GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

Programme	Master of Computer Applications	**Branch/Spec.**	Computer Application
Semester	II	**Version**	1.0.0.0
Effective from Academic Year	2022-23	**Effective for the batch Admitted in**	June 2022
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