

**UNIVERSITY OF ILLINOIS**  
**DEPARTMENT OF NUCLEAR, PLASMA AND RADIOLOGICAL ENGINEERING**  
**NPRE 449 – Nuclear Systems Engineering and Design**

Homework #3

1. Provide an overview of a pressurized water reactor. Sketch the primary and (basic) secondary flow path, labeling important system components. Give a short description of the main components in the primary flow path.
2. Provide an overview of a boiling water reactor. Sketch the flow path, labeling important system components. Give a short description of the main components in the flow path.
3. Explain the thermal design limits of a PWR and BWR. Briefly describe the concept of thermal design margin.
4. T-K problem 2-1
5. T-K problem 2-5