**TIM 58: Systems Analysis and Design**

**Homework Set #4**

*Due as a paper copy in class at the beginning of class Tuesday February 7.*

Provide short-medium paragraph answers and/or diagrams for the following questions.

**1. The first Minicase, on p. 161 (Williams Specialty Company) has two questions. Please answer both questions (repeated below)**

**a. Explain, in clear, nontechnical terms, the goals of the analysis of the project. (3 pts)**

**b. Explain, in clear, nontechnical terms, how use cases and a use-case diagram will be used by the project team. Explain what these models are, what they represent in the system, and how they will be used by the team. (3 pts)**

**2. The second Minicase, about the company called Professional and Scientific Staff Management, has four questions. Please read the Minicase and answer the three questions here on the homework, and not the ones in the book. The ones here are slightly different. (Up to 4 points for each.)**

**a. Create a use-case diagram for the system described here.**

**b. Use Figure 4-13 as a format and prepare a Use-Case Description for *one* of the use cases in your use case diagram in part a.**

**c. Create a single activity diagram for the entire business process described in the Minicase.**

**3. In the book, figures 4-21 and 4-4 are different, but both are meant to describe the same underlying process. Explain how they are different and why. (3 points possible)**

**4. What is the difference between a control flow and an object flow? Be sure to say what each one is, and then explain the differences. (3 points possible)**

**5. Give an example of when you would use an “include” relationship between two use cases, and an example of when you would use an “extend” relationship between two use cases. Explain why for each one. (3 points each)**

**6. You have been approached by an entrepreneur who is asking you to invest in her new business. She promises the following cash flow. You will pay $1000 now (meaning T0), and another $500 in one year. Ten years from now you will receive $2,000. You check with you bank and learn that your risk-free interest rate is 5%. Should you invest in the new business? (3 points)**