

Pathways to study Waterpower at the University of Toronto

University of Toronto offers a number of courses on waterpower:

- **APS1410: Waterpower Essentials**

This course presents an overview of the waterpower industry, beginning with its ecological and historical context, how power stations work, and their major components. After a site tour, students will consider the major decision making factors in the design of a waterpower facility: policy and planning considerations, the business case, commercial markets, and risk management. With this, the finer details of power station design are introduced: turbine selection, electrical and control components, as well as how these components work. Further, students are introduced to operations and maintenance considerations, contract models, and dam safety. A course project will mirror these topics, as students evaluate the feasibility of a greenfield waterpower facility. With the support of industry professionals, students will work through the complexity and ambiguity of a development project.

Fall 2022 Schedule: Sept 14 - Dec 8, Thursdays 3-6pm in HA403

- **APS1411: Renewal of Waterpower Facilities**

Waterpower infrastructure is both ageing and being repurposed. This course looks at how the design of waterpower dams, structures and equipment has been shaped by technological change over time. Students will learn to analyze the upgrade potential of an existing plant; review the tools and data available to understand site condition and to be aware of modernization scope for structures and equipment.

Winter 2023 Schedule: Jan 11 - April 5, Wed 3-6pm, Online course, Synchronous delivery

- **CIV550: Water Resources Engineering (Fall, 2022)**

This course covers global, national and regional water issues, law and legislation; Hydraulic structures; Reservoir analysis; Urban drainage and runoff control: meteorological data analysis, deterministic and stochastic modeling techniques; Flood control: structural and nonstructural alternatives; Power generation: hydro and thermal power generation. Low flow augmentation; Economics and decision making.

How to enroll

There are three distinct pathways to enrol in the waterpower courses.

- (1) Enrolling in a full Masters of Engineering, comprising of 10 one-semester courses. By enrolling in the above waterpower courses, students can work toward an Emphasis in Waterpower
- (2) Enrolling as a non-degree student in selected courses of interest. Receive academic credit that can contribute to a future Masters degree.
- (3) Auditing the courses: no academic credit, but can contribute to professional development requirements.

If you have specific questions about the application process for the above, please contact the admissions officer and Pauline Martini (pauline.martini@utoronto.ca)

For other inquiries about the waterpower courses, please contact Sharon Mandair (sharon.mandair@gmail.com)

Learn more about the OWA's partnership with the University of Toronto.