C. U. Shah University, Wadhwan City

Faculty of Computer Science
Name of Program: Master of Science Information Technology
(Web Technology)
Semester : II
w.e.f. June – 2016
Teaching & Evaluation Scheme

Sr. No	Subject Code	Subject Name	Teaching Hours/Week				Credits	Evaluation Scheme/Semester							Total Marks
								Theory				Practical			
								Sessional Exam		University Exam		Internal		Uni.	
			Th	Tu	Pr	Total		Mks	Hrs	Mks	Hrs	Pr	TW	Pr	
05	5CS01WSE1	Software Engineering	4	-	-	4	4	30	1.5	70	3	-	-	-	**100**

Objectives: Students will be able to:
- How to develop software?
- Understand fundamental concepts of Software development process/designmodels/modules etc.
- Understanding different testing techniques.

Pre-requisites: Requires basic knowledge of System Analysis and Design.

Course outline:

Ch. No	Chapter Name	Course Contents	Lect. Hours
1	Introduction to Software Engineering	1.1 Introduction of Software, 1.2 The changing nature of software, 1.3 Program Vs. Software Products. 1.4 Software Characteristics 1.5 Software Engineering – A layered technology	4
2	Process Models	2.1 A Process Framework 2.2 The waterfall Model 2.3 The RAD Model 2.4 Prototyping Model 2.5 The Spiral Model	4
3	System Engineering	3.1 Computer based Systems 3.2 System Engineering Hierarchy 3.3 Overview of Business Process Engineering 3.4 Overview of Product Engineering 3.5 Requirement Engineering Task	5
4	Building Analysis Model	4.1 Requirement Analysis 4.2 Data Modelling concept 4.3 Object Oriented Analysis	3

		4.4 Class based Modelling	
5	Design concept	5.1 Design Concept 5.2 Data Design 5.3 Architectural Style and Patterns 5.4 Component 5.5 Cohesion and coupling 5.6 User Interface Analysis and design	6
6	Testing Strategies and Tactics	6.1 Verification and Validation 6.2 Test strategy for conventional software (Unit Testing, Integration Testing, System Testing, Regression Testing) 6.3 System Testing (Recovery, Security, Stress, performance, peak load test) 6.4 Black box testing, White box testing, Control structure testing	8
7	Project Management	7.1 Function point metrics, LOC 7.2 COCOMO model 7.3 The Management Spectrum (4P) 7.4 Project Scheduling(Basic Principles, define task set) 7.5 Gantt Chart, Activity Network	6
8	Risk Management	8.1 Software risk 8.2 Risk Identification 8.3 Risk Projection 8.4 Risk Refinement	4
9	Quality Management	9.1 Quality concept 9.2 Quality (quality control, assurance, cost of quality) 9.3 Software Quality Assurance (SQA activities) 9.4 Software Reliability 9.5 ISO 9000 Quality Standards	6
10	Software re-engineering	10.1 Introduction of Software re-engineering, 10.2 Reverse engineering 10.3 Restructuring	2
11	Object Modelling using UML	11.1 Overview of Object Oriented Concept (Key concept,Advantages of OOD) 11.2 Unified Modelling Language (UML) 11.3 UML diagrams 11.4 Use case model 11.5 Class diagram 11.6 Activity diagram	7
		TOTAL	**55**

Learning Outcomes:

·Successful completion of this course will enable students to develop a software project using software engineering guidelines.

Text Book

1) Software Engineering – A Practitioner's Approach, by Roger S. Pressman McGrawHill Publication
2) Fundamentals of Software Engineering, by Rajib Mall, PHI Publication

Reference books

1) Software Engineering by Jibitesh Mishra and Ashok Mohanty, Pearson Pubication.
2) Software Engineering by Bharat BhushanAgarwal and Sumitprakashtayal, Firewal Media Publication.
3) UML – A Beginner's Guide by JassonRoff, TMH Publication.