

Kathmandu University
Dept. of Computer Science and Engineering
Dhulikhel, Nepal
Year 2020/2021

LEVEL: Undergraduate
YEAR: IV
SEMESTER: I
COURSE CODE: COMP 401
COURSE NAME: Software Engineering (3-Cr.)

COURSE DESCRIPTION:

The main goal of this course is to give the knowledge of software engineering and its application in the real life for software development. It is concerned with theories, methods, and tools which are needed to develop computer software.

CONTENTS:

- 1. Introduction [4 hrs]**
 - 1.1 Professional software development
 - 1.2 Software engineering ethics
 - 1.3 Case studies
- 2. Software Processes [4 hrs]**
 - 2.1 Software process models
 - 2.2 Process activities
 - 2.3 Coping with change
 - 2.4 Process improvement
- 3. Agile Software Development [6 hrs]**
 - 3.1 Agile methods
 - 3.2 Agile development techniques
 - 3.3 Agile project management
 - 3.4 Scaling agile methods
- 4. Requirements Engineering [7 hrs]**
 - 4.1 Functional and non-functional requirements
 - 4.2 Requirements engineering processes
 - 4.3 Requirements elicitation
 - 4.4 Requirements specification
 - 4.5 Requirements validation
 - 4.6 Requirements change
- 5. Testing [5 hrs]**
 - 5.1 Development testing
 - 5.2 Test-driven development
 - 5.3 Release testing
 - 5.4 User testing

- 6. Systems Engineering [5 hrs]**
 - 6.1 Sociotechnical systems
 - 6.2 Conceptual design
 - 6.3 Systems procurement
 - 6.4 System development
 - 6.5 System operation and evolution
- 7. Project Management [4 hrs]**
 - 7.1 Risk management
 - 7.2 Managing people
 - 7.3 Teamwork
- 8. Project Planning [5 hrs]**
 - 8.1 Software pricing
 - 8.2 Plan-driven development
 - 8.3 Project scheduling
 - 8.4 Agile planning
 - 8.5 Estimation techniques
 - 8.6 COCOMO cost modeling
- 9. Quality Management [5 hrs]**
 - 9.1 Software quality
 - 9.2 Software standards
 - 9.3 Reviews and inspections
 - 9.4 Quality management and agile development
 - 9.5 Software measurement

REFERENCES:

Software Engineering: Ian Sommerville, 10th Edition

Software Engineering: A Practitioner's Approach- Roger Pressman and Bruce Maxim, 9th Edition