

## **Creation of a Radiochemistry Teaching Program in Nuclear Engineering at Missouri S&T (Lecture and Laboratory Courses Offered to all Engineering Students)**

### **Executive Summary**

We will create a lecture undergraduate/graduate course to introduce the fundamentals of nuclear chemistry and radiochemistry including some demonstration practices to showcase a number of experimental techniques used in nuclear and radiochemistry. The developed courses together with other local facilities (200 kW nuclear reactor, environmental, biological and chemical engineering laboratories) will help our program prepare students with the set of skills required to understand the principles of environmental radioactivity, nuclear forensics, isotope production, materials effects, long-term safety of stored waste, etc. The course content will be made available on the Internet in its entirety. An open but moderated page (wiki) will also be set up allowing other educational programs to benefit from it and contribute to it over time. All educational material, including PowerPoint presentations, homework, and exams, as well as demonstration laboratories including data processing, error analysis, and interpretation of results, will be fully available online to help other programs elsewhere. The program will benefit society by producing BS students with a solid theoretical and experimental foundation on radiochemistry. The program is open to all interested students (graduate and undergraduate) in all engineering and scientific disciplines at Missouri S&T. This course will produce students with the set of skills required to better understand the problems of dealing with radioactive compounds, as well as real-life future problems related to the chemical interaction of radioactive components with the environment and biological systems.

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