NIRMA UNIVERSITY

Institute:	Institute of Technology
Name of Programme:	Integrated B.Tech.(CSE)-MBA
Course Code:	CSI0704
Course Title:	Software Project Management and Quality Assurance
Course Type:	Core
Year of Introduction:	2021-22

Credit Scheme

L	T	Practical Component				C
		LPW	PW	W	S	
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Course Learning Outcomes (CLO):

At the end of the course, students will be able to –

1. interpret various phases of software project management and quality assurance
2. apply the feasibility analysis in project management and network analysis tools for cost and time estimation.
3. implement a quality software project through effective team-building, planning, scheduling and risk assessment
4. develop skills to use modern software project management and development tools

Syllabus: **Total Teaching hours: 30**

Unit	Syllabus	Teaching hours
Unit-I	**Software Project Management Concepts:** The Management Spectrum, People, The Product, The Process, The W^5HH Principle **Project Scheduling:** Management Activities, Project Planning, Project Scheduling, The Relationship Between People and Effort, defining a Task Set for the Software Project, Activity Network, Time-Line Chart	06
Unit-II	**Process and Project Metrics:** Metrics in Process and Project Domains, Software Measurement, Size-Oriented Metrics, Function-Oriented Metrics, UseCase-Oriented Metrics, Metrics in Software Quality, Defect Removal Efficiency, Integrating Metrics within the Software Process **Estimation for Software Projects:** LOC-based Estimation, FP-based Estimation, UseCase-based Estimation, COCOMO I and II Model, Estimation of Object-Oriented Projects, The Make/Buy Decision	08
Unit-III	**Risk Management:** Reactive versus Proactive Risk Strategies, Software Risks, Risk Identification, Risk Projection, Risk Refinement, Risk Mitigation, Monitoring, and Management, The RMMM Plan **Project Execution and Closure:** Reviews, Project Monitoring and Control, Project Tracking, Milestone Analysis, Defect Analysis and Prevention, Project Closure	05
Unit-IV	**Quality Concepts:** Software Quality, Software Quality Requirements, Software Quality Models, Software Quality Standards **Review Techniques:** Cost Impact of Software Defects, Defect Amplification and Removal, Review Metrics and Their Use, Informal Reviews, Formal Technical Reviews	05

Unit-V	**Software Quality Assurance:** Elements of Software Quality Assurance, SQA Tasks, Goals, and Metrics, Formal Approaches to SQA, Statistical Software Quality Assurance, Software Reliability, The SQA Plan **Software Configuration Management:** SCM Activities, Baselines, Software Repository and Its Branches, Configuration Control, Software Configuration Audit	06

Self-Study: The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents

Suggested Readings/ References:

1. Roger Pressman, Software Engineering A Practitioner's Approach, McGraw Hill Publication
2. Claude Y. Laporte, Alain April, Software Quality Assurance, Wiley
3. Pankaj Jalote, Software Project Management in Practice, Addison-Wesley Professional
4. Daniel Galin, Software Quality Assurance: From Theory to Implementation, Pearson Education
5. Ian Sommerville, Software Engineering, Addison – Wesley

Suggested List of Experiments:

Sr. No.	Title	Hours
1	Define modules of a software project & design the project plan (Using Microsoft Project) for the same and identify deliverables with time line.	04
2	To explore and perform software project management using Zepel tool.	02
3	To explore and perform software project development using JIRA tool.	02
4	To explore and perform software project management and development using Github tool.	02
5	To explore and perform project functionalities using Kanbanize tool.	02
6	To explore and perform testing for quality assurance using Jenkins tool.	04
7	To explore and perform project management activities using GitLab tool.	04

Suggested Case List: -NA-