



GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

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|-------------------------------------|---------------------------------|--|---------------------------------|
| Programme | Master of Computer Applications | Branch/Spec. | Computer Application |
| Semester | II | Version | 1.0.0.0 |
| Effective from Academic Year | 2024-25 | Effective for the batch Admitted in | June 2024 |
| Subject Code | P12A4FST | Subject Name | Fundamental of Software Testing |

| Teaching scheme | | | | | | Examination scheme (Marks) | | | |
|-----------------|--------------|----|------------------|----|-------|----------------------------|----|-----|-------|
| (Per week) | Lecture (DT) | | Practical (Lab.) | | Total | | CE | SEE | Total |
| | L | TU | P | TW | | | | | |
| Credit | 2 | 0 | 2 | 0 | 2 | Theory | 40 | 60 | 100 |
| Hours | 2 | 0 | 4 | 0 | 6 | Practical | 20 | 30 | 50 |

Objective:

- To learn fundamentals of software testing. Students will learn about testing tools, techniques, methods, defect Management and reporting.

Pre-requisites:

- One should have basic knowledge of software development life cycle and Software Engineering.

Course Outcomes :

- 1 = Slight (Low); 2 = Moderate (Medium); 3 = Substantial (High); “-” = No Correlation

| Name of CO | Description |
|------------|---|
| CO1 | Understand the core principles of software testing, including V-model and the Software Testing Life Cycle (STLC). |
| CO2 | Apply black-box, white-box, gray-box, and UI testing techniques across different testing levels. |
| CO3 | Analyze advanced testing types such as regression, usability, performance, security, and mobile/web testing. |
| CO4 | Demonstrate the use of Bugzilla and Mantis tools to create and manage defect reports effectively. |

Mapping of CO and PO

| Cos | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| CO1 | 3 | 2 | 1 | 1 | – | – | – | 1 |
| CO2 | 2 | 3 | 2 | 2 | 1 | – | – | 1 |
| CO3 | 1 | 3 | 3 | 3 | 1 | 1 | 1 | 2 |
| CO4 | 1 | 2 | 2 | 3 | 2 | 2 | 1 | 2 |

Content:

| Unit | SECTION – I | Hrs |
|------|---|-----|
| 1 | Overview of Software Testing: What is software testing?, Why is software testing important?, Benefits of software testing, Scope of testing, Why should we test, Role of | 6 |

| | | |
|--|--|---|
| | software tester, Verification and Validation, Independent Verification and Validation, Phase of testing (Introduction), V-model, Testing model, Software Testing Life Cycle. | |
| 2 | Software Testing Techniques and Testing Level & Types: Static and Dynamic testing, Testing Techniques: Black box Testing, White box Testing, Gray box Testing, User Interface Testing: Form level Validation & Inter form dependencies, Field Level Validation & Inter field dependencies, Error messages validation. Phase of Testing: Unit Testing, Integration Testing, System Testing, User Acceptance Testing, Functional and Non Functional Testing. | 9 |
| SECTION – II | | |
| 3 | Software Testing Level & Types : Usability Testing, Localization Testing, Documentation Testing, Regression Testing, Database Testing, Exploratory Testing, Alpha & Beta Testing, Performance Testing, Stress and Load Testing, Security Testing, Volume Testing. Web based Testing & Mobile Application Testing. Familiar with available software testing tools. | 6 |
| 4 | Bug and Issue Tracking Tools: What is bug?, Types of bugs, Bugzilla Defect Tracker: What is Bugzilla?, Features of Bugzilla, Login to Bugzilla account, Creating a Bug report, Simple Search Option, Advance Search Option. MANTIS Bug Tracker: What is Mantis?, Features of Mantis, Login to Mantis, Report an Issue, Add a Project, Create a User, Create Custom Field, Analysis of reports. | 9 |
| Practical Content: | | |
| List of programs specified by the subject teacher based on above mentioned topics. | | |
| Text Books: | | |
| 1 | Software Testing-Principles and Practices - By Srinivasan Desikan and Gopalswamy Ramesh, Perason Education 1st edition 2005. | |
| 2 | Effective Methods of Software Testing (3rd Edition) - By William E, Software Perry Wiley, India 3rd Edition 2006. | |
| Reference Books: | | |
| 1 | Software Testing (A Practical Approach) Rajiv Chopra S.K. KATARIA & SONS publication 2011 | |
| 2 | The Art of Software Testing - by Glenford J Myers John Wiley & Sons 3rd Edition 2011. | |
| 3 | https://www.guru99.com/software-testing.html | |
| 4 | https://www.softwaretestinghelp.com/quality-assurance-vs-quality-control/ | |
| MOOC/Certification Courses: | | |
| 1 | https://www.udemy.com/courses/development/software-testing/ | |
| 2 | https://www.coursera.org/ | |
| 3 | https://www.mygreatlearning.com/academy/learn-for-free/courses/software-testing-fundamentals1 | |
| Question Paper Scheme: | | |
| University Examination Duration: 3 Hours Note for Examiner: - (I) Questions 1 and 4 are compulsory with no options. (II) Internal options should be given in questions 2, 3, 5 and 6. SECTION – I Q.1 –8 Marks Q.2 –11 Marks Q.3 –11 Marks SECTION - II Q.4 –8 Marks Q.5 –11 Marks Q.6 –11 Marks | | |