P. R. GOVT. COLLEGE (AUTONOMOUS), KAKINADA

SYLLABUS PAPER W.E.F.2020-2021

III B.Sc.(CS) V SEMESTER

SOFTWARE ENGINEERING - PAPER- IV

Course Objectives

The Objective of the course is to assist the student in understanding the basic theory of software engineering, and to apply these basic theoretical principles to a group software development project.

Course outcomes

1. Ability to gather and specify requirements of the software projects.
2. Ability to analyze software requirements with existing tools
3. Able to differentiate different testing methodologies
4. Able to understand and apply the basic project management practices in real life projects
5. Ability to work in a team as well as independently on software projects

MODULE-I

INTRODUCTION: Software Engineering Process paradigms - Project management - Process and Project Metrics – software estimation - Empirical estimation models - Planning - Risk analysis - Software project scheduling.

MODULE-II

REQUIREMENTS ANALYSIS : Requirement Engineering Processes – Feasibility Study – Problem of Requirements – Software Requirement Analysis – Analysis Concepts and Principles – Analysis Process – Analysis Model

MODULE-III

SOFTWARE DESIGN: Software design - Abstraction - Modularity - Software Architecture - Effective modular design - Cohesion and Coupling - Architectural design and Procedural design - Data flow oriented design.

MODULE-IV

USER INTERFACE DESIGN AND REAL TIME SYSTEMS : User interface design - Human factors - Human computer interaction - Human - Computer Interface design - Interface design - Interface standards.

MODULE-V

SOFTWARE QUALITY AND TESTING : Software Quality Assurance - Quality metrics - Software Reliability - Software testing - Path testing – Control Structures testing - Black Box testing - Integration, Validation and system testing - Reverse Engineering and Re- engineering.

CASE tools –projects management, tools - analysis and design tools – programming tools - integration and testing tool - Case studies.

REFERENCE BOOKS

1. Roger Pressman S., “Software Engineering: A Practitioner's Approach”, 7th Edition, McGraw Hill, 2010.
2. Software Engineering Principles and Practice by Deepak Jain Oxford University Press
2. Sommerville, “Software Engineering”, Eighth Edition, Pearson Education, 2007
3. Pfleeger, “Software Engineering: Theory & Practice”, 3rd Edition, Pearson Education, 2009
4. Carlo Ghazi, Mehdi Jazayari, Dino Mandrioli, “Fundamentals of Software Engineering”, Pearson Education, 2003

Student Activity:

1. **Visit any financial organization nearby and prepare requirement analysis report**
2. **Visit any industrial organization and prepare risk chart.**

III YEAR V SEMESTER

Software Engineering Lab

1. Studying various phases of Water-Fall Model.
2. Prepare SRS for Banking or On line book store domain problem
3. Using COCOMO model estimate effort for Banking or on line book store domain problem.
4. Calculate effort using FP oriented estimation model
5. Analyze the Risk related to the project and prepare RMMM plan.
6. Develop Time-line chart and project table using PERT or CPM project scheduling methods.
7. Draw E-R diagram, DFD, CFD and STD for the project.
8. Design of the test cases.
9. Prepare FTR. Version control and change control for software configuration item.

PROJECT & VIVA-VOCE

The objective of the project is to motivate them to work in emerging/latest technologies, help the students to develop ability, to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories.

The project is of 3 hours/week for V & VI semester duration and a student is expected to do planning, analyzing, designing, coding, and implementing the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.

The project proposal should include the following:

- Title
- Objectives
- Input and output
- Details of modules and process logic
- Limitations of the project
- Tools/platforms, Languages to be used
- Scope of future application

The Project work should be either an individual one or a group of not more than three members and submit a project report at the end of the semester. The students shall defend their dissertation in front of experts during viva-voce examinations.

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT FOR THE YEAR 2020-2021
III B.SC (CS) 2020-2023 BATCH

Course Code: CP6207
SEMESTER-V

SUBJECT: SOFTWARE ENGINEERING

Time: 2 1/2 Hrs

PAPER- IV **Max. Marks: 60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL		**19**		**115**	**TOTAL MARKS**		**60**

$$\text{Percentage of choice given} = \frac{115 - 60}{115} \times 100 = \frac{55}{115} \times 100 = 47.82\%$$

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

III B.SC (CS) 2020-2023 BATCH

(Model paper W.E.F 2020-2021)

Subject: Software Engineering **Time: 2 1/2 Hrs**

Paper: IV **Max. Marks: 60**

SEMESTER – V

SECTION - I

Answer ALL questions **5 x 1= 5 M**

1. What is Software Engineering process?
2. Define Feasibility Study?
3. Define Software Design?
4. Explain about Re-engineering?
5. Define Integration Testing?

SECTION - II

Answer THREE questions **3 x 5= 15 M**

6. Explain about Software Project Scheduling?
7. Explain about Problem of Requirements?
8. Explain about Analysis Model?
9. What is Cohesion and Coupling?
10. Write about Interface Standards?
11. Explain about Black Box testing?

SECTION - III

Answer ALL questions **4 x 10= 40 M**

12. a) Explain Software Project Process and .Metrics in detail

    (OR)

    b) Discuss in detail about Software Requirement Analysis.

13. a) Explain in detail about the Software Architecture

    (OR)

    b) Discuss the Data Flow oriented design.

14. a) Describe the Human Computer Interaction and Computer Interface design.

    (OR)

    b) Explain in detail about Quality Assurance and Quality metrics.

15. a) Explain the importance Validation and System Testing.

    (OR)

    b) Explain about Programming tools and Testing tools.

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MODEL BLUE PRINT FOR MODULE_WISE FOR THE YEAR 2020-21

III B.SC (CS) 2020-2023 BATCH

Computer Science Course: Software Engineering

Time : 2.30 Hrs. **SEMESTER-V** **Max. Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
MODULE -I	2	2	2	32
MODULE -II	2	2	1	31
MODULE -III	2	1	1	26
MODULE – IV,V	2	1	1	26
Total No. of questions	8	8	5	
Total Marks Including choice				115

P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA
III B.SC (CS) 2020-21
Course Code: CP6207
SEMESTER-V

Subject: Software Engineering Credits: 02

Project Work : 50Marks

Internal Viva	15 Marks
External Viva	35 Marks