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. System engineering Agile Methodology	8 M	CO1 K2
		OR		
2.	A B	Write short notes on: Software engineering ethics. Ethnography. RUP in detail computer science engineering	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. waterfall model	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

DEPARTMENT OF MCA

SECOND INTERNAL ASSESSMENT, AUGUST 2022

Subject	Software Engineering and Design	Course Code	21MCA201
Branch & Semester	2nd 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. design diagram in software project Illustrate the architectural design style for 4+1 view?	8 M	CO5 K2
5.		When we can use Usecase models? Illustrate with suitable example. Role of software architecture ? explain architect views	8M	CO5 K2
		OR		
6.		Illustrate CBSE process with the help of a neat diagram. Structural & Behavioural models model driven engin.	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

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CO5 Make effective use of UML to create appropriate designs

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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.*

Qn. No.		PART A	Marks	CO
1.		What is Testing? Explain any 2 Black box testing types. / different types ? Risk mgt	8 M	CO3 K1
		OR		
2.		Explain Integration and System testing in detail.	8 M	CO3 K1
		Describe various architectural pattern available for distributed system ?		
3.		State Open-closed principle. Explain how it is application for software design. Short note Software As Service	8 M	CO4 K2
		OR		
4.		Illustrate various complexity metrics with example. function oriented design with example ?	8 M	CO4 K2
		Project Monitoring Plan		
5.		What is Project planning? Explain steps. Illustrate impact of Test Automation on Project cost.	8M	CO5 K2
		OR		
6.		Differentiate between top-down and bottom-up models of Effort estimation. coupling & cohesion	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

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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

Time: 3 hrs. **Max. Marks: 100**

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

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