ME 57600
COMPUTER CONTROL OF MANUFACTURING PROCESSES

Course Outcomes

1. Provide a fundamental knowledge of the theory of automation and discrete motion control.
2. Gain knowledge of the practice and art of controls through laboratory experiments.
3. Sharpen skills in problem formulation and integration of a broad range of technical capabilities through certain open-ended design and programming problems.
4. Sharpen technical communication skills through short technical reports

Revision Date: 7/24/2012
## 1. COURSE NUMBER AND NAME:
ME 57600 Computer Control of Manufacturing Processes

## 2. CREDITS AND CONTACT HOURS:
3 credits

- **Lecture:** 2 days per week at 50 minutes for 16 weeks
- **Laboratory:** 1 day per week at 180 minutes for 16 weeks

## 3. COURSE COORDINATOR OR INSTRUCTOR:
Y.C. Shin

## 4. TEXTBOOK:

## 5. SPECIFIC COURSE INFORMATION:

**a. Catalog Description:**
Fundamental elements for manufacturing process control are presented with advanced control theories, modeling and analysis of actuators, controller architecture, interfacing and programming. Emphasis is on computer integrated manufacturing with computer numerical control of machine tools, automation via programmable logic controllers, motion control, process control examples, and manufacturing process monitoring. Hands-on experience is attained through laboratory experiments with state-of-the-art equipment. Typically offered in the spring.

**b. Prerequisites:**
ME 47500 – Automatic Control Systems or equivalent course

**c. Status:** Elective

## 6. SPECIFIC GOALS FOR THE COURSE

### a. Course Outcomes:
1. Provide a fundamental knowledge of the *theory of automaton and discrete motion control*.
2. Gain knowledge of the *practice and art of controls* through laboratory experiments.
3. Sharpen skills in *problem formulation and integration* of a broad range of technical capabilities through certain open-ended design and programming problems.
4. Sharpen *technical communication skills* through short technical reports.

### b. Related ME Program Outcomes:
- A1. Engineering Fundamentals;  B3. Prof/Ethical Responsibility;  
- A3. Experimental Skills;  B5. Life-Long Learning;  
- A4. Modern Engr Tools;  C1. Leadership,  
- A5. Design Skills;  C2. Global Engineering Skills;  
- A6. Impact of Engr Solns;  C3. Innovation;  
- B1. Communication Skills;  C4. Entrepreneurship  
- B2. Teamwork Skills

## 7. LIST OF TOPICS:
See following page.

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**PREPARED BY:** Y.C. Shin

**REVISION DATE:** July 24, 2012