



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				2026-27		Effective for the batch Admitted in		July	2026
Subject Code	P12A2DEV		Subject Name			DevOps			
Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CI A	S E E	Total
	L	TU	P	T W					
Credit	2	0	2	0	4	Theory	40	60	100
Hours	2	0	4	0	6	Practical	20	30	50
Objective:									
● To design to drive business innovation and continuous process improvement.									
Pre-requisites:									
● Student should have experience in both software development and system administration									
Course Outcomes :									
● 1 = Slight (Low); 2 = Moderate (Medium); 3 = Substantial (High); “-” = No Correlation									

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

Content:		
Unit	SECTION-I	Hrs
1	Introduction to Devops What Is Devops, History of Devops, Devops definition, DevOps and Software Development Life Cycle, Waterfall Model, Agile Model, Continuous Integration & Deployment (Jenkins), Containers and Virtual Development, Configuration Management Tools (Ansible, Puppet, Chef)	7
2	Continuous Integration - Jenkins Introduction to Jenkins, Continuous Integration with Jenkins, Configure Jenkins, Jenkins Management, Scheduling build Jobs, GitHub Integration	8
SECTION-II		
3	Containers and Virtual Development - Docker Docker Image, Docker Installation, working with Docker Containers (What is Container, Docker Engine, Creating Containers with an Image, Docker Command Line Interface (CLI), Docker Compose, Docker Hub, DockerFile & Commands, Introduction to Kubernetes, Need for Kubernetes, Docker vs. Kubernetes, Kubernetes Architecture, Pods, Deployments, Services, kubectl, and Minikube.	7
4	Configuration Management Tools - Ansible Introduction to Ansible, Ansible Server Configuration, Infrastructure Management, SSH Connection in Ansible Master, YAML Scripts, Host Inventory (Hosts and Groups, Host Variables, Group Variables), Ad-hoc Commands, Playbooks (Variables, Conditionals, Loops, Handlers, Templates), Modules (Core Modules), Ansible Roles	8
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics.		
Text Books:		
1	Nigel Poulton, The Docker Book: Containerization is the New Virtualization, 2023 Edition.	
2	Ansible for Devops by Jeff Geerling, Midwestern Mac, LLC; 1st edition (10 October 2015).	
3	Cloud Native Devops with Kubernetes by John Arundel, Justin Domingus, Oreilly pub 2019.	
4	Jenkins Continuous Integration Cookbook by Alan Mark Berg, Ingram short title; 3rd edition (1 January 2017).	
Reference Books:		
1	Effective Devops by Jennifer Davis, Katherine Daniels, Oreilly publication 2016.	
2	The Practice of System and Network Administration by Thomas A. Limoncelli, Strata R. Chalup, Christina J. Hogan, Pearson pub.	

3	The Science of Lean Software and Devops Accelerate by Nicole Forsgren, Jez Humble, Gene Kim, Library of Congress Catalog-in-Publication
MOOC/Certification Courses:	
1	https://kodekloud.com/courses/kubernetes-for-the-absolute-beginners/
2	https://www.redhat.com/en/topics/devops
3.	https://intellipaat.com/jenkins-training-course/
4	https://kodekloud.com/courses/docker-for-the-absolute-beginner/
5.	https://in.coursera.org/projects/ansible-fundamentals
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

–8 Marks

–11 Marks

–11 Marks

SECTION - II

–8 Marks

–11 Marks

–11 Marks

