DEPARTMENT WISE MAJOR AREAS OF RESEARCH

| Department | Research Areas |
|---------------------------|--|
| Civil Engineering | Environmental Geotechnics, Soil Structure Interaction, Ground Improvement, Expansive soils, Geosynthetics, Recycle Aggregates and pavement applications, Soft Clay Engineering, Constitutive modelling of soil behaviour, Seismic hazard Analysis, Soil Dynamics, Computational Fluid Dynamics (CFD), Environmental Fluid Mechanics, Water and Wastewater Treatment, Applications of geospatial technologies for water , environmental and transportation engineering, Web and open source based geospatial systems for rural and urban environments, Climate change impacts studies on natural and anthropogenic systems, Computational Mechanics & Structural Dynamics, Wavelets, Finite element Analysis, Fragility Analysis, Multi scale modeling, Fracture Mechanics Applications in Metals and Concrete, Earthquake Engineering, Rheology of concrete, Blast Design, Nano Reinforced composite Materials, Cement Micro structure, Molecular Dynamics, Disaster Mitigation, Agent Based modeling. Area Traffic Management Measures, Capacity Analysis of Highways, GIS for Transportation Mass Transportation Planning, Mixed Traffic Flow Modelling, Pavement Material Characterization, Pavement Performance Evaluation, Pedestrian Behavioral Analysis Transport Corridor Management, Road Safety, Urban Transportation Planning Self Compacting Concrete, Self Curing Concrete, Structural Health Monitoring, Recycled Aggregate for construction, Rehabilitation of atmoturee |
| Electrical Engineering | Real-Time Control of Power Systems, Artificial Neural Networks, Fuzzy Logic, Genetic Algorithm, PSO, Tabu & Simulated Annealing Technique applications for Power System, Distribution System Planning and Control, Reactive Power Planning and Control, Optimal Power Flows, Deregulated power systems, Nature and Bio- Inspired Algorithms for Power System Optimization Problems Power Quality/ Power System Protection/ Condition Monitoring / Power System Transients. Wind and Solar Energy Multilevel Inversion and Open-end winding induction motor drives Induction Heating Applications and LED Lighting Power Converters, Induction Motor Drives and Renewable Energy Systems Application of Optimization Techniques in Power Systems Technology based Entrepreneurship Development among Engineering students Restructured Power Systems and Renewable Energy Grid Integration Issues. |



| Department | Research Areas |
|-------------|---|
| | Design, Dynamics, Kinematics |
| | Entrepreneurship, Bio-fuels, Thermal engineering |
| | Solar Energy |
| | Rapid Prototyping, Supply Chain Management |
| | Conventional and Un-Conventional Machining, Rapid Prototyping, |
| | Metrology |
| | Industrial Engineering, Supply Chain Management |
| | IC Engines, Alternate Fuels, Emissions control and Renewable |
| | Sources of Energy |
| | Simulation, FMS, CNC Machines, Pull Systems. |
| | Alternate Fuels, Design of Air Car, Fuel Cell Car(Solar/Hydrogen), Engine Simulation |
| | Mechanical Behaviour of Materials, Manufacturing Processes |
| | Tribology, Design of Bearings, Finite Element Methods, Advanced |
| | Light Weight Composites |
| Mechanical | Friction Stir Welding, Friction Stir Processing, Electrical Discharge |
| Engineering | Machining, Stir Casting and TIG Welding |
| 8 - 8 | Vibration, Condition Monitoring. |
| | Production Engineering |
| | Thermal Engineering |
| | Alternate Fuels and Emissions, Heat Transfer, Refrigeration and Air |
| | Conditioning |
| | CAD/CAM/CIM, Rapid Prototyping, Bio-CAD, Bio-RP |
| | Metrology, Machining, Optimization Techniques, Computational |
| | Geometric Techniques. |
| | Nano-materials, Manufacturing, Mechatronics |
| | Metal Forming |
| | PEM Fuel Cell, Heat Transfer, IC Engines, Turbo Machines |
| | Heat Transfer, Refrigeration and Air conditioning, Nano-fluids |
| | Piezoelectric Energy Harvesting, Structural Health Monitoring, |
| | Engineering Design, Micro Air Vehicles. |
| | Geometric Modeling, Robotics |



| Department | Research Areas |
|---------------|--|
| | VLSI |
| | DSP Algorithms & Architecture |
| | Antennas, Sensor Networks |
| | Image Processing, , Networks and Microwave Antennas |
| | Instrumentation & Adaptive Signal Processing |
| | Wireless Sensor Networks |
| | Computer Networks |
| | Communication Networks |
| | Digital VLSI |
| Electronics & | Device Modelling |
| Communication | Signal Processing |
| Engineering | Networks, Radar Signal Processing |
| Engineering | Biomedical Signal Processing |
| | Analog & Mixed IC Design |
| | Smart Antennas Systems & Optimization Techniques |
| | VLSI Architectures |
| | Speaker Identification |
| | Antenna Arrays, Microwave Components, Neural Networks |
| | Low Power Analog IC Design, Low Power / Low Voltage ADC |
| | Wireless Channel Modelling |
| | Wideband Communication |
| | Extractive Metallurgy |
| | Corrosion and Removal of heavy metal ions from waste process solutions |
| | Process Metallurgy |
| | Sulphide Metallurgy |
| | Surface Engineering & Surface Coatings |
| Metallurgical | Powder Metallurgy & Ceramics |
| and Materials | Material Testing and Characterization |
| Engineering | Foundry Metallurgy |
| 8 8 | Deformation Behavior of Materials |
| | Fatigue and Fracture |
| | Recrystallisation and Texture |
| | Phase Transformations |
| | Nanomaterials |
| | Tribology |
| | Thermo-mechanical Processing |



| Department | Research Areas |
|-------------|---|
| | Fluidised Bed Cumbustion |
| | Micro reactors |
| | Fluidized Bed Drying |
| | Biological Wastewater treatment using fluidized bed bioreactor and |
| | Packed bed bioreactor |
| | Circulating fluidized Bed |
| | Modeling, simulation and optimization of chemical engineering processes |
| | Microreactors |
| | Hydrodynamics and RTD studies in a fluidized bed |
| Chemical | Process Intensification |
| Engineering | Nanotechnology |
| | Process control |
| | Nonlinear analysis, Modeling and control of waste water treatment |
| | plants |
| | Chemical Looping Combustion |
| | Fuel Cells |
| | Process Intensification |
| | Process control |
| | Multiphase Flow |
| | Sustainable energy technologies |
| | CFD |



| Department | Research Areas |
|---------------------------|---|
| | Optimization Techniques, Programming Languages, Parallel |
| | Computing |
| | Database management Systems, Distributed Databases, Data |
| | Warehousing and Data Mining |
| | Cryptography, Information Security, Secure Multi party Computation |
| | Neural Networks, Computational Intelligence, Machine Learning and |
| | Soft Computing |
| | Architectures and Coding infrastructures in Computer Networked, |
| | Service-oriented, Distributed, Secured, Cluster and Cloud Computing |
| Commentant | Environments in pursuit of Model Driven Framework-oriented |
| Computer | Systems and Applications Software. |
| Science & | Distributed Systems and Parallel Processing |
| Engineering | Data Mining and Data warehousing |
| | Cryptanalysis and Information Security |
| | Graphics & Multimedia, Software Engineering |
| | Bio-Informatics |
| | Database Systems, Data mining |
| | Computational neuroscience, Modeling and simulation, Machine |
| | learning and Artificial Intelligence |
| | Computer Vision and Image Processing |
| | Algorithms and Graph Theory |
| | Mobile Computing, Wireless Ad-hoc and Sensor Networks, |
| | Computer Networks, Cyber Physical Systems and Security |
| | Bioinformatics |
| | Environmental Biotechnology |
| | Downstream Processing |
| Biotechnology Mathematics | Bioprocess Engineering |
| | Metabolic Engineering |
| | Gene Therapy |
| | Molecular Parasitology |
| | Piecensors |
| | Gene Regulation |
| | Biofuels and Stem Cell Engineering |
| | Fluid Mechanics: Bio-Mechanics: Fluid Dynamics: Computational |
| | Methods Mathematical Modeling; Computational Fluid Dynamics; |
| | Numerical Analysis; Finite Element Method; Operations Research, |
| | Optimization and Statistics; Algebraic Coding Theory & |
| | Cryptography; Functional Analysis & Matrix Analysis/Operator |
| | Theory. |



| Department | Research Areas |
|-------------|---|
| | British and Commonwealth Literatures and ELT |
| | Bilingualism and bilingual education |
| | Genre analysis, Critical pedagogy, Cultural politics in language |
| | teaching |
| | Inclined to develop innovative and effective methods to improve |
| TT | reading and writing skills |
| Humanities | Interested in designing task based ESP courses based on learner |
| | needs. |
| | Well versed in designing self instructional materials for distance |
| | learners. |
| | Reflective teaching and Continuous Professional Development |
| | Academic writing skills |
| | Multiple intelligences - Visual Literacies |
| | Learner strategies, methods and behaviourist approaches to language |
| | learning |
| | Fiber Optic Sensors, Optoelectronic Devices & Sensing; |
| Physics | Nanomaterials, Electronic & Medical Instrumentation, Radiation |
| • | effects on biopolymers |
| | Kinatics and Machanisms of reactions |
| | Haterogeneous and nano estalusia Masonerous materials |
| | A nelutional Chamistry (Instrumental Methods of A nelusio) |
| | Analytical Chemistry(Instrumental Methods of Analysis) |
| | Separation Techniques |
| | Environmental Chemistry |
| | Heterocyclic Chemistry |
| | Bioorganic Chemistry |
| Chemistry | Electrochemical Biosensors |
| | Electro catalytic Nanomaterials for fuel cells |
| | Molecular Imprinted Polymers |
| | Synthesis and Biological Evaluation of Non-viral Gene Delivery |
| | Vectors |
| | Development Heterocyclic based Pharmaceuticals |
| | Synthesis of nanostructure and Nanocomposite materials |
| | Study of photo-catalytic activity and dielectric properties |
| | Organic Synthesis |
| | Medicinal Chemistry |
| | Molecular Modeling Spectroelectrochemistry Photogalyanics |
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| Calcard of | |
| School of | Human resources, Marketing Management, Finance, Economics |
| wianagement | |

