

Institute of Computer Science/Information Technology (ICS&IT)
Faculty of Management Sciences & Computer Sciences (FMCS)
The University of Agricultural Peshawar

Program: BS (CS)-3
Course Name: Software Engineering-I
Course Code: CC-402
Credit Hours: 03
Course Week: 16
Total Hours: 48

Course Objectives

At the end of the course, student will be able to understand the basic concepts of S/W engineering, life cycle of system design, and the complexity involved in it. The students will also be able to optimize the system, making it error free, and concentrate on quality using traditional S/W Engineering approaches.

Week-1

- Introduction to Software
- Introduction to S/W Engineering

Week-2

- Software Process Framework
- Software Development Generic Process Model

Week-3

- Prescriptive Process Models
 - Waterfall Model
 - Incremental Process Model

Week-4

- Evolutionary Process Models
 - Prototyping
 - Spiral Process Model

Week-5

- Rapid Application Development
- Agile Process Development

Week-6

- S/W Requirements
 - Types of Requirements.
 - Requirements Gathering Process

Week-7

- Elements of Analysis Modeling
- The Data Dictionary.
 - Data Modeling
 - Data objects, Attributes, Relationships
 - ERD with example

Week-8

- Functional Modeling
 - DFD with example
- Behavioral Modeling
 - STD with example

Week-9

- S/W Design Concepts
- Data Design.

Week-10

- Architectural Styles
 - Data centered architectures
 - Data flow architectures
 - Call and return architectures
 - Object Oriented architectures
 - Layered architectures

Week-11

- User Interface Rules
 - Place the user in control
 - Reduce the user's memory load
 - Make the interface consistent

Week-12

- Component/Level
 - Graphical Design Notation.
 - Tabular Design Notation.
 - Program Design Lang.

Week 13

- Software Testing :
 - Black Box Testing
 - White Box Testing

Week-14

- Software Testing Strategies:
 - Unit testing.
 - Unit test considerations.

Week-15

- Integration Testing
 - Top Down
 - Depth first/Breath first approaches
 - Bottom Up

Week-16

- Validation Testing
 - Alpha/beta Testing
- System Testing
 - Recovery, Security, Stress, Performance

Total Marks: 100

Recommended Books

1. Software Engineering (Roger S. Pressman) 5 edition
2. Software Engineering (Ian Somerville) 6 edition

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