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	P13A4WTD	**Subject Name**	Web Technologies Development using SPRING

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:

- Spring aims to simplify the complex and cumbersome enterprise Java application development process

Pre-requisites:

- To learn spring it would be beneficial to have a basic understanding of HTML, CSS and JAVA programming language.

Course Outcomes :

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

Name of CO	Description
CO1	Explain the concepts of the Spring Framework, IoC container, bean lifecycle, scope, and dependency management. Bloom's Level: Understand.
CO2	Apply Spring resource handling, validation mechanisms, and type conversion to build reliable web components. Bloom's Level: Apply.
CO3	Analyze and construct Spring Expression Language (SpEL) expressions for dynamic application configuration. Bloom's Level: Analyze
CO4	Develop and evaluate Spring JDBC-based data access solutions using connection management and batch operations. Bloom's Level: Evaluate
	Mapping of CO and PO

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

Content:

Unit	SECTION-I	Hrs

1	**Overview of Spring and The IoC Container:** Introduction to Spring Framework, Introduction IOC Container and Beans, Dependencies, Bean Scope	7
2	**Resources and Validation:** Resource Interface, Built-in resources, Resource loader, Validation using spring validator interface, Spring type conversion	8
	SECTION-II	
3	**Spring Expression Language** Evaluation, Expression in bean definitions, Literal expression, Properties, Arrays, Lists, Maps, Indexers, Inline lists, Inline Maps	7
4	**Data Access** Spring Framework JDBC, Using JDBC core class, Controlling database connections, JDBC Batch operations	8

Practical Content:

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

Text Books:

1	Spring 5 Recipes: A Problem-Solution Approach, by Marten Deinum & Daniel Rubio & Josh Long, Apress Pub.
2	Spring MVC: Beginner's Guide by Ganeshan, Amuthan, PACKT pub 2014.
3	Mastering in Spring 5.0 by Ranga Rao Karanam, Publisher : Packt Publishing Limited) 28June 2017(.

Reference Books:

1	Spring Framework Cookbook **Author(s)** JCGs (Java Code Geeks)**Publisher:** Java Code Geeks (2017)
2	Beginning Spring by Mert Caliskan & Kenan Sevindik & Rod Johnson & Jürgen Höller, Wrox pub 2015.

MOOC/Certification Courses:

1	https://docs.spring.io/spring-framework/docs/4.0.x/spring-framework-reference/htmlsingle/
2	https://spring.io/learn

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