

ECE 651 Foundations of Software Engineering

Instructor: Ajit Singh

Calendar Description:

Fundamentals of software requirement analysis, software development as an engineering activity, basic process models, software specifications, modularity, cohesion, coupling, encapsulation, information hiding, principles of object oriented design, software project management, quality assurance and control. Principles of Software Architecture: Fundamental software architecture styles, synchronous & as synchronous communication of software components. Languages for software design specification: UML (class diagrams, sequence diagrams, collaboration diagrams, state diagrams). Overview of verification and validation techniques. Maintenance, evolution and reengineering, configuration management. Software metrics, quality assurance, fundamental cost and effort prediction models. Trends in software engineering (e.g., model-driven development, agile approaches).

Text Book: None

Reference Material:

Project: There will be comprehensive project dealing with the major aspects software development. Details of the project will be provided during lectures.

Research Component: Students will conduct certain amount of research work on selected topics in software engineering.

First Meeting: According to the published schedule for the course.

Regular Meetings: According to the published schedule for the course.