

3. All question carry equal marks.
4. Students can attempt any three from the remaining.
5. Questions will be mixed in nature (for example supposed Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3).

In question paper weightage of each module will be proportional to number of respective lecture hours as mention in the syllabus.

Subject Code	Subject Name					Credits				
MCA102	Software Engineering & Project Management					04				
Subject Code	Subject Name	Teaching Scheme			Credits Assigned		TW	Tut.	Total	
		Theory	Pract	Tut	Theory					
MCA102	Software Engineering & Project Management	04	--	--	04	--	--	04		
Subject Code	Subject Name	Examination Scheme								
MCA 102	Software Engineering & Project Management	Theory Marks					TW	Pract	Oral	Total
		Internal Assessment				End Semester Exam				
		Test1 (T1)	Test2 (T2)	Average of T1 & T2						
		20	20	20		80	-	-	-	100

Pre-requisites:

Knowledge of structure programming language and Application development.

Course Educational Objectives (CEO):

CEO 102.1	To understand the process of Software Engineering
CEO 102.2	To conceptualize the Software Development Life Cycle (SDLC) models.
CEO 102.3	To familiarize Project Management framework and Tools

Course Outcomes: At the end of the course, the students will be able to:

MCA102.1	Apply use of knowledge of Software Life Cycle to successfully implement the projects in the corporate world.
MCA102.2	Identify the Inputs, Tools and techniques to get the required Project deliverable and Product deliverable using 10 Knowledge areas of Project Management.
MCA102.3	Implement Project Management Processes to successfully complete project in IT industry.

Syllabus

Sr. No	Module	Detailed Contents	Hours
1	Introduction to software engineering and project management	Introduction to Software Engineering: Software, Evolving role of software, Three “R”-Reuse, Reengineering and Retooling, An Overview of IT Project Management: Define project, project management framework, The role of project Manager, Systems View of Project Management, Stakeholder management, Project phases and the project life cycle.	6
2	Software Process Models	Waterfall Model, Evolutionary Process Model: Prototype and Spiral Model, Incremental Process model: Iterative approach, RAD, JAD model, Concurrent Development Model, Agile Development: Extreme programming, Scrum.	6
3	Software Requirement Analysis and Specification	Types of Requirement, Feasibility Study, Requirement Analysis and Design: DFD, Data Dictionary, HIPO Chart, Warnier Orr Diagram, Requirement Elicitation: Interviews, Questionnaire, Brainstorming, Facilitated Application Specification Technique (FAST), Use Case Approach. SRS Case study, Software Estimation: Size Estimation: Function Point (Numericals). Cost Estimation: COCOMO (Numericals), COCOMO-II (Numericals). Earned Value Management.	11

4	Software Project Planning	Business Case, Project selection and Approval, Project charter, Project Scope management: Scope definition and Project Scope management, Creating the Work Breakdown Structures, Scope Verification, Scope Control.	8
5	Project Scheduling and Procurement management	Relationship between people and Effort: Staffing Level Estimation, Effect of schedule Change on Cost, Degree of Rigor & Task set selector, Project Schedule, Schedule Control, CPM (Numericals), Basic Planning Purchases and Acquisitions, Planning Contracting, Requesting Seller Responses, Selecting Sellers, Out Sourcing: The Beginning of the outsourcing phenomenon, Types of outsourcing relationship, The realities of outsourcing, Managing the outsourcing relationship.	6
6	Software Quality	Software and System Quality Management: Overview of ISO 9001, SEI Capability Maturity Model, McCall's Quality Model, Six Sigma, Formal Technical Reviews, Tools and Techniques for Quality Control, Pareto Analysis, Statistical Sampling, Quality Control Charts and the seven Run Rule. Modern Quality Management, Juran and the importance of Top management, Commitment to Quality, Crosby and Striving for Zero defects, Ishikawa and the Fishbone Diagram.	7 Hrs
7	Human Resource Management	Human Resource Planning, Acquiring the Project Team: Resource Assignment, Loading, Leveling, Developing the Project Team: Team Structures, Managing the Project Team, Change management: Dealing with Conflict & Resistance Leadership & Ethics.	4 Hrs
8	Software Risk Management and Reliability issues	Risk Management: Identify IT Project Risk, Risk Analysis and Assessment, Risk Strategies, Risk Monitoring and Control, Risk Response and Evaluation. Software Reliability: Reliability Metrics, Reliability Growth Modeling.	4 Hrs

Reference Books:

1. Software Engineering, 5th and 7th edititon, by Roger S Pressman, McGraw Hill publication.
2. Managing Information Technology Project, 6edition, by Kathy Schwalbe, Cengage Learning publication.
3. Information Technology Project Management by Jack T Marchewka Wiley India publication.
4. Software Engineering 3rd edition by KK Agrawal, Yogesh Singh, New Age International publication.
5. Software Engineering Project Management by Richard H. Thayer Wiley India Publication.

6. Software Engineering for students: A Programming Approach by Douglas Bell, Pearson publication.

Assessment:

Internal:

Assessment consists of two tests (T1 and T2) .The final marks should be the average of the two tests.

End Semester Theory Examination: guidelines for setting up the question paper.

1. Question paper will comprise of total six questions.
2. Question Number One should be compulsory.
3. All question carry equal marks.
4. Students can attempt any three from the remaining.
5. Questions will be mixed in nature (for example supposed Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3).

In question paper weightage of each module will be proportional to number of respective lecture hours as mention in the syllabus.

Subject Code	Subject Name					Credits			
MCA103	Computer Organization and Architecture					04			
Subject Code	Subject Name	Teaching Scheme			Credits Assigned				
		Theory	Pract	Tut	Theory	TW	Tut.	Total	
MCA103	Computer Organization & Architecture	04	--	--	04	--	--	04	
Subject Code	Subject Name	Examination Scheme							
MCA 103	Computer Organization and Architecture	Theory Marks				TW	Pract	Oral	Total
		Internal Assessment			End Semester Exam				
		Test1 (T1)	Test2 (T2)	Average of T1 & T2					
		20	20	20		80	-	-	-

Pre-requisites:

Basic knowledge of Computer Fundamentals

Course Educational Objectives (CEO):

University of Mumbai, MCA Sem I and Sem II Rev. 2016-17