

Annexure II

Details of desired specializations required for Assistant Professors, NIT Raipur

| S.No. | Name of the Department | Desired Specialization |
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| 1 | Applied Geology | Mineralogy and Geochemistry, Sedimentary Petrology, Economic Geology, Stratigraphy and Paleontology, Mineral Exploration, Engineering Geology |
| 2 | Biomedical Engineering | Biomedical Device Design, Bioelectronics, Biomedical Instrumentation, Biosensors, Experimental Brain Computer Interface, Telemedicine, Rehabilitation Engineering. Note: One of the essential degrees as mentioned in point no. 5 (Common Essential educational requirements) should be in Bio-Medical Engineering. |
| 3 | Civil | Environmental Engineering, Transportation Engineering, Geotechnical Engineering and Structural Engineering |
| 4 | Computer Science and Engineering | Specializations: Artificial Intelligence, Machine Learning, Data Science, Database and Data Analytics, Big Data, Computer Architecture and System Design, Software Systems and Software Engineering, Computer Vision, Wireless Sensor Networks, Image Processing, Automata Formal Languages, Parallel processing, Compiler Design, Algorithms, Information Security, Data Mining, High performing computing, Cloud Computing, IoT, Evolutionary Computing Essential Qualification: B.Tech./B.E. or any other equivalent degree in Computer Science and Engineering/ Information Technology AND M.Tech./ME/MS or any equivalent degree in Computer Science and Engineering/ Information Technology/ any relevant discipline AND Ph.D. in relevant discipline |
| 5 | Electrical | Measurement & Instrumentation, Control & Automation, Vehicular Technology, Energy Conversion and Storage Technologies, Circuits and Systems, Signal Processing & Computer Vision, Electrical Machines and Drives and allied areas of Electrical Engineering. |
| 6 | Electronics and Communication | VLSI Architecture design, DSP, DSP hardware design, Image processing, Microwave & RF Design and Engineering., Artificial Intelligence & Machine learning, Data communication, Computer communication networking, Communication Engineering, WSN, Wireless communication, Optical communication and devices, and Information theory |
| 7 | HSS | English Literature, American Literature, Indian Writings in English Literature. |
| 8 | Information Technology | Theoretical Computer Science, Data Science, Cyber Security, Computer Vision, Artificial Intelligence and Machine Learning, Natural Language Processing, Embedded System and IoT, Next Generation Networks, Natural Computing, Data Modeling. |
| 9 | Mathematics | Real Analysis, Complex Analysis, Functional Analysis, Numerical Linear Algebra, Topology, Number Theory, Harmonic Analysis, Partial Differential Equation. |
| 10 | MCA | Data Mining, Network & Cyber Security, Wireless Sensor Networks, Mobile & Pervasive Computing, Parallel & Distributed Computing, IoT & Cloud Computing, Computer Vision and Image Processing, Natural Language Processing, Theoretical Computer Science, Artificial Intelligence (Machine Learning, Deep Learning, Soft Computing etc.), Big Data Processing, Decision Support Systems, Computer networks, Optimization, Information Security, Algorithms |

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| 11 | Mechanical | Industrial Engineering, Ergonomics and Industrial design, Robotics, Machine Design, Thermal Engineering, Renewable Energy sources, Production Engineering, Manufacturing System, CAD-CAM, Solid Mechanics, Fluid Mechanics, Heat Transfer, Refrigeration and Air Conditioning. |
| 12 | Metallurgical and Material Engineering | Process Metallurgy, Transport Phenomena, Metallurgical Thermodynamics and kinetics, Non-Ferrous extractive metallurgy, Ferrous extractive metallurgy and steel technology, Computational Materials Science, Process Modeling and Simulation, Artificial Intelligence and Machine Learning in Materials Engineering, Additive Manufacturing, Electronic materials, Nanomaterials, and nanotechnology, Electrometallurgy and Corrosion, Physical and Mechanical Metallurgy. |

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