as FPGAs and CPLDs. This course will explore design simulation, synthesis, and timing analysis. Physical configurations for FPGAs and CPLDs will also be explored.

CPE 3030: Advanced Embedded Design

4 Credit Hours

Prerequisite: Engineering Standing

Concurrent: CPE 3000 or EE 3501

This course will introduce the students to advanced embedded system design concepts. In addition to learning linux fundamentals, students will explore advanced embedded design concepts such as multithreading and thread synchronization, complex interfacing of digital and analog sensors, and the use of mutexes/semaphores for managing shared resources.

CPE 3398: Internship

1-4 Credit Hours

Prerequisite: Engineering Standing, CPE 3000, and consent of the instructor

This course is a structured out of the classroom experience that is related to Computer Engineering, in a supervised setting with an industry partner. The goal is for students to enhance their academic classroom skills with practical experiences in a real-world environment. Supervision of the Intern is shared by the working environment supervisor and a faculty advisor.

CPE 3500: Embedded Digital Signal Processing

4 Credit Hours

Prerequisite: (CPE 3000 or EE 3501) and Engineering Standing

This course introduces the theoretical and practical foundations of digital signal processing (DSP). Basic concepts of DSP systems including sampling and quantization of continuous time signals, analog to digital and digital to analog conversions are discussed. The course covers the topics of discrete time signals, Z-transform, Fast Fourier Transform (FFT), Discrete Fourier Transform (DFT) and digital filter design. Real-time design considerations of DSPs for embedded systems and hands-on development of real-time algorithms are discussed.