ENGR 1702
French Nuclear Power

Nuclear Engineering Program
Swanson School of Engineering
University of Pittsburgh

http://www.abroad.pitt.edu/frenchnuclear

Summer 2015

Come with us to France to learn about one of the most extensive nuclear power program in the world. France uses nuclear energy as its primary source of electricity, producing about 75% of its electricity from nuclear sources and about 17% from recycled nuclear fuel. France is the world’s largest net exporter of electricity due to its very low cost of generation, and gains over €3 billion per year from this. Reactors, fuel products, and services are a major export.

This two-week, three-credit course focuses upon the structure of nuclear engineering in France including nuclear power, the nuclear fuel cycle, and nuclear waste disposal. You will gain:

- An understanding of French nuclear power and the nuclear fuel cycle.
- First-hand perspectives of nuclear facilities including the upstream and downstream side of fuel production and nuclear power plants.
- Broad perspectives from French nuclear engineering academic and industry leaders.

1 Necessary Information

Instructors
Daniel G. Cole
538-F Benedum Hall
dgcole@pitt.edu

Thomas V. Congedo
538-J Benedum Hall
tvc9@pitt.edu

Where and When
Location: Normandy, France
Terms Offered: Summer

2 Admissions Requirements:

Students from all STEM disciplines are welcome to apply.

- Student studying in a STEM (Science, Technology, Engineering, Math) that have had one year of calculus, chemistry and physics.
• Sophomore standing or higher.
• Minimum 2.50 GPA for engineering students; 2.75 GPA for other majors.
• Prior introduction to nuclear engineering is a plus.

You will, as a part of this program, be required to attend pre-departure classes conducted in-person and via distance learning that will meet a few times during the Spring semester prior to the program start date.

3 Course Goals

At the completion of this course, students will be able to

• Describe how nuclear power is generated and the role of nuclear fuel.
• Explain the nuclear fuel cycle including steps in the front and back ends of the cycle.
• Explain the impact of fuel reprocessing on nuclear power and long term storage of nuclear waste.
• Describe long term disposal and storage options for various types of radioactive waste.

4 Course Materials

For reference:


5 Course Requirements and Grading

The course schedule will include pre-departure sessions, which can be attended either in person or by distance learning, lectures in France, and visits to nuclear facilities in France. Students are expected to participate in classes, lectures, and site visits, and complete assignments for the course (most assignments will be issued pre-departure). A course project will be due after returning from France, and will be assigned either individually or in teams. Grades will be based on assignments, participation, and the course project.