Graduate Program

Ph.D in Systems Engineering with Chemical Engineering Concentration:

At UL-Lafayette, we are proud to offer a unique opportunity for study through our Ph.D. program in Systems Engineering. This is a broad field that encompasses and manages the full spectrum of engineering disciplines. Students in this program pursue 24 hours of core coursework in systems engineering in addition to 24 hours of coursework in Chemical Engineering.

Systems Engineering involves the integration of multiple engineering disciplines into a team whose efforts result in a structured development process that proceeds from concept to production to operation. Some example systems include coastal ecosystems, water treatment facilities, deep-water drilling operations, biofuels production facilities, refineries, vehicle control systems, and utilities management.

Our program involves several unique aspects that will prepare our Ph.D. graduates to compete in the industry and academia. Students are required to have an industry member on their thesis committees and have Six Sigma training in their core curriculum. Students will also prepare an NSF-format proposal which will be evaluated as written and must be defended in an oral presentation as part of the qualifying examination.

For more information on our Ph.D. program in Systems Engineering, please visit our website: gradschool.louisiana.edu/graduate-programs/doctoral-degrees/systems-engineering-phd

MS in Chemical Engineering:

The College of Engineering at UL offers a Master of Science degree in Engineering with thesis and non-thesis options.

Guidelines for Acceptance:

Candidates for graduate study at UL should have a degree in chemical engineering or similar discipline. Applications will be comprehensively evaluated with the following guidelines:

Test scores: GRE Verbal>145, Quant > 155, Analytical>3.0 with a TOFEL > 81, and IELTS > 6.5

For the MS program:
- an overall cumulative GPA > 3.0 or a cumulative technical GPA over the last 60 undergraduate credit hours > 2.85.
- For the Ph.D. program:
- an overall cumulative GPA > 3.0.

Research Areas

- Synthesis/evaluation of heterogeneous and homogeneous catalysts to produce fuels and specialty chemicals.
- Physical and chemical processes to isolate products from microbial media.
- Anaerobic/aerobic bioprocessing techniques to generate specialty chemicals and feedstocks for fuels production.
- Process and cost modeling of algal biorefineries.
- Adding value to microbial by-products.
- Development of bioadsorbents to treat wastewaters from fracking operations
- Multifunctional platform for targeted drug delivery
- Nanograined stainless steel for hip and spinal implants.
- Light and high strength steels for transportation of oil and gas.
Faculty

Dr. Rakesh Bajpai, Endowed Chair
Dr. Bajpai is a Professor and holds the Endowed Chair in Bioprocessing. He has 24 years of experience in the area of bioprocessing.

Dr. William Chirdon, Grad. Coordinator
Dr. Chirdon has experience with FEM, heat transfer, thermal analysis, neural networks, cementitious composites, polymers, biomaterials, and developing co-products for bioprocessing industries.

Dr. Stephen Dufreche
Dr. Dufreche specializes in heterogeneous catalysis, alternative fuel production, and solvent extraction development. His current projects include renewable diesel production and creation of value-added products from glycerin.

Dr. Rafael Hernandez, Dept. Head
Dr. Hernandez’s research area is focused on the transformation of waste (wastewater, secondary sludge, and municipal solids) into biofuels and specialty chemicals, effectively changing wastewater treatment operations into biorefineries. He has also synthesized reductive/oxidative techniques to treat contaminated media.

Dr. Carl McIntyre
Dr. McIntyre specializes in the rheology of complex fluids, including emulsions and suspensions in electric and magnetic fields containing nanoparticles. Novel applications include smart fluids and the development of fluidic devices.

Dr. Devesh Misra, Endowed Chair
Dr. Misra specializes in nanotechnology, high strength steels with particular focus on processing-microstructure-property relationships. He has successfully applied nanotechnology to biomedical applications and uses state-of-the-art microscopy tools.

Dr. John Prindle
Dr. Prindle specializes in the design and development of commercial processes in the fine and specialty chemical areas and consults in renewable energy, energy efficiency, and carbon capture areas.

Dr. Ramalingam Subramaniam
Dr. Subramaniam’s research interests include bioprocessing, the generation of energy from waste material and heat streams as well as process design, modeling and simulation, and environmental engineering.

Dr. Mark Zappi, Dean of Engineering
Dr. Zappi is a Professor and Dean of the College of Engineering. He specializes in the areas of alternative energy, environmental remediation, and the fate of contaminants in the environment.

Dr. James Garber and Dr. James Reinhardt also serve as emeritus faculty.

Research Centers and Resources

UL has a variety of research centers and other resources which provide equipment, facilities, and human resources to our students and faculty in research:

Center for Structural and Functional Materials

Energy Institute

Microscopy Center

Manufacturing Extension Partnership of Louisiana (MEPOL)

Louisiana Accelerator Center

Application Process:
Interested students can apply online at gradschool.louisiana.edu. Application review begins as soon as all of the required materials are received.
- 3 letters of reference
- GRE scores
- TOEFL score (only for students without a U.S. degree)

Assistantships and Fee Waivers:
Graduate Assistantships cover tuition and may provide a monthly stipend in return for work on research projects or assisting professors with undergraduate course and laboratory instruction.

For more information:
Please visit our Chemical Engineering Department website http://chemical.louisiana.edu
our College of Engineering site http://engineering.louisiana.edu
or contact our Graduate Coordinator, Dr. William Chirdon, by e-mail at wchirdon@louisiana.edu