# Course Outline (HEC Guidelines)

Course Title: Intro to software engineering

Course Code: CS 123

Education Level: Undergraduate

Credit Hours: 3

Prerequisites:

\*\*Course Outline: Intro to Software Engineering (CS 123)\*\*

\*\*Course Description:\*\*

This course introduces students to the fundamental concepts of software engineering, including design, development, testing, and maintenance of software systems. Students will learn the principles and practices of software engineering, including problem-solving, coding, and project management.

\*\*Course Objectives:\*\*

• Understand the software engineering lifecycle and its phases

• Learn the principles of software design, including modularization and abstraction

• Understand the importance of testing and validation in software engineering

• Familiarize students with software development tools and methodologies

• Develop problem-solving skills using programming languages and software development frameworks

• Understand the role of project management in software development

\*\*Intended Learning Outcomes:\*\*

• Apply software engineering principles and practices to design and develop software systems

• Analyze and solve complex software development problems

• Evaluate and improve the quality of software systems

• Develop effective communication and collaboration skills in software development teams

• Demonstrate an understanding of software engineering concepts and terminology

\*\*Teaching and Learning Methods:\*\*

• Lecture-based teaching

• Hands-on coding exercises and projects

• Group discussions and problem-solving sessions

• Case studies and project presentations

• Guest lectures from industry professionals

\*\*Assessment and Evaluation Methods with Weightage:\*\*

| Assessment Component | Weightage |

| --- | --- |

| Mid-term examination (20%) | 20% |

| Weekly coding assignments (40%) | 40% |

| Group project (30%) | 30% |

| Quizzes and class participation (10%) | 10% |

\*\*Weekly Course Outline:\*\*

| Week | Topic | Readings |

| --- | --- | --- |

| 1 | Introduction to Software Engineering | Chapters 1-2 in textbook |

| 2 | Software Design Principles | Chapters 3-4 in textbook |

| 3 | Software Development Life Cycle | Chapters 5-6 in textbook |

| 4 | Testing and Validation | Chapters 7-8 in textbook |

| 5 | Software Development Tools and Methodologies | Guest lecture by industry professional |

| 6 | Problem-Solving in Software Development | Case studies and group discussions |

| 7 | Project Management in Software Development | Guest lecture by industry professional |

| 8 | Final Project Presentations | Group project presentations |

\*\*Recommended Textbooks and References:\*\*

• "Software Engineering: A Practitioner's Approach" by Ian Sommerville

• "Head First Software Development" by Kathy Sierra and Bert Bates

• "Software Development Methodologies" by Alan W. Brown

• "Testing Computer Software" by Cem Kaner, Jack Nutt, and Mark Finkelstein

Note: The weightage of each assessment component is subject to change at the discretion of the instructor.