



BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT
 (An Autonomous Institution affiliated to VTU, Belagavi)

FIRST INTERNAL ASSESSMENT TEST, JULY, 2022 - 23

Course Name	Software Engineering	Course Code	22MCA201
Branch & Semester	1 st sem MCA	Date	26-07-2023
Name of the Course Coordinator (s)	Prof. Venkatesh A	Max. Marks	40

Note: Answer THREE full questions from Part A and Part B questions are compulsory.

PART A

Qn. No.		Marks	CO
1.	A Explain attributes of a good software. B Differentiate between Computer Science and Software Engineering.	4 M 4 M	CO1 K1
	OR		
2.	A Write short notes on: Software engineering ethics. B Ethnography.	4 M 4 M	CO1 K1
3.	Compare and contrast Waterfall model and Incremental development model.	8 M	CO1 K2
	OR		
4.	Exemplify IEEE/ACM code of Ethics.	8 M	CO1 K2
5.	How V-model of software development overcomes the drawbacks of traditional Waterfall model?	8M	CO2 K2
	OR		
6.	What is Prototyping? Analyze the need for Prototyping process, and explain the Prototyping model.	8M	CO2 K2
	PART B		
7.	Agile methods are extensively used in the software industry. Analyze the need for Agile methods in Industry and suggest when we can use, and when to avoid Agile methods.	8 M	CO2 K3
8.	Consider the case study of Insulin pump control system. Design the Activity model and Usecase model and explain how to implement safety and dependability features.	8 M	CO5 K3

Course Outcomes (COs)

CO1:	Explore the basic aspects of Software Engineering	RSS D
CO2:	Define the requirements of a software system	
CO3:	Formulate a testing strategy for a software system	
CO4:	Evaluate the quality of the requirements, analysis and design work done	
CO5	Make effective use of UML to create appropriate designs	


BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(An Autonomous Institution affiliated to VTU, Belagavi)

SECOND INTERNAL ASSESSMENT TEST, AUGUST, 2022 - 23

Course Name	Software Engineering	Course Code	22MCA201
Branch & Semester	1 st sem MCA	Date	26-08-2023
Name of the Course Coordinator (s)	Prof. Venkatesh A	Max. Marks	40

Note: Answer THREE full questions from Part A and Part B questions are compulsory.

Qn. No.	PART A	Marks	CO
1.	Explain Boehm's Spiral model and its applicability in today's scenario.	8M	CO2 K2
OR			
2.	Elaborate the different ways of representing System requirements? Illustrate any 3 techniques with example.	8M	CO2 K2
3.	Demonstrate how Extreme programming helps in Capacity Building and Quick Delivery of Software.	8 M	CO4 K2
OR			
4.	Define Scrum? Illustrate Scrum life cycle with the focus on releasing the software in terms of small iterations.	8 M	CO4 K2
5.	Justify the need for UML. Explain types of UML models and notations used.	8M	CO5 K2
OR			
6.	Explain Model driven engineering with special focus on rapid application development.	8M	CO5 K2
PART B			
7.	Assume the case of Cargo management system, illustrate how a Domain Driven Design model can be converted into code. Explain how a developer interprets the model.	8 M	CO5 K3
8.	Consider a Publisher, who publishes books regularly and have few thousands of subscribers for his business. He would like to send notifications to all his subscribers whenever he publishes new books or whenever he changes book prices. Identify a suitable design pattern and draw the Class model and Sequence model.	8 M	CO5 K3

Course Outcomes (COs)

CO1:	Explore the basic aspects of Software Engineering
CO2:	Define the requirements of a software system
CO3:	Formulate a testing strategy for a software system
CO4:	Evaluate the quality of the requirements, analysis and design work done
CO5:	Make effective use of UML to create appropriate designs

DIVD INSTITUTE OF TECHNOLOGY AND MANAGEMENT
 (An Autonomous Institution affiliated to VTU, Belagavi)

THIRD INTERNAL ASSESSMENT TEST, SEPTEMBER, 2022 - 23

Course Name	Software Engineering	Course Code	22MCA201
Branch & Semester	2 nd sem MCA	Date	25-09-2023
Name of the Course Coordinator (s)	Prof. Venkatesh A	Max. Marks	40

Note: Answer THREE full questions from Part A and Part B questions are compulsory.

PART A

Qn. No.		Marks	CO
1.	What is Risk management? Discuss various project, product and business risks.	8M	CO2 K2
2.	How Quality management is different from testing? Illustrate with example.	8M	CO2 K2
3.	What are the characteristics of a Legacy system? Explain in detail.	8 M	CO4 K2
4.	OR Socio-technical systems are complex in its design. Justify.	8 M	CO4 K2
5.	Write short notes on: i) Test driven development ii) System procurement.	8M	CO3 K2
6.	OR Demonstrate the concept of Program evolution dynamics with focus on changing requirements.	8M	CO3 K2
	PART B		
7.	Cost estimation for software projects vary from project to project. List out the parameters that can impact Project cost and explain.	8 M	CO4 K3
8.	Consider a scenario where you are hosting an e-commerce application and you are managing that server. Your task is to mask the identity of the server and to reduce the server traffic. Suggest a suitable design pattern that does this job for you. Develop the Java code for this pattern.	8 M	CO5 K3

Course Outcomes (COs)

CO1:	Explore the basic aspects of Software Engineering
CO2:	Define the requirements of a software system
CO3:	Formulate a testing strategy for a software system
CO4:	Evaluate the quality of the requirements, analysis and design work done
CO5:	Make effective use of UML to create appropriate designs



21MCA201



USN 1 B Y 2 1 M C O 4 8

BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT
 (An Autonomous Institute affiliated to Visvesvaraya Technological University, Belagavi)

SEMESTER END EXAMINATION QUESTION PAPER**Second Semester MCA Degree Examination, October – 2022****SOFTWARE ENGINEERING AND DESIGN****Max. Marks: 100****Time: 3 hrs.***Note: Answer FIVE full questions, choosing ONE full question from each module.*

Q. No	Module - 1	Marks	CO, RBT
1a.	What are the major differences between system engineering and software engineering?	6	CO1, K1
b.	Explain attributes of a good software.	4	CO1, K1
c.	Explain Waterfall Model. What are the problems that are sometimes encountered when the waterfall model is applied?	10	CO1, K1
OR			
2a.	What is the importance of Software Engineering?	5	CO1, K1
b.	Describe in detail about the Agile Software Development.	9	CO1, K1
c.	What are the Advantages of incremental model?	6	CO1, K1
Module – 2			
3a.	Describe five desirable characteristics of a good software requirement specification document.	5	CO2, K2
b.	Explain the structure of Software Requirements document.	10	CO2, K2
c.	Explain the following five Component characteristics: i) Standardized ii) Independent iii) Composable iv) Deployable v) Documented	5	CO2, K2
OR			
4a.	Differentiate functional and non-functional requirements.	4	CO2, K2
b.	What is Requirements change management? Explain with the help of a neat diagram.	8	CO2, K2
c.	Explain the Component Based Software Engineering (CBSE).	8	CO2, K2
Module – 3			
5a.	Write about architectural styles and patterns.	8	CO3, K2

b.	Differentiate between structural and behavioural models.	5	CO3, K2
c.	Illustrate the architectural styles for C&C view.	7	CO3, K2
OR			
6a.	What is system modelling? Explain the factors that should be considered when building models.	7	CO3, K2
b.	Classify design models into static and dynamic and explain.	7	CO3, K2
c.	Analyze the need for design diagrams in a software project.	6	CO3, K2
Module – 4			
7a.	What do you mean by risk management? Explain how to select the best risk reduction technique when there are many ways of reducing a risk?	7	CO4, K2
b.	Distinguish between error and failure. Which of the two is detected by testing? Justify.	6	CO4, K2
c.	What is the necessity of unit testing? Write down all unit test considerations.	7	CO4, K2
OR			
8a.	Why software process planning is very important? Explain the steps.	8	CO4, K2
b.	Write short notes on Project monitoring plan.	5	CO4, K2
c.	Discuss the differences between black box and white box testing.	7	CO4, K2
Module – 5			
9a.	Discuss the various issues involved with Distributed systems.	6	CO5, K2
b.	Write short notes on software as a service.	6	CO5, K2
c.	Explore the various Function Oriented Design strategies.	8	CO5, K2
OR			
10a.	Define the concepts cohesion and coupling. State the difference.	9	CO5, K2
b.	Describe various architectural patterns for distributed systems.	5	CO5, K2
c.	Explain various design metrics with example.	6	CO5, K2

Course Outcomes (COs): At the end of the course, the student will be able to

COs	Statements
CO-1	Explore the basic aspects of Software Engineering
CO-2	Define the requirements of a software system
CO-3	Formulate a testing strategy for a software system
CO-4	Evaluate the quality of the requirements, analysis and design work done
CO-5	Make effective use of UML to create appropriate designs

“Success is not final; failure is not fatal... it is the courage to continue that counts”.



BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT
 (An Autonomous Institution affiliated to VTU, Belagavi)
DEPARTMENT OF MCA

FIRST INTERNAL ASSESSMENT, JULY 2022

Course	Software Engineering & Design	Course Code	21MCA201
Branch & Semester	2nd sem MCA	Date	25-07-2022
Name of the Course Coordinator (s)	Prof. Venkatesh A	Max. Marks	40

Note: Answer THREE full questions from Part A and Part B questions are compulsory.

Qn. No.	PART A		Marks	CO
1.	Define Software Engineering? Explain attributes of a good software.		8 M	CO1 K2
	OR			
2.	A Write short notes on: Software engineering ethics. B Ethnography.		8 M	CO1 K2
3.	List out various Software Process models and explain any 2 models.		8 M	CO1 K1
	OR			
4.	Explain V-model of software development with the help of a neat diagram.		8 M	CO1 K1
5.	Write the structure of Requirements document as suggested by IEEE/ACM. Explain in detail.		8M	CO2 K2
	OR			
6.	What is Requirements Engineering Process? Explain with the help of a neat diagram.		8M	CO2 K2
	PART B			
7.	Agile methods are extensively used in the software industry. Analyze the need for Agile methods in Industry and suggest when we can use and when to avoid using Agile methods.		8 M	CO4 K3
8.	Consider the case study of Mentcare System, analyze the requirements and model the system using UML diagrams. Also suggest which process model you can use for developing the system, justify your answer.		8 M	CO5 K3

Course Outcomes (COs)

CO1: Explore the basic aspects of Software Engineering

CO2: Define the requirements of a software system

CO3: Formulate a testing strategy for a software system

CO4: Evaluate the quality of the requirements, analysis and design work done

CO5 Make effective use of UML to create appropriate designs

Signatures of the Question Paper Scrutiny Committee

[Handwritten signatures of the Question Paper Scrutiny Committee members]



BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(An Autonomous Institution Affiliated to VTU, Belagavi)

DEPARTMENT OF MCA
SECOND INTERNAL ASSESSMENT, AUGUST 2022

Subject	Software Engineering and Design	Course Code	21MCA201
Branch & Semester	2 nd sem MCA	Date	25-08-2022
Name of the Course Coordinator (s)	Prof. Venkatesh A	Max. Marks	40

Note: Answer THREE full questions from Part A and Part B questions are compulsory.

Qn. No.	PART A	Marks	CO
1.	Explain Requirements Elicitation and Analysis in detail.	8 M	CO4 K1
	OR		
2.	What is Requirements change management? Explain with the help of a neat diagram.	8 M	CO4 K1
3.	Depict various Architectural styles used in system design. What is the need for Architectural design?	8 M	CO5 K2
	OR		
4.	How to document the system design? Illustrate with example models.	8 M	CO5 K2
5.	When we can use Usecase models? Illustrate with suitable example.	8M	CO5 K2
	OR		
6.	Illustrate CBSE process with the help of a neat diagram.	8M	CO5 K2
PART B			
7.	Modifying the Architectural design in Agile process is very expensive. Justify your answer.	8 M	CO3 K3
8.	Assume the case of Insulin Pump Control System, Write the Scenario and develop Task cards and Test cards for the same using Agile methodology.	8 M	CO5 K3

Course Outcomes (COs)

CO1: Explore the basic aspects of Software Engineering

CO2: Define the requirements of a software system

CO3: Formulate a testing strategy for a software system

CO4: Evaluate the quality of the requirements, analysis and design work done

CO5: Make effective use of UML to create appropriate designs

Bloom's Category

Remembering (K1)	Understanding (K2)	Applying (K3)	Analyzing (K4)	Evaluating (K5)	Creating (K6)
----------------------------	------------------------------	-------------------------	--------------------------	---------------------------	-------------------------

Signatures of the Question Paper Scrutiny Committee

 A. K. Patil 22/8/22 Course Coordinator(s)	 Renuka 22/8/22 for Module Coordinator	 Program Coordinator	 22/08/22 Head of the Department
---	---	-------------------------	--



BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(An Autonomous Institution Affiliated to VTU, Belagavi)

DEPARTMENT OF MCA

THIRD INTERNAL ASSESSMENT, SEPTEMBER 2022

Subject	Software Engineering and Design	Course Code	21MCA201
Branch & Semester	II sem MCA	Date	19-09-2022
Name of the Course Coordinator(s)	Prof. Venkatesh A	Max. Marks	40

Note: Answer THREE full questions from Part A and Part B questions are compulsory.

PART A

Qn. No.		Marks	CO
1.	What is Testing? Explain any 2 Black box testing types.	8 M	CO3 K1
	OR		
2.	Explain Integration and System testing in detail.	8 M	CO3 K1
3.	State Open-closed principle. Explain how it is application for software design.	8 M	CO4 K2
	OR		
4.	Illustrate various complexity metrics with example.	8 M	CO4 K2
5.	What is Project planning? Explain steps.	8M	CO5 K2
	OR		
6.	Differentiate between top-down and bottom-up models of Effort estimation.	8M	CO5 K2
	PART B		
7.	Assume there is a menu driven program written by you which has 2 user defined functions to do bubble sort and quick sort. Now if you want to do unit testing of your code, what is the procedure you follow. Explain in detail with sample code snippets.	8 M	CO3 K4
8.	Consider the case of Flipkart App, which strictly follows the agile model. Identify the testing techniques that need to be used to ensure new modules that are added to the system are working fine without hampering the existing modules. What is the impact of adding new modules to the system?	8 M	CO4 K4

Course Outcomes (COs)

- CO1: Explore the basic aspects of Software Engineering
- CO2: Define the requirements of a software system
- CO3: Formulate a testing strategy for a software system
- CO4: Evaluate the quality of the requirements, analysis and design work done
- CO5: Make effective use of UML to create appropriate designs

Remembering (K1)	Understanding (K2)	Applying (K3)	Analyzing (K4)	Evaluating (K5)	Creating (K6)
Signatures of the Question Paper Scrutiny Committee					
Course Coordinator(s) 	Module Coordinator(s) 	Program Coordinator 		Head of the Department 	