FUTURE VISION BIE

One Stop for All Study Materials

& Lab Programs

Future Vision

By K B Hemanth Raj

Scan the QR Code to Visit the Web Page

Or

Visit : https://hemanthrajhemu.github.io

Gain Access to All Study Materials according to VTU,
CSE – Computer Science Engineering,
ISE – Information Science Engineering,
ECE - Electronics and Communication Engineering
& MORE...

Join Telegram to get Instant Updates: https://bit.ly/VTU_TELEGRAM

Contact: MAIL: futurevisionbie@gmail.com

INSTAGRAM: www.instagram.com/hemanthraj_hemu/

INSTAGRAM: www.instagram.com/futurevisionbie/

WHATSAPP SHARE: https://bit.ly/FVBIESHARE

SOFTWARE TESTING [As per Choice Based Credit System (CBCS) scheme] (Effective from the academic year 2017 - 2018) SEMESTER – VI			
Subject Code	17IS63	IA Marks	40
Number of Lecture Hours/Week	4	Exam Marks	60
Total Number of Lecture Hours	50	Exam Hours	03
CREDITS – 04			

Module – 1	**Teaching Hours**
Basics of Software Testing: Basic definitions, Software Quality , Requirements, Behaviour and Correctness, Correctness versus Reliability, Testing and Debugging, Test cases, Insightsfrom a Venn diagram, Identifying test cases, Test-generation Strategies, Test Metrics, Error and fault taxonomies , Levels of testing, Testing and Verification, Static Testing. **Problem Statements:** Generalized pseudocode, the triangle problem, the NextDate function, the commission problem, the SATM (SimpleAutomatic Teller Machine) problem, the currency converter, Saturnwindshield wiper **T1:Chapter1, T3:Chapter1, T1:Chapter2.**	**10 Hours**
Module – 2	
Functional Testing: Boundary value analysis, Robustness testing, Worst-case testing, Robust Worst testing for triangle problem, Nextdate problem and commission problem, Equivalence classes, Equivalence test cases for the triangle problem, NextDate function, and the commission problem, Guidelines and observations, Decision tables, Test cases for the triangle problem, NextDate function, and the commission problem, Guidelines and observations. **Fault Based Testing:** Overview, Assumptions in fault based testing, Mutation analysis, Fault-based adequacy criteria, Variations on mutation analysis. **T1: Chapter 5, 6 & 7, T2: Chapter 16**	**10 Hours**
Module – 3	
Structural Testing: Overview, Statement testing, Branch testing, Condition testing , Path testing: DD paths, Test coverage metrics, Basispath testing, guidelines and observations, Data –Flow testing: Definition-Use testing, Slice-basedtesting, Guidelines and observations**. Test Execution:** Overview of test execution, from test case specification to test cases, Scaffolding, Generic versus specific scaffolding, Test oracles, Self-checks as oracles, Capture and replay **T3:Section 6.2.1, T3:Section 6.2.4, T1:Chapter 9 & 10, T2:Chapter 17**	**10 Hours**
Module – 4	
Process Framework : Basic principles: Sensitivity, redundancy, restriction, partition, visibility, Feedback, the quality process, Planning and monitoring, Quality goals, Dependability properties ,Analysis Testing, Improving the process, Organizational factors. **Planning and Monitoring the Process:** Quality and process, Test and analysis strategies and plans, Risk planning, monitoring the process, Improving the process, the quality team **Documenting Analysis and Test:** Organizing documents, Test strategy document, Analysis and test plan, Test design specifications documents, Test and analysis reports. **T2: Chapter 3 & 4, T2: Chapter 20, T2: Chapter 24.**	**10 Hours**

Module – 5	
Integration and Component-Based Software Testing: Overview, Integration testing strategies, Testing components and assemblies. System, Acceptance and Regression Testing: Overview, System testing, Acceptance testing, Usability, Regression testing, Regression test selection techniques, Test case prioritization and selective execution. **Levels of Testing, Integration Testing:** Traditional view of testing levels, Alternative life-cycle models, The SATM system, Separating integration and system testing, A closer look at the SATM system, Decomposition-based, call graph-based, Path-based integrations**.** **T2: Chapter 21 & 22,T1 : Chapter 12 & 13**	**10 Hours**

Course outcomes: The students should be able to:

- Discuss test cases for any given problem
- Compare the different testing techniques
- Illustrate the problem into suitable testing model
- Understand the appropriate technique for the design of flow graph.
- Design and Develop appropriate document for the software artefact.

Question paper pattern:

The question paper will have TEN questions.
There will be TWO questions from each module.
Each question will have questions covering all the topics under a module.
The students will have to answer FIVE full questions, selecting ONE full question from each module.

Text Books:

1. Paul C. Jorgensen: Software Testing, A Craftsman's Approach, 3rd Edition, Auerbach Publications, 2008. (Listed topics only from Chapters 1, 2, 5, 6, 7, 9, 10, 12, 13)
2. Mauro Pezze, Michal Young: Software Testing and Analysis – Process, Principles and Techniques, Wiley India, 2009. (Listed topics only from Chapters 3, 4, 16, 17, 20,21, 22,24)
3. Aditya P Mathur: Foundations of Software Testing, Pearson Education, 2008.(Listed topics only from Section 1.2 , 1.3, 1.4 ,1.5, 1.8,1.12,6. 2.1,6. 2.4)

Reference Books:

1. Software testing Principles and Practices – Gopalaswamy Ramesh, SrinivasanDesikan, 2 nd Edition, Pearson, 2007.
2. Software Testing – Ron Patton, 2nd edition, Pearson Education, 2004.
3. The Craft of Software Testing – Brian Marrick, Pearson Education, 1995.
4. AnirbanBasu, Software Quality Assurance, Testing and Metrics, PHI, 2015.
5. NareshChauhan, Software Testing, Oxford University press.