University of Computer Studies (Thaton)
2023-2024 Academic Year
Fourth Year (B.C.Sc.)

CST-4125 Software Project Management **First Semester**

Textbooks :

[1] Roger. S. Pressman, "Software Engineering, A Practitioner's Approach", 8th edition, 2015
[2] Iron Sommerville, "Software Engineering", Global Edition, 10th edition, 2016
[3] Rajib Mall, "Fundamentals of Software Engineering", Fourth Edition, 2014

Prerequisite : NIL
Credit Unit : 3 ACUs
Periods : 64 periods for 16 weeks (4 periods * 16 weeks) (1 period -1 hr)

No	Description	Periods	Reading Material
1	**Lecture 1, "Software Project Management"**	16	
	1. Introduction 2. Who is responsible for Managing a Project? 2.1 Software Project Management Complexities 2.2 Responsibilities of a Software Project Manager 3. Project Planning 3.1 Slide Window Planning 3.2 The Software Project Management Plan (SPMP) Document 3.3 Project Size Estimation 4. Project Estimation Techniques 4.1 The Empirical Estimation Techniques 4.2 A Heuristic Estimation Technique 4.3 Basic COCOMO 4.4 Intermediate COCOMO 4.4 Complete COCOMO 4.5 COCOMO II 4.6 An Analytical Techniques 5. Staffing Level Estimation 5.1 Norden's Work 5.2 Putnam's Work 5.3 Why does project cost increase when schedule is compressed? 6. Scheduling 6.1 Work Breakdown Structure 6.2 Activity Networks 6.3 Critical Path Method (CPM) 6.4 PERT Charts - Project Evaluation and Review Technique 6.5 Gantt Charts 6.6 Project Monitoring and Control 7. Organization and Team Structures 7.1 Organization Structures 7.2 Team Structure 8. Staffing 8.1 Who is a Good Software Engineer? 9. Risk Management 9.1 Risk Identification		**Rajib Mall** Chapter 3: "Software Project Management" **Iron Sommerville** Chapter- 22: "Project Management" Chapter-23: "Project Planning" **Roger. S. Pressman**, Chapter 24: "Project Management Concepts" Chapter 25: "Creating a Variable Software Plan"

No	Description	Periods	Reading Material
	9.2 Risk Assessment 9.3 Risk Mitigation 10. Miscellaneous Plans. SUMMARY Exercises		
2	**Lecture 2, "Software Quality Management"**	**16**	
	1. Introduction 2. Software Reliability 2.1 Measures of Reliability 2.2 Hardware versus Software Reliability 2.3 Reliability Metrics of Software Products 2.4 Failure Types 2.5 Reliability Growth Modeling 2.6 Statistical Testing 3. Software Quality 3.1 Software Quality Factors 3.2 ISO Standard for Quality 3.3 Software Quality Management System 4. ISO 9000 Standards 4.1 ISO 9000 Certification 4.2 ISO 9000 for Software Industry 4.3 Benefits of ISO 900 Certification 4.4 Apply for ISO 9000 Certification 4.5 Summary of ISO 9001 Requirements 4.6 Disadvantages of ISO 9000 Certification 5. SEI Capability Maturity Model (SEI/CMM) 5.1 The Different Levels of SEI/CMM 5.2 Disadvantages of CMM 5.3 Comparison between ISO 9000 Certification and SEI/CMM 5.4 Is SEI CMM Applicable to Small Organization? 5.5 Capability Maturity Model Integration (CMMI) 6. Few Other Important Quality Standards 6.1 Software Process Improvement and Capability Determination (SPICE) 6.2 Personal Software Process (PSP) 6.3 Six Sigma SUMMARY Exercises		**Rajib Mall** Chapter 11: "Software Reliability And Quality Management" **Iron Sommerville** Chapter 10: "Dependable System" Chapter 11: "Reliability Engineering" Chapter 24: "Quality Management" **Roger. S. Pressman** Chapter 15: "Quality Concepts" Chapter 17: "Software Quality Assurance"
3	**Lecture 3, "Software Maintenance and Configuration Management"**	**16**	
	1. Introduction 1.1 A Unified Theory for Software Evolution 2. Software Maintenance 2.1 Types of Software Maintenance 2.2 Challenges in Software Maintenance 3. Software Maintenance Tasks 3.1 Software Reverse Engineering 3.2 Reverse Engineering Process 3.3 Software Maintenance Process Models		**Rajib Mall** Chapter 13: "Software Maintenance" **Iron Sommerville** Chapter-25: "Configuration Management"

No	Description	Periods	Reading Material
	3.4 Estimation of Maintenance Cost 4. Software Configuration Management 4.1 Multi-version System Development 4.2 Configuration Management Activities 4.3 Version Control Systems 4.4 System Building 4.5 Change Management 4.6 Release Management SUMMARY Exercises		**Roger. S. Pressman** Chapter 27: "Strategy for Software Support"
4	**Chapter 14, "Software Security"**	**16**	
	3.1 Security and Organizations 3.2 Security Risk Assessment and Management 3.3 Security Requirements 3.4 Security Requirement for Risk Management Strategies 3.5 A Risk-Driven Security Requirements Engineering Process 3.6 Misuse Cases 4. Secure System Design 4.1 Design Risk Assessment 4.2 Architectural Design 4.3 Design Guidelines 4.4 Secure Systems Programming 5. Security Testing and Assurance SUMMARY Exercises		**Iron Sommerville** Chapter-13: "Security Engineering" **Roger. S. Pressman**, Chapter 18: "Software Security Engineering"
	Total	64	

Assessment Plan for the Course

Exam	70%
Tutorial	20%
Quiz	10%