

ECE4761 Course Syllabus

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Industrial Controls and Manufacturing (3-3-4)

Prerequisites

ECE 3085/3550

Corequisites

None

Catalog Description

Students are introduced to industrial controls and the fundamentals of manufacturing with hands-on experience based on lab projects using industry software and hardware for communications and control. Crosslisted with TFE 4761.

Textbook(s)

Groover, *Automation, Production Systems, and Computer Integrated Manufacturing* (3rd edition), Prentice Hall, 2008. ISBN 9780132393218(optional)

Topical Outline

Process Control (5 weeks)

- Introduction to process control
- Feedback control
- Tracking control
- PID control
- Digital controllers
- Adaptive control
- Applications

Discrete Logic Control (4 weeks)

- State diagrams
- Boolean logic
- Ladder logic diagrams
- PLC implementation
- Applications of discrete logic control

Fundamentals of Manufacturing (2 and 1/2 weeks)

- Types of production
- Production concepts and models
- Flow line analysis
- Line balancing

Manufacturing Control Systems (2 and 1/2 weeks)

- Hierarchical control
- Network communications
- Production control