GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

Programme	Master of Computer Applications	**Branch/Spec.**	Computer Application
Semester	III	**Version**	1.0.0.0
Effective from Academic Year	2023-24	**Effective for the batch Admitted in**	June 2022
Subject Code	P13A4TAR	**Subject Name**	Testing and Automation REST API

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

Objective:

- Students will learn about testing automation using REST API

Pre-requisites:

- One should have basic knowledge of python programming, web services and software manual testing.

Course Outcomes :

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

Name of CO	Description
CO1	Explain client-server architecture and demonstrate understanding of HTTP methods, status codes, and data formats through examples.
CO2	Design RESTful APIs based on architectural principles and perform functional and performance testing using suitable tools.
CO3	Create and execute automated API test collections in Postman and generate reports through CI/CD integration.
CO4	Develop and validate REST Assured scripts to test API responses, authentication, and authorization mechanisms.

CO-PO Mapping Table

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	1	2	0	0	0	1
CO2	2	3	3	3	1	0	0	1
CO3	2	2	3	3	2	1	0	2
CO4	2	2	3	3	1	1	2	2

Content:

Unit	SECTION-I	Hrs

1	What is JSON?, Object in JSON, Array in JSON, What is JSONPath?, Query using JSONPath, Expressions in JSONPath, Logical operators, Deserialize JSON Array to List, Deserialize JSON array to an Array, JSON array to an Array using JSONPath of Rest Assured, Client Server Architecture and HTTP Protocol, HTTP Request, HTTP Response	9
2	What is REST?, **Representation of REST flow,** Client, Server and Resources, **Resource used in REST,** Guiding principles or constraints of REST, Rest Architectural Elements: Connectors, Components, Data Elements, Types of Data Elements, REST Client, REST Server.	6
	SECTION-II	
3	What is Restito?, How to test REST client using Restito?, Advantages and Disadvantages of using Restito Framework for REST client testing, **REST API Testing,** , Types of API Methods, How to Test REST API?, Steps for Testing REST API, REST API Test Tool, Challenges for API Testing	6
4	What is Rest Assured?, Why need Rest-Assured?, Setup Rest Assured, Configure Eclipse with Rest-Assured, REST API Test using Rest Assured, First simple Rest Assured script, Validate Response Status using Rest Assured, POST Request, PUT Request and DELETE Request using Rest Assured, Authentication and Authorization in REST WebServices.	9

Practical Content:

List of programs specified by the subject teacher based on above mentioned topics.

Text Books:

1	Effective Methods of Software Testing (3rd Edition) - By William E, Software Perry Wiley, India
2	Software Testing (A Practical Approach) Rajiv Chopra Publisher-S.K. KATARIA & SONS 2011.

Reference Books:

1	REST API development with Node.js - By Fernando Doglio (second edition) Apress

MOOC/Certification Courses:

1	https://www.guru99.com/software-testing.html
2	https://www.guru99.com/testing-rest-api-manually.html
3	https://www.toolsqa.com/rest-assured-tutorial/

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