Details of Desired Specializations required for Recruitment (2024)

S. No.	Name of the Department(s)	Desired Specialization
1.	**Applied Geology**	Mineral Exploration and Mining Geology, Stratigraphy and Palaeontology, Mineralogy and Geochemistry
2.	**Architecture and Planning**	**Architecture-** Architecture, Urban Design, Sustainable Architecture, Landscape Architecture, Architectural Conservation, GIS, Digital Architecture, Indian Architectural Knowledge. **Planning-** Housing, Transportation Planning, Urban Planning / City Planning / Town Planning, Regional Planning. **Others-** Building Science and Technology, Real Estate, Urban Spatial Analytics, Built Environment or any other related field.
3.	**Biotechnology**	Immunology, Metabolic Engineering, Computational Biology, System Biology, Cell Signalling, Food Biotechnology, Industrial Biotechnology.
4.	**Biomedical Engineering**	Biomedical, Instrumentation, Control system, Medical Device Design
5.	**Chemical Engineering**	Machine Learning, Multiphase flows, Design and synthesis of nanostructured materials, Hydrogen production, CO_2 capturing, Multiphase Flows, Molecular Simulations, Air Pollution; Gas Cleanup, Sustainable Hydrogen and Fuel Cell Technology, Electrochemical and Chemiresistive Sensors, Development of multiscale simulation techniques, Material Informatics for energy applications, Drug Delivery, Nano-Composites, Microfluidics, Granular Flows, Molecular Simulation, Nano-Composites, Nanoparticles
6.	**Chemistry**	Inorganic Chemistry; Organic Chemistry; Physical Chemistry; Analytical Chemistry
7.	**Civil Engineering**	Transportation Engineering, Geotech Engineering, Environmental Engineering, Structural Engineering, Construction Management
8.	**Computer Science and Engineering**	Quantum Computing, Autonomous Intelligent Systems, Scientific Computing, Formal Methods and Static Analysis, Embedded and Cyber-Physical Systems, Parallel and Distributed Computing and Systems, Networks, Databases and Data Analytics, Human Computer Interaction, Collaborative Computing and Computational Neuroscience. Outstanding candidates in other areas of Computer Science can also be considered.
9.	**Computer Application**	Swarm Intelligence & Evolutionary Algorithms, Financial Computing, Predictive Modelling
10.	**Electronics and Communication Engineering**	Signal Processing, Image/Video Processing, Computer Vision, Microwave, Antenna Design, Embedded Systems with focus in Robotics and Communication.
11.	**Electrical Engineering**	Control system, Measurement and Instrumentation, Control and Automation, Vehicular Technology, Energy Conversion and Storage Technologies, AI and ML.
12.	**HSS**	Linguistics - Linguistics and Languages; Applied Linguistics English Literature, British Literature, Regional Literature, Indian Writing in English Communication Skills, ELT Sociology and Social Sciences - Social Change and Social Justice
13.	**Information Technology**	Natural Language Processing, Theoretical Computer Science, Intelligent Internet of Things, Computational Linguistics, Computational Biology

14.	**Metallurgical and Materials Engineering**	Extractive Metallurgy (Ferrous and Nonferrous), Metallurgical Waste Management and Recovery of Metals and Alloys, Mechanical Metallurgy, Metallurgical Thermodynamics and Kinetics, Transport Phenomena, Computational Materials Modelling and Simulation (FEM, DFT, MD in Materials Application), AI/ML in Materials and Metallurgical Applications, Magnetic and Electronic Materials, Nanomaterials, Electrometallurgy and Corrosion, Materials in Additive Manufacturing, Energy Materials, Surface Engineering and Coating Technology, Specialization not restricted to but any relevant areas of specialization related to Metallurgical and Materials Engineering.
15..	**Mathematics**	Complex Analysis, Topology, Measure Theory, Differential Geometry, Graph Theory
16.	**Mechanical Engineering**	Robotics, Alternative Energy Technologies and Energy Storage, Multi-Phase Flows, Microfluidics, Reliability Engineering, Industry 4.0 Technologies, High Performance Computing and AI, Physics Informed Neural Networks, Human Resource and Organizational Behavior
17.	**Mining Engineering**	Rock Mechanics; Mine Surveying and Geomatics; Blasting Technology; Strata Control; Mine Environmental Engineering; Mine Planning and Design; Underground Coal and Metal Mining Methods; Surface Mining; Mine Safety and Management; Numerical Modeling as applied to Mining Engineering
18.	**Physics**	Photonics, Condensed Matter Physics, High Energy Physics, Atomic and Molecular Physics, Low Temperature Physics