

Course Development to Support Masters of Science Degree Program in Nuclear Engineering

Executive Summary

The University of Pittsburgh's (PITT) Swanson School of Engineering (SSOE) initiated undergraduate and graduate certificates in Nuclear Engineering during the 2006-2007 and 2007-2008 academic years (AYs), in response to the demand of the large nuclear constituency that is located in the Pittsburgh vicinity. This community includes Westinghouse Electric Company, Bettis Atomic Power Laboratory, First Energy's Beaver Valley Nuclear Plant, and Curtiss-Wright Electromechanical Division. The undergraduate nuclear engineering certificate program offers three specific nuclear engineering courses that average 85 to 135 students per class. The graduate nuclear engineering program offers 11 courses. Annual enrollment in the graduate courses during AY 2010-2011 reached a total of 183. During the Fall 2011 semester, we had 75 students enrolled in the four courses that were being offered.

Due to the course enrollments, the SSOE investigated the demand for and ability to offer a high-quality Masters of Science in Nuclear Engineering (MSNE). We have been encouraged to do this by the regional nuclear community. PITT has also been encouraged by a U.S. NRC Commissioner and a Director of DOE's Nuclear Energy University Program to develop a MSNE degree on visits that they made to the SSOE in the Fall of 2010. They have urged the Swanson School to develop a Master of Science degree in Nuclear Engineering that would take advantage of the region's unique resources, and to do so in an expeditious manner.

In support of pending approval of a Masters of Science degree in Nuclear Engineering (MSNE), it is necessary to increase the number of graduate nuclear science courses offered by the Nuclear Engineering program. At the same time, it is necessary to offer additional courses that support the needs of PITT's constituents. Toward this end, we propose to develop the following five new graduate courses:

- 1) "Computational Radiation Transport"
- 2) "Station Nuclear Engineering"
- 3) "Boiling Water Reactor Thermal-Hydraulics and Safety"
- 4) "Nuclear Chemistry and Radiochemistry"
- 5) "Nuclear QA Management."

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