanics and Failure analysis	OE	MMI06301MM	Dr Nitesh Kumar Sinha	Mechanical Behaviour of Materials, Physical Metallurgy	80	7.5
109	MME	6	Tribology of materials	OE	MMI06302MM	Dr Amit Kumar Yadav	NONE	80	7.5
110	MME	6	Liquid Metal Engineering	PE	MMI06202MM	Dr Sanjeev Das	NONE		
111	MME	6	Materials Modeling and Simulation	PE	MMI06203MM	Dr S. Ganguly	NONE		
112	MME	6	Nuclear Materials	PE	MMI06204MM	Dr. Abhishek Pandey	NONE		
113	MME	8	Advanced Materials	OE	MMI08301MM	Dr. Naga Sruthi Neelam	Mechanical Behaviour of Materials, Physics of Materials	80	7.5
114	MME	8	Science and Technology of Nano Materials	OE	MMI08302MM	Dr. Abhishek Sharma	Physics of materials		
115	MME	8	Automotive Materials	OE	MMI08303MM	Dr Manoranjan Kumar Manoj	Physical metallurgy		
116	MME	8	Engineering Economics	OE	MMI08304MM	Dr M K Tripathi	None	50	8.5
117	MME	8	Materials Modeling and Simulation	PE	MMI08201MM	Dr S Ganguly	NONE		
118	MME	8	Nuclear Materials	PE	MMI08202MM	Dr. Abhishek Pandey	NONE		
119	MME	8	High Temperature Materials	PE	MMI08204MM	Dr Saurav kumar	NONE		