Collaborative Graduate Program in

Nuclear Engineering MEng

Why GRADUATE STUDIES in NUCLEAR ENGINEERING?

The University Network of Excellence in Nuclear Engineering (UNENE) is a Canadian based alliance of universities, nuclear power utilities, research, and regulatory agencies for the support and development of nuclear education, research, and development capability in Canadian universities.

UNENE is an industry-university partnership which supplies highly-qualified graduates, supports nuclear research, and creates respected university-based experts. Research and education are the two tools used in this mission. The UNENE Master's of Engineering (MEng) is the formal academic degree offered through the program.

The main purpose of UNENE is to assure a sustainable supply of qualified nuclear engineers and scientists to meet the current and future needs of the Canadian nuclear industry through university education, university-based training, and by encouraging young people to choose nuclear careers. The primary means of doing this are to establish new nuclear professorships in six Ontario universities and to enhance funding for nuclear research in selected universities in order to retain and sustain nuclear capability in the universities, now in danger of being lost. The Network organizes and delivers through its universities educational

programs, including the UNENE MEng, which is appropriate to students planning to enter the industry and to those already employed.

Program STRUCTURE and CURRICULUM

The UNENE M.Eng. is a joint-university program, course-based, consisting of 10 courses, or 8 courses plus a project. The courses span most of the specific science and engineering used in nuclear power. The project is normally co-sponsored by the student's employer and one of the participating universities. The M.Eng. is accredited by the Ontario Universities Council on Quality Assurance (OUCQA). Courses are graduate level in content and expectations. The courses are offered by McMaster, Queen's, Waterloo, Western, and the University of Ontario Institute of Technology. Each course is given on four alternate weekends, and consists of about 40 hours contact time plus 100 hours of course work. Students are formally evaluated via assignments, tests, and exams and their marks become part of their university academic record. The MEng is not like industry training; It is university education at the graduate level, with commensurate effort and accomplishments.

Core COURSES

- **UN 502** Nuclear Power Plant Systems and Operations
- **UN 802** Nuclear Reactor Physics
- **UN 803** Nuclear Reactor Safety Design
- **UN 804** Nuclear Reactor Heat Transport System Design

ELECTIVES (Take 6)

- **UN 501** Nuclear Fuel Management
- **UN 601** Control, Instrumentation & Electrical Systems
- **UN 602** Nuclear Fuel Waste Management
- **UN 603** Project Management for Nuclear Engineers
- **UN 701** Engineering Risk and Stability
- **UN 805** Introduction to Operational Health Physics
- **UN 806** Nuclear Fuel Engineering
- **UN 807** Power Plant Thermodynamics
- **UN 808** Reactor Chemistry & Corrosion
- **UN 901** Nuclear Materials

Queen's course numbering may differ compared with the course numbers listed above. Visit the UNENE website for full course descriptions:
unene.ca/education/courses

Queen's UNIVERSITY

GRADUATE STUDIES AND POSTDOCTORAL AFFAIRS

queensu.ca/grad-postdoc

Nuclear Engineering

Course INSTRUCTORS

- **Mark Daymond,** Queen's
- **Zhongwen Yao,** Queen's
- **Brian Ikeda,** UOIT
- **Sivaraman Vijayan,** UOIT
- **Adam Lipchitz,** UOIT
- **Eleodor Nichita,** UOIT
- **Victor Snell,** McMaster
- **Nik Popov,** McMaster
- **Ben Rouben,** McMaster
- **Jin Jiang,** Western
- **Keith Farndale,** McMaster
- **Dave Tucker,** McMaster
- **Mahesh Pandey,** Waterloo
- **Mikko Jyrkama,** Waterloo

Application FAQs

What do I need to know to APPLY?

REQUIREMENTS

Applicants must hold an honours baccalaureate degree in the field of engineering, science, or mathematics with an acceptable grade point average, set by the university where admission is sought, for entry into a Master's degree program in Engineering (typically B or 75% minimum).

Relevant work experience may be considered.

APPLICATIONS

Students may apply at any of the UNENE universities. For Queen's University, the Department of Mechanical and Materials Engineering is the sponsoring department. Please review the MME website for information on required documentation. Actual course delivery is not linked to the University where the student is registered – all students attend the same classroom, have the same professor, take the same exams etc. Once the student is enrolled as a graduate student at one of the UNENE universities, they will then be eligible to register for courses of their choosing as they are offered.

DEADLINES

There is no deadline for applications to the UNENE program. Applications are accepted at any time of the year.

What about FUNDING?

It is expected that most participants will receive full or partial financial sponsorship from their employer. UNENE industry employers have policies and procedures for approval and funding of education and training, and some have specific procedures for UNENE. Please consult your employer's internal web site, or ask your employer, for further details. Participants who do not have employer sponsorship are welcome to apply for admission and are expected to cover program costs personally.

TUITION AND FEES

The Universities set UNENE course fees. A one-time incidental fee is charged at the beginning of each academic year; this fee may vary between Universities. Fees are payable to the University at which the student is registered. Currently, Queen's tuition and fees for one (1) UNENE course is $2,430 plus a student levy of $16.67. Charges will be placed on the student's financial account shortly after course registration has been completed.

Visit the Queen's University School of Graduate Studies and Postdoctoral Affairs website for more information about how to apply to graduate programs at Queen's.

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