Research in Process Engineering

uOttawa

L'Université canadienne
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Université d'Ottawa
Faculté de génie

Génie chimique et biologique

University of Ottawa
Faculty of Engineering

Chemical and Biological Engineering

Photos courtesy of David Taylor

Process engineering is commonly a synonym for chemical engineering and focuses on the design, operation and maintenance of chemical and material manufacturing processes. Process engineering constitutes the specification, optimization, realization, and adjustment of the process applied to manufacture products. Process engineering and process engineers are found in a vast range of industries, such as the petrochemical, mineral processing, material, food, pharmaceutical and biotechnological industries. Process engineering also involves developing new processes, project engineering and troubleshooting.

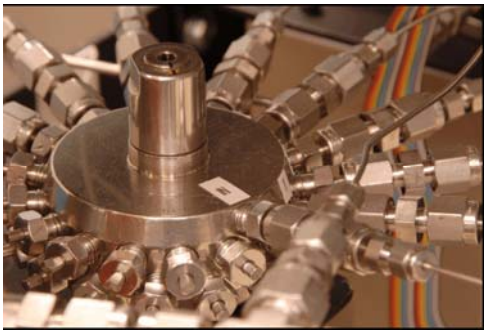
At the University of Ottawa, research in process engineering includes polymer reaction engineering, applied catalysis, adsorption processes, membrane processes, hybrid separation processes, enhanced oil recovery, biochemical processes, modeling, and optimization and control.

Experts

* Dr. Ben Anthony (Adjunct)
* Dr. Marc A. Dubé
* Dr. Kevin Kennedy
* Dr. Boguslaw Kruczek
* Dr. Christopher Lan
* Dr. Arturo Macchi
* Dr. Takeshi Matsuura (Emeritus)
* Dr. Poupak Mehrani
* Dr. David G. Taylor
* Dr. Marten Ternan (Adjunct)
* Dr. F. Handan Tezel
* Dr. Jules Thibault
* Dr. André Tremblay
* Dr. Jason Zhang

Partners

* Omnova Solutions Inc.
* EnPross Inc.
* ICPET – National Research Council
* Protein Scientific
* NRCan-Varennes
* CVRD Inco Ltd.
* AirScience
* Biophage Pharma



Some Current Projects

* In-line monitoring of Styrene/Butadiene rubber production
* Investigation of particle agglomeration and fouling due to electrostatic phenomena in gas-solid fluidized bed polymer reactors
* Development of a novel membrane reactor for biodiesel fuel production
* Data reconciliation and process control
* Multicriteria optimization
* Process modeling
* Transport phenomena in high-pressure multiphase reactors subject to foaming
* Transport phenomena of gas-liquid flow in microchannels
* Separation and purification of phytochemicals from plant biomass
* Microalgae cultivation system development for combined economic and environmental benefits
* Recombinant microbial cell fermentation for the high-level expression and production of protein products
* Robust design of chemical processes under uncertainty
* Development of a constant pressure testing system for continuous monitoring of very low gas flow rates
* Investigation of back permeation of gases in constant pressure systems used for membrane characterization
* Resistance to gas transport in high-vacuum tubes
* Development of hybrid distillation-adsorption separation processes
* Development of hybrid distillation-membrane separation processes
* Development of an adsorption process for the removal of organic materials from industrial streams
* Development of a novel process for the production of biodiesel from wastewater and flue gas using Algal Biotechnology
* Development of novel technology for protein recovery and purification
* Selective removal of electrolytes from aqueous solution using nanofiltration membranes
* Identification and production of novel alternative antimicrobials using food-grade genetic engineering technologies
* Kinetics of cell growth and recombinant protein expression of lactic acid bacteria, the most widely adopted food-grade microorganisms