ECE3090 Course Syllabus

ECE3090

Software Fundamentals for Engineering Systems (3-3-4)

Prerequisites
(ECE 2025 or ECE 2026) and (ECE 2020 or ECE 2030) and ECE 2040 [all courses min C]

Corequisites
None

Catalog Description
Using computer algorithms for solving electrical engineering problems arising in various application domains. Development of effective algorithms and their implementation by object-oriented code.

Textbook(s)
No Textbook Specified.

Topical Outline

ECE 3090 last taught Spring 2013.

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Introduction to C
   Basic C syntax, Operators, Flow control
   Functions, arrays, pointers
   File I/O
   Recursion, structures, linked lists

Object Oriented Programming in C++
   Classes
   Templates
   Inheritance
   Polymorphism
   Operator overloading

NOTE:  Above topics taught in parallel with topics listed below.

Applications
   Complex Arithmetic
   Fast Fourier Transform
   Sparse matrix manipulation
   Dynamic Statistical Analysis
   Nonlinear Filtering
   Image Segmentation
   Data Compression
   Computer Aided Design
   Finite State Machine Simulation
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Optimal path planning
Robotics