

Doctoral Programs (Ph.D.): JUET, GUNA

The Ph.D. programs are available in various specializations such as Computer Science and Engineering, Electronics and Communication Engineering, Civil Engineering, Humanities & Social Sciences, Mathematics, Chemical Engineering, Mechanical Engineering, Chemistry & Physics. The scholars are required to take up intensive research work under the guidance of a supervisor on a specific problem for a minimum duration as specified. The research work is expected to result in new findings contributing to the knowledge in the chosen field. The doctoral research program gives an opportunity to students to demonstrate their analytical, innovative and independent thinking leading to creativity and application of knowledge. The scholars are required to give semester end presentation of research progress regularly and publish their work. Finally, they are required to submit the thesis embodying their research findings for the awarding of the Ph.D. degree. They are also required to take part in some advanced level course work.

Electronics & Communication Engineering

Digital Signal Processing, Multi-dimensional and Multi-rate Signal Processing, Image Processing, Wavelet Analysis and Pattern Recognition, Integral Transforms, Wireless Communication, Mobile communication, Digital Communication, Multicarrier Communication Systems, Soft Computing, Neural Networks, VLSI Design, Renewable Energy, Micro-strip Antenna.

Computer Science & Engineering

Network Communication, Grid Computing, Cloud Computing, Image Processing, Pattern Recognition, Image Security, Software Engineering, Artificial Intelligence, Text mining, Big Data Analytics.

Civil Engineering

Concrete Technology, Transportation Engineering, Geotechnical Engineering, Hydraulics & Water Resources Engineering.

Chemical Engineering

Treatment of volatile organic compounds (VOCs), Photocatalysis, Modeling and Simulation of industrial processes, Recovery of precious metals from spent catalysts/e-waste, Process intensification studies, Enzyme recovery, Membrane processes. Chemical reaction engineering, Heterogeneous catalysis, Industrial pollution abatement, membrane processes for recovery of precious metals from industrial waste and industrial waste water treatment using low cost adsorbents.

Mechanical Engineering

Dynamics of Machine Tools, Machine Design and Vibration Analysis, Condition Monitoring and Fault Diagnosis of Machine Structures, Tool Vibration Analysis of Machine Tools, CAD, Additive Manufacturing, CAD/CAM, Advanced Machining Processes (Laser Beam Machining, Electro Discharge Machining, etc.), Micro-machining process, Computational Fluid dynamics, Heat and Mass Transfer, Refrigeration and Air Conditioning, Solar thermal Applications, Renewable Energy and Solar Water Desalination.

Physics

Nanomaterials, energy storage devices and quantum optics.

Mathematics

Fluid mechanics, Information Theory and its Applications, Fuzzy sets and logic & Fuzzy information measures.

Chemistry

Novel Surfactants, Oleochemicals, Polymer Chemistry, Environmental Sciences, Natural Products.

Humanities and Social Sciences

Human resource management & behavioural studies, economics and human behaviour at work place, e-commerce, marketing, Indian ethos.