FINAL ASSESSMENT REPORT

Institutional Quality Assurance Program (IQAP) Review

UNENE Master’s of Nuclear Engineering

Date of Review: November 12 – 13, 2013

In accordance with McMaster’s Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the University Network of Excellence in Nuclear Engineering (UNENE) Master’s of Nuclear Engineering program. This report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.

This Final Assessment Report includes an Implementation Plan that identifies who will be responsible leading the follow up for the proposed recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

Executive Summary of the UNENE Master’s of Nuclear Engineering Cyclical Program Review

The UNENE Master’s of Nuclear Engineering is a cooperative program among five degree-granting institutions, namely McMaster University, Queen’s University, University of Ontario Institute of Technology, University of Waterloo and University of Western Ontario (now Western University). In accordance with the IQAP, the Master’s of Nuclear Engineering program submitted a self-study to the School of Graduate Studies on November 4, 2013. The self-study presented the program descriptions and learning outcomes, an analytical assessment of the program, including data collected from students along with the standard data package prepared by the Office of Institutional Research and Analysis. Appended were the course outlines for all courses in the program and the CVs for each full-time faculty member in the Program.

Two arm’s-length reviewers from Texas and the Canadian Nuclear Safety Commission and one internal reviewer participated in a two-day site visit organized by the School of Graduate Studies. The visit consisted of meetings with the Provost and Vice-President (Academic), Associate Vice-President and Dean of Graduate Studies, UNENE President, UNENE Director, UNENE Administrator, UNENE Secretary/Treasurer, Dean of Engineering and Associate Dean (Engineering) in addition to separate meetings with students and faculty members. The Review Team highlighted their findings in a report submitted on December 2, 2013. The Review Team found that program goals align quite closely with the academic plan and mission of McMaster University, and all the universities that are part of the UNENE Master’s
of Nuclear Engineering. They reported that the program was well run and has been developed to meet the needs of industry. They were impressed by the quality of instructors who come from the five participating universities and are well recognized leaders in their respective fields. The students who participated in a conference call with the Review Team expressed a high degree of satisfaction with the program and felt that it considerably expanded their knowledge base and is valuable in their professional development and career progression. The following program strengths and weakness were also noted:

- **Strengths**
  - Instructors are leader in their fields and several hold UNENE/NSERC Industrial Research Chairs or are recipients of collaborative research grants
  - Courses are delivered over two days on alternate weekends in Whitby, Ontario to make it possible for full-time employees to attend
  - Lectures available to other more remote sites by distance delivery technology
  - UNENE has the capability to accommodate fluctuations in enrollments to sustain program
  - Courses are regularly updated with current events
  - High level of student satisfaction with program

- **Weaknesses**
  - ADMI courses could be enhanced to strengthen the participant's background in the organizational and human performance aspects relevant to the safe operation of the power reactors
  - New course could be added on the regulations, protection of the environment, security and safeguards
  - Expanding certain courses to cover types of reactors other than CANDU which could serve the initiative for UNENE to expand in the international arena
  - Clarifying learning outcomes that relate to the development of communication skills

The reviewers did not raise any serious concerns about the operation of the program, but did put forward several recommendations for improvements. The response from the UNENE Director indicates that some of these suggestions such as adding a new course on uses of energy in society and the associated environment and security safeguards may be relatively straightforward, while others will require negotiation with other parties (see below). This Final Assessment Report was prepared by the Quality Assurance Committee. The 18 month report will show progress against items addressed in this review. The program has been approved to continue and is scheduled for its next full review in eight years.