CSE 305 SOFTWARE ENGINEERING

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1.INTRODUCTION TO SOFTWARE ENGINEERING

The Evolving Role of Software, The changing nature of software, Legacy software, Software Myths.

(Chapter 1-section 1.1 to 1.6, Text Book 1) (1 hr.)

2. GENERIC VIEW OF PROCESS

Software Engineering – A Layered Technology, A Process Framework, The Capability Maturity Model Integration (CMMI),Process Patterns, Process Assessment, Personal and Team Process Models, Process Technology, Product and Process

(Chapter 2-section 2.1 to 2.8, Text Book 1) (1 hr.)

3. PROCESS MODELS

Prescriptive Models, The Waterfall Model, Incremental Process Models, Evolutionary Process Models, Specialized Process Models, The Unified Process

(Chapter 3-section 3.1 to 3.6 Text 1) (3 hrs)

4. AN AGILE VIEW OF PROCESS

What is agility? What is Agile Process? Agile Process Models

(Chapter 4- section 4.1 to 4.3,Text 1) (3 hrs)

5. SOFTWARE ENGINNERING PRACTICE

Software Engineering Practice, Communication Practice, Planning Practices, Modeling Practices, Construction Practice, Deployment

(Chapter 5-section 5.1 to 5.6, Text 1) (4 hrs)

6. SYSTEM ENGINEERING

Computer – Based Systems , The System Engineering Hierarchy, Business Process Engineering : An Overview, Product Engineering : An Overview, System Modeling

(Chapter 6-section 6.1 to 6.5, Text 1) (4 hrs)

7. REQUIREMENTS ENGINEERING

A Bridge to Design & Construction, Requirement Engineering Tasks, Initiating the Requirements Management, Eliciting Requirements, Developing Use-Cases, Building The Analysis Model, Negotiating Requirements, Validating Requirements

(Chapter 7- section 7.1 to 7.8, Text 1) (4 hrs)

8. BUILDING THE ANALYSIS MODEL

Requirements Analysis, Analysis Modeling Approaches, Data Modeling Concepts, Object Oriented Analysis, Senario-Based Modeling, Flow-Oriented Modeling, Class – Based Modeling, Creating a Behavioral Model

(Chapter 8-section8.1 to 8.8 Text 1) (5 hrs)

9. DESIGN ENGINEERING

Design within the Context of Software Engineering, Design Process and Design Quality, Design Concepts, The Design Model, Pattern-Based Software Design
(Chapter 9-section 9.1 to 9.5 Text 1)

(4 hrs)

10. SOFTWARE TESTING

Test Objectives, Testing and Software Life Cycle, Verification and Validation Planning and Documentation, Manual Test Techniques, Coverage Based Test Techniques, Fault Based Test Techniques, Error Bases Test Techniques, Comparison of Techniques, Test Stages, Estimating Software Reliability
(Chapter 13- 13.1 to 13.11-Text 2)

(6 hrs)

11. INTRODUCTION TO SOFTWARE QUALITY

Measures and Numbers, Taxonomy of Quality Attributes, Perspectives of Quality, Quality System, Software Quality Assurance, Capability Maturity Model
(Chapter 6-6.1 to 6.8-Text 2)

(3 hrs)

12. SOFTWARE COST ESTIMATION

Observation on Estimation, The Project Planning Process, Software Scope and Feasibility, Resources, Human Resources, Reusable Software Resources, Software Project Estimation, Decomposition Techniques, Empirical Estimation Model, Estimation for Object – Oriented Projects, Specialized Estimation Techniques, The Make/Buy Decision
(Chapter ~~7- 7.1 to 7.5~~ -Text 1)

(4 hrs)

13. PROJECT PLANNING AND CONTROL

A Systems View of Project Control, Taxonomy of Software Development Projects, Risk Management, Techniques for Project Planning and Control
(Chapter 8- 8.1 to 8.5 -Text 2)

(6 hrs)

Text Books:

1. Roger S Pressman, "Software Engineering: A Practitioners Approach", McGrawHill Publications, 6th Edition.
2. Hans Van Valiet, "Software Engineering: Principles and Practice", Wiley India, 3rd Edition.

References:

1. Shari Lawrance PfLeeger "Software Engineering, Theory and Practice", Pearson Education, 2nd Edition.
2. Rajib Mall, "Fundamentals of Software Engineering, PHI, 3rd Edition.