

Chemical Engineering	<p><b>1. Transport Phenomena &amp; Separation Processes</b>  Fluid mechanics, Computational fluid dynamics, Fluid-Structure interactions, Computational transport phenomena, Multiphase flow, Heat, Mass and Momentum transfer phenomena, Process and mechanical design of heat and mass transfer equipments, Size reduction, Classical and Advanced Separation processes, Cryogenics, Fluidization Engineering, Reactive transport in porous media, Colloidal and interfacial science.</p> <p><b>2. Chemical Reaction Engineering &amp; Thermodynamics</b>  Kinetics of single and multiple reactions, Ideal and non-ideal reactor operations and its design, Microreactors, Heterogeneous reactions, Phase equilibria, Thermodynamic properties estimation for ideal and nonideal fluids, Applied Thermodynamics, Statistical thermodynamics, Supercritical fluids.</p> <p><b>3. Material Science and Engineering</b>  Material structures (amorphous&amp;crystalline), Phase diagrams, Material Characterization, Failure analysis and Non-destructive testing, Metals and super alloys, Ceramics, Polymers and Composites, Semi and Super conductors, Biomaterials, Pulp and Paper, Materials for renewable energy, Development of foams, Corrosion and degradation of materials, Nanotechnology, Biomedical engineering.</p> <p><b>4. Environmental Engineering</b>  Water analysis, Classical and advanced water treatment, Air pollution control and modelling, Solid waste management and treatment, Health-Safety-Environment (OSHA, HAZOP, Risk analysis), Process Plant Safety, Environmental management systems, Life cycle assessment (LCA), Bioremediation, Nanotoxicology.</p> <p><b>5. Energy and Process System Engineering</b>  Renewable Energy Technologies, Carbon Capture and Sequestration, Energy integration analysis, Chemical Process Technologies, Process Design and Intensification, Process Modelling and Simulation, Process Control and Instrumentation, Process Optimization, Computational Process Engineering, High Performance Computing, Product Design and Development.</p> <p><b>6. Petroleum and Petrochemical Engineering</b>  Refinery operation &amp; design, Crude &amp; Product characterization, Petrochemicals, Energy from fossil fuel, Reservoir engineering and Oil recovery, Modelling and Simulation in petroleum refining, Petroleum economics.</p> <p><b>7. Biochemical Engineering</b>  Cell culture technology, Industrial biotechnology, Environmental biotechnology, Pharmaceutical &amp; Food Biotechnology, Biogeochemical interactions, Biofuels, Fermentation, Bioprocess engineering, Tissue Engineering, Biomaterials, Biometallurgy, Biokinetics and bioreactors.</p>