NTHU ESS 4100, Fall 2015, Nuclear Power System
核能系統 (Senior Level)

Instructor: Prof. Shao-Wen Chen, 陳紹文教授
Office: ESS-208R; **Tel:** 34169; **E-mail:** chensw@mx.nthu.edu.tw

Lecture time: M7,M8, R6; **Classroom:** ESS-302

Grades:
Homework: 20%, Final Project: 20% (1~4 persons as a group)
Midterm Exam: 30%, Final Exam: 30%

Note:
1. HW due: **1 week** after assigned.
2. **No plagiarizing! No copy!**

TA: 劉芳棻; **Office:** ESS New Bldg. 405
E-mail: h0952849972@hotmail.com; **Tel:** 35815

References:
1. M.M. El-Wakil, "Power Plant Technology", McGraw-Hill Company, 1984
2. J.R. Lamarsh, AJ. Baratta, "Introduction to Nuclear Engineering", 3rd Edition, Prentice Hall, 2001
3. A. J. Rahn, et al., "A guide to Nuclear Power Technology", Krieger Publishing Company, 1992
4. 楊昭義，歐陽敏盛，"核能發電工程學"

Tentative outline: (The following outline and dates are subject to change due to unexpected events or other issues.)

1. Introduction
2. Thermodynamics and Rankine Cycle
3. Basic Reactor Engineering
   - Core Physics
   - Thermal-Hydraulic
   - Nuclear Fuel Cycles
   - Safety Concerns and Design of Nuclear Power Plant
4. Introduction to Boiling Water Reactors

Midterm Exam, 11/9, 6:00pm, ESS302 (Expected)

5. Introduction to Pressurized Water Reactors
6. Operation of Nuclear Power Plants
   - Three Mile Island Incident
   - Chernobyl Accident
   - Fukushmia Accident
   - Tokaimura nuclear accident (日本東海村核燃料濃縮廠臨界事故)
7. Advanced Design of Nuclear Power Reactors
8. Generation IV, AP-1000, ESBWR……
9. Anti-nuclear issues (反核議題的探討)
10. Final Project Presentations (20 minutes/each group; also submit **slides**)

Final Exam, 1/11, 6:00pm, ESS302 (Expected)