Curriculum Development for a Course in Detection and Remediation of Radioactive Contaminants in the Environment

Executive Summary

It is proposed to develop an upperclassman undergraduate course on the detection and remediation of radioactive contaminants in the environment. Such a course will draw upon subject matter experts from the University of Wisconsin's Nuclear Engineering and Environmental Engineering Programs. The course will fill a need in both programs not only in the subject matter but also in increasing the number of technically relevant elective courses that are offered.

Various engineering disciplines at the University of Wisconsin-Madison have historically remained largely independent of each other with the traditional approach that topics relating to radiation and radioactivity were relegated to Nuclear Engineering and all topics relating to remediation of hazardous materials were relegated to Civil Engineering (with a program option in Environmental Engineering). Consequently, students in Nuclear Engineering have not traditionally taken advantage of the campus expertise in Environmental Engineering, while Environmental Engineering students have not been sufficiently trained in radiation science. As a result, neither group has been educating students able to adequately compete for jobs related to the management of radioactive contaminants in the environment. This course development proposal seeks to remedy this deficiency.

The proposed course will be a 3-credit technical elective course that is offered every other year. This course will become a permanent elective course that is crossed listed with both degree programs. The course will incorporate traditional topical lectures but will be provided in non-traditional, electronic media, web hosted services. The lectures will be provided electronically through the Learn@UW web service. A substantial portion of the course is dedicated to experiential learning provided through a real hands-on experimental measurements laboratory and an actual site visit for site survey development, planning, and measurement.

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