

## Software Engineering (1)

**Course Name:** Software Engineering (1)

**Course Code:** SFT204

**Credit hours:** 3

**Knowledge Domain:** Software Engineering.

**Prerequisite(s):** Programming Techniques (3) (SFT203)

### Learning Objectives:

Upon completion of this course, the student will be able to:

1. Develop software requirement specification for different systems including critical & real-time systems.
2. Identify the basic elements of the software development life cycle starting from requirements until documentation.

### Learning Outcomes

1. Grasping the basic components of the software development life cycle with some practical cases.
2. Acquaintance with the supporting software packages needed for the different phases.

### Overview and Syllabus

Introduction to software engineering. Basic system engineering and software processes. Software requirements. System models and software prototyping. Design aspects. Critical system specifications and real-time systems. User interface design.

### Course Outline

	<b>Topic</b>
1	<b><u>Module 01: Introduction to Software Engineering</u></b> Introduction Objectives <b>Lesson 01:</b> Basic Software Engineering Concepts and Aspects <b>Lesson 02:</b> Software Myths <b>Lesson 03:</b> Professional and Ethical Responsibility Summary Assessment
2	<b><u>Module 02: System Engineering</u></b> Introduction

	<p>Objectives</p> <p><b>Lesson 01:</b> Systems and Their Emergent Properties</p> <p><b>Lesson 02:</b> Systems and Their Environment</p> <p><b>Lesson 03:</b> The System Engineering Process</p> <p><b>Lesson 04:</b> Legacy Systems: An Overview</p> <p>Summary</p> <p>Assessment</p>
3	<p><b><u>Module 03: Software Processes</u></b></p> <p>Introduction</p> <p>Objectives</p> <p><b>Lesson 01:</b> Software Process Models</p> <p><b>Lesson 02:</b> Software Process Iteration</p> <p><b>Lesson 03:</b> Software Process Activities</p> <p><b>Lesson 04:</b> Automated Process Support</p> <p>Summary</p> <p>Assessment</p>
4	<p><b><u>Module 04: Software Requirements</u></b></p> <p>Introduction</p> <p>Objectives</p> <p><b>Lesson 01:</b> Functional and Non-Functional Requirements</p> <p><b>Lesson 02:</b> Interface Specification</p> <p><b>Lesson 03:</b> Feasibility Studies</p> <p><b>Lesson 04:</b> Requirements Elicitation And Analysis</p> <p><b>Lesson 05:</b> Requirments Validation</p> <p>Summary</p> <p>Assessment</p>
5	<p><b><u>Module 05: Software Analysis</u></b></p> <p>Introduction</p> <p>Objectives</p> <p><b>Lesson 01:</b> Analysis Modeling</p> <p><b>Lesson 02:</b> ERD</p> <p><b>Lesson 03:</b> DFD</p> <p><b>Lesson 04:</b> Data Dictionary</p> <p>Summary</p> <p>Assessment</p>
6	<p><b><u>Module 06: Object Oriented &amp; UML</u></b></p> <p>Introduction</p> <p>Objectives</p> <p><b>Lesson 01:</b> Introduction to Object Oriented</p> <p><b>Lesson 02:</b> Unified Modeling Language</p> <p><b>Lesson 03:</b> UML Diagrams</p> <p>Summary</p> <p>Assessment</p>
7	<p><b><u>Module 07: UML Use Case Diagram</u></b></p> <p>Introduction</p> <p>Objectives</p>

	<b>Lesson 01:</b> Use Case Diagram <b>Lesson 02:</b> Class Diagram <b>Lesson 03:</b> Sequence Diagrams Summary Assessment
8	<b><u>Module 08: Project Management Process</u></b> Introduction Objectives <b>Lesson 01:</b> Management Activities <b>Lesson 02:</b> Project Planning <b>Lesson 03:</b> Project Scheduling <b>Lesson 04:</b> Risk Management Summary Assessment