ECE 6250 Guidelines

The purpose of the Internship/Coop experience is to provide a mechanism whereby students may obtain academic credit for professional experience in electrical or computer engineering in an industrial environment. Unlike a typical engineering course, the goal is not necessarily the attainment of technical skills, though that should occur during an internship, but, rather, the goal is to experience a working engineering environment as well as benefit the Employer. Through this experience students will come to understand some of the non-technical aspects of engineering practice, such as working within a team, as well as some of the non-tangible technical aspects of engineering practice, such as the real-world constraints encountered in the development of engineering projects.

The "Internship/Co-op Application Form" must have a description of the project and the deliverables attached. The project description may include items such as the following:

- A description of the work performed.
- A list of the expected outcomes of the work.
- A statement of the methodologies for achieving the outcomes.
- Schedules, time lines, work breakdown structures, and/or Gantt charts for measuring the progress and evolution of the project.
- A description of the deliverables.
- An agreement between the student and employer regarding the ownership of potential intellectual property generated by the student's work.
- The nature of the agreement between student and employer regarding the compensation for additional work to be performed.

To ensure a suitable internship experience, students must define learning objectives to be accomplished during the internship period. These objectives, which should be both technical and non-technical, but which should not be menial or purely technician-level work, must be approved by the Employer and the ECE Internship/Coop Coordinator. These should reflect graduate-level learning, and should be related to the student's area of study. Sample objectives follow. (The student must define objectives):

- Learn to communicate effectively with other technical employees, supervisors, and suppliers of the company.
- Understand and carry out the lab/test procedures used by the company.
- Learn about the application of real-time processing in the employer's products.
- Learn about electronic components, their critical characteristics, and circuits in which they are used.
- Improve understanding of and become proficient with IDC standards for inspection of printed circuit board assemblies.
- Learn how the antenna design principles taught in coursework applies to the employer's communication products.
- Learn to use AMI in-house tools for schematic capture and cell creation; learn basics of layout design and macro creation.
- Learn how optimal control theory applies to the employer's robotic designs.
- Learn how to program in Pearl, the basics of the UNIX operating system, and how to use the VI text editor.
- Learn the strategies and techniques for test-time reduction to increase yield without compromising quality.
- Perform as a team member on a team in a project environment; learn how to communicate and solve problems in a team environment; learn how to take on responsibilities and find ways to get them done.
- Learn to program low-level software drivers for given hardware.
- Learn to read, understand, and apply technical documentation.
- Develop a work breakdown structure for the motor stations project,
- Gain an introduction to the natural gas industry; learn the history of the natural gas industry; learn the process of exploration, refining, transportation, and industry regulation of natural gas.

Unlike the objective examples in the Student Internship packet, you should write your *objectives* so that they are not just "tasks" to be done by a certain date.