

Department wise Specialization

1	Applied Geology: Petroleum Geology, Coal Geology, Structural Geology, Mathematical Geology, Geostatistics, Sedimentology and Sequence Stratigraphy, Geomorphology, Quaternary Geology, Neotectonics, Paleontology, Organic Geochemistry, Igneous, Metamorphic Petrology, Marine Geology, Economic Geology, Mineral Exploration, Engineering Geology, Hydrogeology, Remote Sensing and GIS, Nanotechnology in Geosciences, Artificial Intelligence (AI) and Machine Learning (ML) in Geosciences.
2	Applied Geophysics: Earth and Planetary Science, Gravity and Magnetic Methods, Geophysical Signal Processing, Seismic Methods, Well Logging, Electromagnetic Methods, Electrical Methods, Remote Sensing, Seismology, Magneto-telluric Methods, Atmospheric Sciences, Marine Geophysics and Physical Oceanography.
3	Chemical Engineering: Process Systems Engineering and Control, Transport and Separation Processes Modelling and Simulation, Chemical Engineering Thermodynamics, Petroleum Refining and Petrochemicals, Polymer Engineering, Energy Systems Engineering, Coal to Chemicals, Process Integration, Process and Equipment Design, Molecular Simulation, Electrochemical Engineering Membrane Science & Engineering, Industrial, Occupational & Process Safety, Advance Materials, Colloids & Interface Science, Multiphase Reactors
4	Chemistry: Physical Chemistry, Theoretical Chemistry, Computational Chemistry, Medicinal Chemistry, Organic Chemistry, Inorganic Chemistry, Analytical Chemistry, Biochemistry, Pharmaceutical Science / Engineering.
5	Civil Engineering: Transportation Engineering, Structural Engineering, Water Resource Engineering, Geotechnical Engineering.
6	Computer Science and Engineering: Data Mining, Machine Learning, Embedded Systems, VLSI Design and Testing, Artificial Intelligence, Language Processor, Big Data Analytics, Complexity Theory, Computational Geometry, Theoretical Computer Science, Information Retrieval, Computer Networks, Image Processing, Internet of Things(IoT), Information Security, Game Theory, Principle of Programming Languages, Computer Architecture, Computer Vision, Cloud and Fog Computing, High Performance Computing, Optimization, Wireless Communications, or any relevant areas of Computer Science & Engineering.
7	Electrical Engineering: Measurement, Instrumentation, Control systems, Electrical Machines, Power systems, Electrical Drives, Power Electronics, High Voltage, Energy Systems, Electronic Devices, Micro Electronics, Opto Electronics, Signal Processing & Any other subjects relevant to Electrical Engineering.
8	Electronics Engineering: Microelectronics & VLSI, Signal Processing & Communication Networks, Embedded Systems, RF and Microwave Engineering, Photonics & Optoelectronics, Artificial Intelligence.
9	Environmental Science & Engineering: B.Tech / B.E. in Environmental / Civil / Chemical / Mining / Biotechnology with M.Tech in Environmental / Civil /Chemical & PhD in aforementioned areas with specialization in Air Pollution, Noise Pollution, Atmospheric Science & Climate Change, Solid and Hazardous Waste Management, Environmental Biotechnology, Remote Sensing & GIS, Groundwater and Hydrology, Contaminants Transport, Environment System Optimization & Modelling and other related Areas of Concerned.
10	Fuel, Minerals and Metallurgical Engineering: Mineral processing: Ore processing and Coal preparation, Metal extraction processes, Modeling, Simulation and Design, Waste processing and utilization, Engineering Metallurgy, Physical Metallurgy, Mechanical Metallurgy, Corrosion, Solid fuel processing and utilization.
11	Humanities and Social Sciences: ELT, Linguistics, Philosophy, Social Ecology, Psychology, Political Science, Public Policy, Public Health/ Health Management, Development Studies and allied areas.
12	Mathematics & Computing: All relevant areas of Pure Mathematics, Applied Mathematics, Statistics, Operation Research, Theoretical Computer Science.
13	Mechanical Engineering: Thermal Engineering- Experimental fluid mechanics, CFD, Renewable energy resources, Mini/micro-scale refrigeration, Conventional and non-conventional refrigeration, Cryogenic, Energy storage, Gas turbines and Propulsion, Turbomachinery, Internal combustion engines, Micro and Nano fluidics, Interfacial and Multi-phase flows, Bio-fluid mechanics and heat transfer, Combustion, Complex fluids, Interfacial heat transfer, Thermal hydraulics, Fluid-structure interaction, Multi-scale and Multi-physics Simulations. Machine Design- Robotics, Multibody & Non-linear

	Dynamics, Intelligent Control, and Mechatronics, Vibration, and Acoustics, Material modelling across Multiple Scales, Computer Aided Design, Fracture Mechanics, Bio-Mechanics, Automotive Engineering, Fluid Power, System identification, Experimental Mechanics, Tribology. Manufacturing Engineering /Production Engineering/Industrial Engineering -Metal Casting, Metal Cutting and Grinding, Quality Engineering, Additive Manufacturing, Non-Conventional Manufacturing, Manufacturing Systems (CAD/CAM, CIMS), Metal Forming, Joining Technologies, Tribology, MEMS, Metrology
14	Managements Studies: Accounting & Finance, Economics, Operations Management, Human Resource Management, Marketing Management, Business Analytics, Economics, Finance & General Management.
15	Mining Engineering: B.Tech / B.E / B.Sc Engineering in Mining Engineering / Opencast Mining , Surface Mining with M.Tech /Ph.D in Mining Engineering/ Opencast Mining/ Surface Mining, Underground Coal Mining, Underground Metal Mining, Mine Planning & Design, Rock Excavation Engineering, Tunnelling & Underground Space Technology, Geomatics & Mine Surveying , GIS & Remote Sensing, Geology, Rock Mechanics /Geo-mechanics, Geotechnical Engineering. Mine System Engineering, Operation Research, Mine Ventilation, Environmental Engineering, Environmental Science & Engineering, Mineral Economics/ Geo-statistics, Mine Safety Legislation and Management, Mine Safety Engineering, Occupational Health & Ergonomics, Mine Automation, Mine Planning, Computer Application in Mining, Application of Artificial Intelligence/ Data Analytics and Mining Machinery B.Tech /B.E / B.Sc Engineering in Civil Engineering with M.Tech /Ph.D in Mining Engineering/ Opencast Mining/ Surface Mining , Underground Coal Mining, Underground Metal Mining, Geomatics /GIS and Remote Sensing , Tunnelling & Underground Space Technology, Geomatics & Mine Surveying, Geology / Geotechnical Engineering
16	Mining Machinery Engineering: Mining Machinery Engineering, Engineering Design, CAD, CAM, Maintenance Engineering, Tribology, Automobile Engineering, Material Science, Reliability Engineering, Safety Engineering, Automation, Manufacturing, Mine Electrical Engineering, Fluid Power Engineering, Thermal Engineering, Electrical Machines, Power Electronics, Power System Engineering, Instrumentation, Mechatronics, Robotics, Automation and control, Artificial Intelligent and other related areas.
17	Petroleum Engineering: Petroleum Geology, Geomechanics and Hydraulic Fracturing, Drilling Engineering, Reservoir Engineering, Petroleum Production Operations, Pipeline Engineering, Modeling and simulation (Drilling & Production), Petroleum Economics, Unconventional Energy Resources, Oil & Gas marketing & transportation, Well logging, Offshore Drilling and Petroleum Production Practices, Enhanced Oil Recovery, Gas and Oil Well Testing.
18	Physics: Nuclear Physics, High Energy Physics, Biophysics, Optics, Astrophysics, Cosmology, Plasma Physics, Condensed Matter Physics, Quantum Computation, Atomic Molecular and Laser Physics.