

Sample Executive Summary for a New Degree Program Proposal

EXECUTIVE SUMMARY

MASTER OF ENGINEERING IN CLEAN ENERGY ENGINEERING

FACULTY OF APPLIED SCIENCE

UNIVERSITY OF BRITISH COLUMBIA

September 8, 2009

Overview

The Clean Energy Research Centre (CERC) was founded in 2000 with the goal to become the focal point of energy-related research in the Faculty of Applied Science at the University of British Columbia (UBC). CERC is multidisciplinary, covering various fields including Chemical and Biological Engineering, Civil Engineering, Electrical and Computer Engineering, Materials Engineering, Mechanical Engineering, Mining Engineering and Architecture. Areas of research include fuel cell research, projects related to biomass (both thermal and biological processes), cleaner burning engines utilizing fuel mixtures, hydrogen generation, CO₂ capture, energy conservation and gas hydrates, power engineering, geothermal energy and improved building design.

Credential

Credential awarded will be the **Master of Engineering (M.Eng.) in Clean Energy Engineering**. The degree will be a Master's degree with a balance between advanced engineering theories, interdisciplinary knowledge and real-world applications. The field of study will be advanced engineering technology and techniques for clean energy engineering applications.

Location

The Vancouver Campus of UBC is the main location for classroom education and administration. Course instruction and project assignments will be achieved through collaborations on the UBC main campus, provincial and federal government agencies, and local industry involved in clean energy engineering research and development.

Faculty Offering Program

The program will be offered formally, administrated and delivered by the Faculty of Applied Science, UBC.

Program Start Date

The program will be offered in the 2009/2010 academic year, beginning in January 2010.

Program Completion Time

Anticipated time for completion of the program is 1 year of full-time academic study plus any workterm placement.

Objectives

UBC has been well-recognized as a leader among many higher-learning institutions in technological advances in engineering and technology. The program will enhance our current education and real-world application by providing formal training in the fast-growing area of clean energy engineering, so as to fully utilize the University's potential and to capitalize on the capacity for excellence in engineering and clean energy technologies. The objectives of this program are:

- Enhance the training of engineers in applying engineering principles and technologies for improving the quality of energy resource supply, usage and reducing negative impacts on society and the environment.
- Foster multidisciplinary collaboration with energy providers in creating innovative approaches and applications for energy problems.
- Provide opportunities for students to participate in industrial design and the development of real-world solutions and applications.
- Equip graduates with skills, knowledge and innovative solutions to support and expand BC's energy industry.

Contribution to UBC's Mandate and Strategic Plan

UBC's Trek 2010 vision identifies three aspects of making UBC one of the world's best universities: Prepare students to become exceptional global citizens, promote the values of a civil and sustainable society, and conduct outstanding research to serve people. The proposed new program will contribute to the realization of each of these goals. Energy supply and its environmental impact are key issues of the current century, and the new program is intended to make UBC students better able to contribute to addressing these global issues. The students enrolled in the new program and its courses will also be exposed to material and issues which will require them to think about how to achieve a sustainable and more just society. At the same time, they will be exposed to new research ideas related to new methods of reducing energy consumption and providing energy in less damaging ways. Clean Energy Engineering is a multidisciplinary field that involves the application of engineering techniques and technologies to the energy sector. It traverses the whole spectrum of engineering and extends to economics, other social sciences and the environment, with the goal of creating and developing technologies and solutions that improve our living standard and quality of life, thus contributing effectively to our institution's Trek 2010 vision.

Delivery Methods

The program consists of required coursework and a project. Students will take core courses together, and the elective courses will be taken with students in other programs, depending on the students' interests and prior backgrounds. Students will meet once a week for seminar series with CERC research students. The project is interdisciplinary, involving different engineering fields, the industry energy sector and other fields as needed.

Linking Learning Outcomes and Curriculum Design, Optional Workterms

Increasing numbers of students are interested in pursuing an engineering career that directly contributes to sustainability, health and well-being of the human population. Energy is a crucial issue in the current century, directly linked to climate change, the environment in general, water, security and global sustainability.

The curriculum is designed to emphasize many aspects of being a professional energy engineer: comprehensive knowledge, application of scientific and engineering principles, assessment of alternatives, and problem solving. With advanced training in engineering theories and techniques, and relevant training in the industry energy sector, graduates will be capable of working proficiently and efficiently with energy professionals in designing and developing applications for clean energy solutions.

Students can apply for a workterm placement coordinated by the UBC Engineering Coop Office. The placement will provide practical industrial experience related to clean energy monitoring, conservation, planning and/or implementation.

Program Strengths

The UBC Faculty of Applied Science has the broadest range of coverage of any engineering school in British Columbia, with a mandate to provide a comprehensive range of engineering education and research spanning the major engineering disciplines. Energy Engineering is a distinctive field that encompasses several of the major engineering disciplines and real-world applications. The curriculum design, as described earlier, emphasizes a balance of content between engineering, current and alternative theories and technologies. Therefore, a degree distinctively in clean energy engineering will identify graduates with the emerging field of clean energy engineering and build upon other major related disciplines.

Related programs at UBC or other BC post-secondary institutions

UBC currently does not offer any formal training in clean energy engineering. Research is carried out in individual engineering departments. In addition, there is research and teaching related to energy in many other faculties. There are no related programs offered at other B.C. institutions.

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