

CDA 4630 Introduction to Embedded Systems

Credits: 3

Text book, title, author, and year: N/A

Supplemental materials:

- i. Dym and Little, Engineering Design, John Wiley, 1999.
- ii. H.S. Fogler and S.E. LeBlanc, Strategies for Creative Problem Solving, Prentice Hall, 1995.
- iii. Edward Lumsdaine and Monika Lumsdaine, Creative Problem Solving, McGraw Hill, 1995.
- iv. D. Pressman, Patent It Yourself, 9th Edition, NOLO Press, 2002.
- v. Anne Eisenberg, A Beginner's Guide to Technical Communication, McGraw Hill, 1998.
- vi. McAuliff et al., Effective Technical Communications, Clemson University.

Specific course information

- a. **Catalog description:** A system level software and hardware integration from design concepts to practical implementation covering both analog and digital signal conditioning and interface.
- b. **Prerequisites:** CDA 3331C
- c. **Required, elective, or selected elective:** elective

Specific goals for the course

- a. **Specific outcomes of instruction:** By the end of the course students will be able to: (i) Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability; (ii) Identify, formulate, and solve engineering problems; (iii) Apply design and development principles in the construction of software systems of varying complexity; (iv) Apply design and development principles in the construction of hardware systems of varying complexity.

Brief list of topics to be covered:

- Introduction to embedded systems
- Serial communication with I/O devices

- Parallel communication with I/O devices
- Motor interface
- Robotics interface
- Writing drivers for various peripheral devices