

Department-wise Research areas

Department of Bio-Technology	Department of Chemical Engineering
<ul style="list-style-type: none"> • Biotechnology/ Industrial Biotechnology • Food and Biochemical Engineering/ Bioprocess Engineering/ Bioprocess Technology • Biopharmaceutical Technology/ Bioinformatics • Nano-science and Engineering • Industrial Biotechnology • Enzyme & Fermentation Technology • Downstream processing <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of engineering.</p>	<ul style="list-style-type: none"> • Phase Change materials • Synthesis and Applications of Nanoparticles • Interfacial Science • Environmental Engineering • Inorganic Membranes • Fruit Juice Clarification • Wastewater Treatment • Bio-Separations <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of engineering.</p>
Dept. of Civil Engineering	Dept. of Computer Science & Engineering
<ul style="list-style-type: none"> • Ground Improvement Techniques • Soil Dynamics and Geotechnical Earthquake Engineering • Foundation Systems for High- Rise Structures • Remote Sensing & GIS • GIS-based hydrological modelling • Soft computing techniques • Watershed modelling • Solid Waste Management • Environmental Geo-technics • Constitutive Modelling of Materials • Smart Materials and smart composites • Concrete Materials Characterization • Structural Health Monitoring • Impact of climate change on hydrological extremes • Surface Hydrology • Integrated watershed management • Fracture mechanics- Crack propagation analysis • Unsaturated Geomaterials • Thermal properties of soils • Sensors for soil crack monitoring <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of engineering.</p>	<ul style="list-style-type: none"> • Machine Learning for language, vision and control • Text/ Web Mining • Parallel and Distributed Algorithms • Randomized and Approximation Algorithms • Educational Data Mining • Deep Learning for Vision and NLP • Query Optimization for Big Data Computing • Privacy Preserving Data Mining • Big Data Analytics • Soft Computing • Cryptography & Information Security <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of engineering.</p>

Department of Electrical Engineering	Department of Electronics & Communication Engineering
<ul style="list-style-type: none"> • Power Electronics (DC - DC converters / High Power Factor converters / Multilevel Inverters) • Electric Drives (IM, PMSM, SRM, SynRM) • Design of Electric Machines • Renewable Energy and Microgrids (Off-grid / grid connected) • Hybrid and Electric Vehicles • Electric Vehicle Charging Infrastructure • Smart Grids Technologies and Integration • Artificial Intelligence & Machine Learning applications in Energy Systems / Power Systems • Modern Power Systems (Operation / Stability / Control / Optimization / Security) • DSP / FPGA based Real -Time Embedded Systems • Assistive Technologies <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of engineering.</p>	<ul style="list-style-type: none"> • VLSI Signal Processing • Microwave/Millimeter wave Filters • High Power Microwave Devices • Vacuum Electron Devices. • UAVs for wireless networks • Distributed sensor networks • Data fusion in IoT • Resource Allocation in Wireless Networks, • Information Theory, and • Theory of Error Control Codes. • Antennas • Microwave/ Millimeter Wave Sensors • Microwave/Millimeter Wave Circuits <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of engineering.</p>
Department of Mechanical Engineering	Dept. of Metallurgical & Materials Engineering
<ul style="list-style-type: none"> • IC Engines • Emissions Control • Refrigeration and Air-Conditioning • Energy Efficient Buildings • Renewable Energy • Alternative fuels • Energy Systems • Alternative Energy Systems • Manufacturing (Forming and Casting) • Advanced and Smart Materials (Ni, Ti, Steels and other materials) for Mechanical, Thermal and Electrical Applications • Development and Properties evaluation of Metal Matrix • Composites • Development and Properties evaluation of Polymer Matrix composites and Carbon - Carbon Composites • Advanced Materials • Additive Manufacturing • Advanced Machining Technologies • Manufacturing processes • Modelling and Simulation of Mechanical Systems <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of engineering.</p>	<ul style="list-style-type: none"> • Welding Metallurgy • Corrosion of Welds • High Temperature Materials • Composite Materials • Powder Metallurgy • ODS Steels • Materials Characterization • Energy (battery) materials • Carbon nanostructures • Biomaterials • Nano Technology • Material Genome Engineering <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of engineering.</p>

Department of Mathematics (School of Sciences)	Department of Physics (School of Sciences)
<ul style="list-style-type: none"> • Wave Mechanics • Elasto-dynamics • Differential Equation • Mathematical Physics • Dynamical Systems • Thermoelasticity <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of Science.</p>	<ul style="list-style-type: none"> • Experimental Condensed Matter • Strongly Correlated Electron Systems • Multifunctional Properties of Magnetic Oxides • Magnetism and Superconducting properties of bulk and thin films. • Multifunctional Properties of Bulk and Thin films of Heusler Compounds • Optical and Photonic Materials • Growth of Single crystals • Luminescent glasses • Nano Phosphor materials for white LED applications • Materials for Energy harvesting Applications <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of Science.</p>
Department of Chemistry (School of Sciences)	
<ul style="list-style-type: none"> • Synthetic methodologies • Peptide and polysaccharide based nanostructured materials • Molecular self-assembly • Corannulene chemistry • Synthesis of novel antimicrobial agents. • Glyconanoparticles <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of Science.</p>	
Department of English (School of Humanities & Management)	Department of Management (School of Humanities & Management)
<ul style="list-style-type: none"> • African American Theatre • First Nations Theatre • Diaspora Studies • Gender Studies <p>* Any other research topic of the candidate and the guide's interest pertaining to this branch of Humanities.</p>	<ul style="list-style-type: none"> • Human Resources • Finance • Operations • Public Relationship • Marketing • All other fields of Management • Data Analytics • Business Analytics <p>* Any other research topic of the candidate and the guide's interest pertaining to the branches of Management.</p>