

MECHANICAL ENGINEERING

The Department of Mechanical Engineering at Dalhousie University offers a strong programme at the post-graduate level designed to meet the needs of modern industry. Research areas include mechanisms, design, thermo-fluids, energy, dynamics, solid mechanics, composite materials, smart structures and control systems. Extensive experimental and computational facilities have been developed for all research areas.

The department consists of thirteen full-time faculty members, forty post-graduate students, and one hundred and twenty undergraduate students. Several research centres are affiliated with the Department:

CMVDR: Centre for Marine Vessel Development and Research

CREEDAC: Canadian Residential Energy End-Use Data & Analysis Centre

SMC: Smart Materials Centre

GRADUATE DEGREE PROGRAMMES

MENG

The Master of Engineering degree (MEng) is predominantly a coursework degree requiring seven courses plus graduate seminar plus a project. The MEng is a professionally-oriented terminal degree. Financial support is seldom available for MEng. This degree normally takes eighteen to twenty-four months to complete.

MASC

The Master of Applied Science degree (MAsc) involves four courses plus graduate seminar plus a research thesis. This type of degree normally takes at least twenty-four months to complete.

PHD

The degree of Doctor of Philosophy (PhD) is primarily a research degree usually requiring a MAsc for admission. The requirements are four courses plus graduate seminar and an original thesis. It normally takes 36 months to complete beyond the MAsc degree.

RESEARCH AREAS

- Fluid Mechanics (numerical modeling, two-phase flow, fluidised bed, CFD)
- Solid Mechanics (stress and strength analysis, modeling design and optimisation of composite materials and smart structures)
- Combustion & Environment (power generation)
- Energy and Heat Transfer (solar energy, energy conversion and management, heat exchanger design), energy modelling
- Mechanisms, vibrations
- Mechanical Design (design methodology, physical modeling, finite elements, biomedical engineering)
- CAD/CAM
- Micro-machines/MEMS
- Manufacturing
- Grinding
- Control Systems

THE FACULTY AND THEIR RESEARCH

Allen, P., Solar Thermal Energy Utilisation, Heat Exchangers, Heat Transfer

Basu, P., Air Pollution Control, Recycling, Heat Transfer, Boiler Design, Fluidised Bed Combustion

Bauer, R., Dynamics of Space Structures, Grinding

Chuang, J., Numerical Modeling of Nonlinear Free-Surface Flow, Computational Mechanics

Georgiades, A., Stress Analysis, Micromechanics of Smart Composites

Hubbard, T., MEMS - Micro Electro Mechanical Systems, Micromachining

Kalamkarov, A., Mechanics of Solids, Composite Materials and Smart Structures

Koksal, M., Fluidised Bed Systems, Modelling of Multiphase Flows

Kujath, M., Mechanisms, MEMS, Vibrations

Militzer, J., Computational Fluid Dynamics

Retallack, D., Process Simulation and Design, Design and Implementation of MIMO Control Systems

Ugursal, V. I., Residential Energy Consumption, Energy Conversion and Management

Warkentin, A., CAD/CAM, 5-axis Machining, Manufacturing, Grinding

COST OF STUDY AND FUNDING

Prospective students often desire an estimate of costs to study at the Faculty of Engineering. About \$15,000–\$17,000 (Canadian) is required for each twelve months of full-time study. Funds are limited and there is no guarantee that a student will obtain support for thesis research for graduate studies. The following sources of funds are available for graduate students: NSERC Scholarships and Assistantships (Canadian or Landed Immigrants only), Reid Scholarships, Research Assistantships, Teaching Assistantships, Faculty Member's Research Grants, Scholarships listed in the Calendar.

INQUIRIES

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