# Civil Engineering and International Development

## What is it?

A civil engineering degree program unique to Western. In this program, students will take regular civil engineering courses for the first two years and then specialize in the application of civil engineering to address complex societal, environmental, economic issues and infrastructure problems for communities in Canada and developing countries.

## Why is this important?

- Over the next 20 years, the world's population will increase by almost 2 billion and 95% of these new citizens will be living in developing countries.
- This growth will result in an unprecedented demand for energy, food, land, safe water, transportation, waste disposal, health care, environmental remediation, telecommunication and other infrastructure.
- Civil engineers will play a prominent role in meeting these demands, whether the work is done in small, remote communities or in major cities in Canada or abroad.

Slope stability improvement in a Mexican township using terraces of used tires

### What is special about this program?

- This is an *elite* program with limited enrolment. It will provide relevant and exciting overseas experience.
- Students will receive a B.E.Sc. Degree in Civil Engineering (International Development Option) that prepares them to work in international projects. This qualification is unique in North America.

## What are the job opportunities?

In addition to the wide range of employment options in the engineering industry that civil engineering graduates are typically able to choose from, individuals from the International Development Option will also be attractive to:

- engineering consulting firms
- government departments
- aid agencies
- non-government organizations (NGOs)
- International organizations (e.g. WHO, UNESCO, CIDA, the World Bank, etc.)

The international flavour of the degree will provide individuals with:

outstanding problem-solving skills;
business and language skills;
excellent grasp of global issues.

These abilities will make graduates from the program highly sought after by multi-national companies.

## Summer Community Development Placement

- Students will be required to complete a placement in an 'at-need' community in Canada or in a developing country during the summer between third and fourth year, and will complete a final year design project that addresses a social need from an appropriate engineering perspective.
- This will allow students to gain further hands-on experience by interacting with policy makers, professional engineers and aid workers practicing in this area.

Western International Development Student embracing the culture of Ghana.

## Program Courses

Civil and Environmental Engineering at Western is renowned for:

- its excellence, nationally and internationally;
- its outstanding academic program;
- award winning professors;
- state-of-the-art facilities.

### Common Second Year

- Applied Mathematics
- Engineering Fluid Mechanics
- Mechanics of Materials
- Introduction to Environmental Engineering
- Structural Theory and Design I & II
- Engineering Communications
- Civil Engineering Systems

### Third Year

- Soil Mechanics & Hydrogeologic Engineering
- Structural Theory III
- Concrete Design
- Project Management & Engineering Cases
- Watershed Hydrology
- International Development for Engineers
- Municipal Engineering Design
- Materials for Civil Engineering
- Wastewater Treatment Process Design
- Drinking Water Quality & Treatment
- Surveying
- Appropriate Technologies for International Development

### Fourth Year

- Civil Engineering Design Project
- International Community Development Summer Placement
- Environmental Design for Waste Disposal
- Case Studies in Civil Engineering
- Geographic Information Science
- Engineering Ethics, Sustainable Development & the Law
- Business Organization
- Geotechnical Engineering Design
- Advanced Topics in International Development
- Natural Disasters: Mitigation, Modelling & Assessment

*Note: Students enrolled in the program are also encouraged to take a foreign language course that will help them in their overseas placement.*

## For further information, please fill in and return this form or send an e-mail to civil@uwo.ca.

First Name _____

Last Name _____

Address _____

_____

_____

City _____

Province _____

Telephone Number _____

Email Address _____

Are you interested in working abroad?

❑ Yes ❑ No

Please list traveling experience, or countries, you have an interest in visiting:

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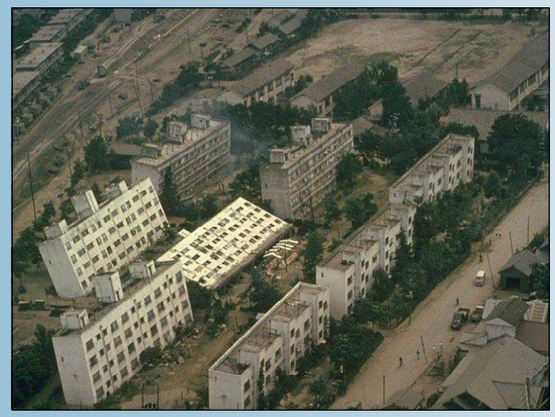
## Admission and Program Structure

- The civil engineering program is delivered over four years and first year courses are common to all of the Engineering programs. Upon completion of the first year, students must apply to the Civil Engineering and International Development Option within the Dept. of Civil & Environmental Engineering.
- The degree program builds on current Civil Engineering courses and broadens the students' abilities with additional technical and non-technical electives. Emphasis is placed on appropriate technologies, techniques and analyses for developing communities.
- There is also exposure to important issues in water and sanitation, business organization and economics, international development and aid, and mitigation of the effects of natural disasters.



*The Niigata earthquake in Japan (1964) resulted in the foundation soils liquefying and buildings collapsing.*

## Other Civil Engineering Programs

## Civil & Structural Engineering Option

Structural engineers analyze, design and construct structures for buildings, bridges, transmission towers, and other infrastructure. They also deal with advanced building materials, such as fibre-reinforced composites and environmentally-friendly concrete, and with the rehabilitation and maintenance of structures.

*Confederation Bridge, Prince Edward Island. The longest bridge over ice-covered waters in the world.*

Civil engineers who specialize in environmental engineering apply scientific theories and principles to minimize the impact of our industrialized society on the environment. They ensure that the use of water, land, and air resources are sustainable, and that environmental pollution is avoided.

*CEE Western Student Environmental Monitoring, Elliot Lake*

## Civil Engineering Plus Programs

- Students can also choose a concurrent degree program in Civil Engineering *with* Business, Civil Engineering *with* Law, Civil & Structural Engineering *with* Computer Science, Civil & Environmental Engineering *with* Computer Science, Civil & Environmental Engineering *with* Environmental Science.
- Our new Civil Engineering *with* Medicine double degree program, is specially directed to students who seek a career in civil engineering and public health both in Canada and overseas.

The University of Western Ontario

# Civil Engineering and International Development

*One of the seven wonders of the modern world: the 8 km long Itaipu hydroelectric dam in Brazil*