

## **ME 530 Advanced Conduction and Radiation**

### **Homework Assignment #2**

Due: 5:00 pm, Friday April 6, 2007

1. The iron rod in Ozisik, *Heat Conduction*, Problem 1-15 is welded at one end to an iron plate that is maintained at the  $550^{\circ}\text{C}$  temperature throughout the cooling process. Determine the spatially averaged temperature in the 3 cm section of the rod closest to the plate after a very long time.
2. The simple iron rod (i.e., no welded plate) in Ozisik, *Heat Conduction*, Problem 1-15 contains radioactive contamination that, over the time scale of this problem, constantly generates  $2\text{ kW/m}$ . Determine the time for the temperature of the rod to reach  $250^{\circ}\text{C}$ .