

## NIT Raipur

### List of Open and Program Electives for Upcoming Autumn 2024-25 Semester

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)
<b>Architecture and Planning</b>									
1	Architecture and Planning	5th	Site Planning	Program	AR205201AR	Kabita Biswas	None	Branch Intake	First Come First Serve
2		5th	Geometry in Architecture	Program	AR205202AR	Dr. Abir Bandyopadhyay	None	Branch Intake	First Come First Serve
3		7th	Intelligent Building	Open	AR207301AR	Dr. Debashis Sanyal	None	45	First Come First Serve
4		7th	Alternate Bldg. Mat. and Techniques	Open	AR207303AR	Sachin Sahu	None	45	First Come First Serve
5		9th	Environmental Planning	Program	AR209201AR	Shailoneil Sahu	None	Branch Intake	First Come First Serve
6		9th	Architectural Conservation	Program	AR209202AR	Devanshi Gaur	None	Branch Intake	First Come First Serve
7		9th	Landscape Architecture	Program	AR209203AR	Shruti Sharad Nagdeve	None	Branch Intake	First Come First Serve
<b>Bio-Medical Engineering</b>									
1	Biomedical Engineering	5th	Analytical & Diagnostic Medical Equipments	Open Elective 1	BM105301BM	Dr. Arindham Bit, Assoc Prof	Nil	55	CGPA<7.5 for other Dept students
2		5th	Computational Biomechanics	Open Elective 1	BM105302BM	Dr. Shivangi Giri, Asst Prof	Nil	55	CGPA<7.5 for other Dept students
3		5th	Physiological Systems and Modelling	Programme Elective 1	BM105201BM	Dr. Nishant Kumar Singh	Nil	NA	NA
4		5th	Artificial Intelligence	Programme Elective 1	BM105202BM	Dr. Saurabh Gupta	Nil	NA	NA
5		7th	Lab on Chip Devices	Open Elective III	Bm107301BM	Dr. Mainak Basu	Nil	60	CGPA<7.5 for other Dept students
6		7th	Biostatistics	Open Elective III	BM107303BM	Dr. M. Marieswaran	Nil	60	CGPA<7.5 for other Dept students
7		7th	Rehabilitation Engineering	Programme Elective IV	BM107201BM	Dr. Neelamshobha Nirala	Nil	NA	NA
8		7th	Medical Image Processing	Programme Elective IV	BM107202BM	Dr. Bikesh Kumar Singh	Nil	NA	NA
9		7th	Biochemistry	Programme Elective V	BM107203BM	Dr. Neelamshobha Nirala	Nil	NA	NA
10		7th	Basic Clinical Science	Programme Elective V	BM107204BM	Dr. Nishant Kumar Singh	Nil	NA	NA
<b>Bio Technology</b>									
1	Biotechnology	5th	Environmental Biotechnology	(Open Elective 1)	BT105301BT	(Temporary Faculty)	Microbial metabolism, Ecology and Ecosystem	110	CPI of external student should not be <8.5
2		5th	Molecular Modeling & Drug Designing	(Open Elective 1)	BT105302BT	Dr. J. Satya Eswari (Assistant Professor)	Biochemistry/ Chemistry, Physics	110	CPI of external student should not be <8.5
3		7th	Biosensor Technology	(Open Elective 3)	BT107304BT	Dr. Lata Upadhyay (Professor)	Biochemistry/ Chemistry, Material Science	110	CPI of external student should not be <8.5
4		7th	Nano Biotechnology	(Open Elective 3)	BT107303BT	Dr. Chinmaya Mahapatra (Assistant Professor)	Chemistry, Physics	110	CPI of external student should not be <8.5
5		5th	Food Biotechnology	(Prog Elective 1)	BT105201BT	Dr. D. N. Roay (Assistant Professor)	Microbiology and Plant Biotechnology	Branch intake	NA
6		5th	Computational Biology	(Prog Elective 1)	BT105202BT	(Temporary Faculty)	Basic knowledge on computers, coding , molecular biology	Branch intake	NA
7		7th	Metabolic Engineering	(Prog Elective 3)	BT107205BT	Dr. Lata Upadhyay (Professor)	Biochemistry, Microbiology, R-DNA Technology	Branch intake	NA
8		7th	Industrial Biotechnology	(Prog Elective 3)	BT108211BT	Dr. Pratima Gupta (Professor)	Microbial Technology , Enzyme Technology, Plant and Animal biotechnology	Branch intake	NA

Chemical Engineering									
1	Chemical Engineering	V	Industrial Economics and Management	OPEN	CH105301CH	Dr. B. Mazumdar	--	80	Department student should be given first preference. If more than the required numbers are applying the scrutiny shall be based on marks
2		V	Material Technology	Program Elective	CH105201CH	Dr.M.S. Gaikwad	--	80	
3		VII	Plant Design and Costing	Program Elective	CH107201CH	Temporary faculty	--	80	
4		VII	Petroleum Refining Engineering	Program Elective	CH107251CH	Dr.A.K. Poonia	--	80	
5		VII	Process Safety and Hazard Management	OPEN	CH107301CH	Temporary faculty	--	95	

Civil Engineering									
1	Civil	5	Project Planning and Management	Open Elective-I	CV105301CV	Dr.Supriya Pal, Temporary Faculty	No	110	
2		5	Geotechnical Engineering-II	Program Elective-I	CV105201CV	Dr. L.K. Yadu, Professor	Geotechnical Engineering-I	57	
3		5	Modern Surveying Techniques	Program Elective-I	CV105202CV	Dr. A.D. Prasad, Assistant Professor	Surveying	40	
4		7	Urban Hydrology	Open Elective-I	CV107301CV	Dr.Chandan K Singh, Assistant Professor	No	110	
5		7	Irrigation & Hydraulic Structures max. 40	Program Elective-I	CV107201CV	Dr.Ishtiyah Ahmed, Assistant Professor	Fluid Mechnaics	40	
6		7	Seismic Design of Buildings	Program Elective-I	CV107202CV	Dr.Govardhan Bhat, Assistant Professor	No		
7		7	Probabilistic approaches in Civil engineering	Program Elective-II	CV107203CV	Dr.VikasVidhyarthi, Assistant professor	No		
8		7	Advanced Design of steel structures	Program Elective-II	CV107251CV	Dr.Alfia Bano, Assistant Professor	Design of Steel Structures	40	
9		7	Intelligent Transportation Systems	Program Elective-II	CV107252CV	Dr. Sunny Deol G, Assistant professor	Highway and Railway Engg.	50	

Computer Science and Engineering									
1	CS&E	5th	Natural Language Processing	Program Elective-I	CS105201CS	Dr. Jitendra Kumar Rout	Basics of Machine Learning	CSE	
2		5th	Advanced computer Architecture	Program Elective-I	CS105202CS	Dr. Sonu Yadav	Computer System Architecture	CSE	
3		5th	Data Science	Open Elective -I	CS105302CS	Dr. Deepak Singh	NIL	200	CPI for non CSE Branch
4		7th	Block Chain Technology	Program Elective-IV	CS107204CS	Dr. Preeti Chandrakar	Cryptography	CSE	
5		7th	Reinforcement Learning	Program Elective-V	CS108205CS	Dr. Pradeep Singh	Machine Learning	CSE	
6		7th	Graph Theory	Program Elective-V	CS108204CS	Dr. Shailendra Kumar Tripathi	NIL	CSE	
7		7th	Internet of Things	Open Elective -III	CS107302CS	Dr. K Jairam Naik	Computer Networks	120	CPI for non CSE Branch
8		7th	Advanced Machine Learning	Open Elective -III	CS107305CS	Dr. Karnati Mohan	Probability and statistics	120	CPI for non CSE Branch

Computer Applications									
1	MCA	V	Cloud Computing	Program Elective	CA405203CA	Dr. Manju Pandey, Associate Professor	NIL	110	NIL
2			Mobile Computing	Program Elective	CA405206CA	Dr. Mithilesh Atulkar, Professor	NIL	110	NIL
3			Swarm Intelligence & Evolutionary Algorithms	Program Elective	CA405204CA	Dr. Naeem Ahmad, Assistant Professor	Knowledge of complexity classes and C Programming	110	NIL
4			Pattern Recognition	Open Elective	CA405302CA	Dr. Dibakar Saha, Assistant Professor	AI & Machine Learning	135	Merit basis

### Humanities and Social Sciences

1	HSS	5th	Inclusive Leadership and Effective Communication	Open Elective	HS105301HS	Dr. Anoop Kumar Tiwari, Assistant Professor	Under graduation	50	Merit basis
2		5th	Introduction to Linguistics	Open Elective	HS105302HS	Dr. Shashikanta Tarai, Assistant Professor	Under graduation	50	Merit basis
3		5th	Introduction to Sociology	Open Elective	HS105304HS	Dr. Moksha Singh, Assistant Professor	Under graduation	50	Merit basis
4		5th	An Introduction to Business Management	Open Elective	HS105306HS	Dr. Chetna Sharma Rajput, Assistant Professor	Under graduation	50	Merit basis
5		5th	Oral & Written Communication Skills (Includes a Minor Project)	Open Elective	HS105314HS	Dr. Y. Vijaya Babu Assistant Professor	Under graduation	50	Merit basis
6		7th	Human Rights & Human Values	Open Elective	HS107311HS	Dr. Moksha Singh Assistant Professor	Under graduation	50	Merit basis
7		7th	Advanced Entrepreneurship for Engineers	Open Elective	HS117313HS	Dr. Saurabh Gupta	Passed Basic Entrepreneurship	50	

### Electrical Engineering

1	Electrical Engineering	V	Digital Electronics & Embedded Systems	Program Elective	EL105202EL	Dr. Varsha Singh, Asst. Professor	NIL	120	
2		V	Introduction To AI and ML	Program Elective	EL105203EL	Dr. Narendra Londhe , Professor	NIL	120	
3		V	Digital System Design	Open Elective	EL105303EI	Dr. Sachin Jain , Professor	NIL	130	
4		VII	Smart Grid Technology	Program Elective	EL107203EL	Dr. Varsha Singh, Asst. Professor	Power system Analysis, Power System Protection & Switchgear	120	
5		VII	Power Converters for Electric Vehicle	Program Elective	EL107209EL	Dr. Lalit Kumar Sahu, Asst. Professor		120	
6		VII	Renewable and Distributed Energy Systems	Open Elective	EL107304EL	Dr. Ebha Koley, Associate Professor	Basic Electrical Engineering	130	

### Electronics and Communication Engineering

1	ECE	5 <sup>TH</sup>	Operating systems	Program	EC105201EC	Prof. Shrish Verma			
2		5 <sup>TH</sup>	Optimization techniques	Program	EC105202EC	Dr. Mayur Katwe			
3		5 <sup>TH</sup>	Semiconductor Devices and IC Technology	Open	EC105301EC	Dr. Chitrakant Sahu		140	Min 7.5 CPI for non-ECE students.
4		5 <sup>TH</sup>	Optoelectronics Components and Devices	Open	EC105302EC	Dr. DeboraJ Muchahary		140	Min 7.5 CPI for non-ECE students.
5		7 <sup>TH</sup>	Introduction to Deep Learning	Program	EC107201EC	Dr. Toshan Meenpal			
6		7 <sup>TH</sup>	Low power circuit design	Program	EC107204EC	Dr. Sukeshni Tirkey			
7		7 <sup>TH</sup>	Analog IC Design	Program	EC107208EC	Dr. Alok Naugarhiya			
8		7 <sup>TH</sup>	Design Verification and Testing of VLSI Circuits	Program	EC107207EC	Dr. Ashish Kumar			
9		7 <sup>TH</sup>	Real time embedded systems	Open	EC107301EC	Dr. B. Acharya		140	Min 7.5 CPI for non-ECE students.
10		7 <sup>TH</sup>	Nanoelectronics	Open	EC107303EC	Dr. Kaushal Nigam		140	Min 7.5 CPI for non-ECE students.

### Information Technology

1	Information Technology	5	Information Theory and Coding	Program	IT105201IT	Dr. Tirath Prasad Sahu, Assistant Professor		120	
2		5	Digital Image Processing	Open	IT105301IT	Dr. Rekh Ram Janghel, Assistant Professor	Computational Mathematics, Digital and Logic Design	140	>=8.5 CPI for other branch
3		7	Text Mining	Program	EXX4	Dr. Tirath Prasad Sahu, Assistant Professor		120	
4		7	Adhoc & Sensor Network	Program	EXX4	Dr. Pavan Kumar Mishra, Assistant Professor		120	
5		7	Quantum Machine Learning	Program	EXX5	Dr. Kapil Kumar Soni, Assistant Professor		120	

6	7	Neural Network and Fuzzy Logic	Open	OXX3	Dr. Satya Prakash Sahu, Associate Professor	Mathematics, Discrete Structures, Fundamental of Computing	140	>=8.5 CPI for other branch
7	7	Computer Vision	Open	OXX3	Dr. Suwendu Rup, Associate Professor	Image Processing, Data Structure, Fundamental of Computing	140	>=8.5 CPI for other branch

### Mechanical Engineering

1	V	Industrial Engineering & Management	Program Elective-I	ME105202ME	Dr. M. S. Rajput	Nil	60	CPI
2	V	Fluid Mechanics II- Fluid Machinery	Program Elective-I	ME105204ME	Prof. G. K. Sahu	Nil	60	CPI
3	V	Measurement and Control	Program Elective-II	ME105212ME	Dr. R. K. Sahu	Basic Electrical and Mechanical Engineering,	60	CPI
4	V	Dynamics and Vibration	Program Elective-II	ME105213ME	Dr. R. S. Kumar	Physics, Engineering Mechanics and Kinematics of Machines	60	CPI
5	V	Composite Materials and Mechanics	Open Elective-I	ME105302ME	Dr. Srinivasu G	Nil	130	CPI
6	V	Design Thinking and Production Innovation	Open Elective-I	ME105304ME	Dr. N. V. Swamy Naidu	Nil	130	CPI
7	V	Smart Manufacturing	Open Elective-I	ME105305ME	Dr. M. K. Pradhan	Nil	130	CPI
8	VII	Finite Element Method	Program Elective-V	ME107204ME	Dr. S. Bhowmick	Nil	120	CPI
9	VII	Power Plant Engineerin	Program Elective-VI	ME107213ME	Dr. R. k. Yadav	Strength of Materials, Fluid Mechanics, Machine Design, Engineering Mechanics, Material science and engineering mathematics	60	CPI
10	VII	Advanced Artificial Intelligence and Machine Learning for Mechanical Engineers	Program Elective-VI	ME107215ME	Dr. Srinivasu G	Artificial Intelligence and Machine Learning for Mechanical Engineers	60	CPI
11	VII	Air Pollution Control	Open Elective-III	ME107301ME	Dr. S. L. Sinha	Nil	130	CPI
12	VII	Industry 5.0 for Engineers	Open Elective-III	ME107304ME	Dr. Sanjeev Kumar	Nil	130	CPI

### Mining Engineering

1	5	Mine Hazards and Rescue	Program	MI105201MI	Dr. M. D. Patel, Associate Professor			
2	5	Novel Methods of Mining	Program	MI105202MI	Prof. B. R. Parate, Associate Professor			
3	5	Remote Sensing & Geographic Information Systems	Open	MI105301MI	Dr. R. K. Jade, Associate Professor	Nil	110	Mining & Mechanical
4	7	Mine Legislation & Safety-II	Program	MI107201MI	Dr. A. K. Dash, Assistant Professor			
5	7	Mine Closure Planning	Program	MI107202MI	Prof. B. R. Parate, Associate Professor			
6	7	Mine Economics	Program	MI107251MI	Dr. R. K. Jade, Associate Professor			
7	7	Mine Systems Engineering	Program	MI107252MI	Dr. P. Y. Dhekne, Professor			
8	7	Bulk Material Handling	Open	MI107301MI	Dr. R. K. Jade, Associate Professor	Nil	110	Mining, Mechanical & Chemical

### Metallurgical & Material Engineering

1	5	Special Steels and Alloys	Program Elective	MM105201MM	Dr. M K Manoj; Asst Prof			
2	5	Light Metals and Alloys	Program Elective	MM105201MM				
3	5	Non-Destructive testing	Open Elective	MM105301MM	Dr. R. Bheekya Naik; Asst Prof		130	
4	5	Powder Metallurgy	Open Elective	MM105302MM	Dr. Naga Sruthi Neelam; Asst Prof		130	
5	7	Introduction to Electrical, Magnetic and Optical Materials	Program Elective	MM107201MM	Dr. Abhishek Sharma			
6	7	Additive Manufacturing of Materials	Program Elective	MM107203MM	Dr. Neha Gupta; Asst Prof			
7	7	X-ray Diffraction and Electron Microscopy	Open Elective	MM107301MM	Dr. Bhargavi Rani Anne; Asst Prof	Materials Characterization	130	