GANPAT UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

Programme	Bachelor of Technology	Branch/Spec.	Computer Science & Business Systems
Semester	V	Version	1.0.0.0
Effective from Academic Year	2023-24	Effective for the Batch admitted in	July 2021
Course Code	2CSBSPE5102	Course Name	Cloud, Microservices & Application (Elective I)

Teaching Scheme						Examination Scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	1	0	4	Theory	40	60	100
Hours	3	0	2	0	5	Practical	30	20	50

Pre-requisites

Good knowledge of Basics of Programming concepts(OOP) covered through a course prior to this semester.

Course Outcomes

On successful completion of the course, the students will be able to:

CO1	explain the core concepts of the cloud computing paradigm.
CO2	analyse the fundamentals of developing application on Cloud, specifically public clouds such as AWS, AZURE and Google.
CO3	develop applications using various services
CO4	deploy applications on Cloud by using cloud native services

Theory Syllabus

Unit	Content	Hrs.
1	Cloud Fundamentals; Cloud Service Components, Cloud service Deployment Models. Cloud components Guiding Principle with respect to utilization/Security/Pricing. and the applications of Cloud.. Public Cloud Platforms overview and their usage .	14
2	Application architectures-Monolithic & Distributed, Microservice fundamental and design approach, Cloud Native applications-12 Factors App. . Application integration process/Apification Process, API Fundamental. Microservice /API management, Spring boot Fundamental and design of microservice, API tools. Developer Portal. Applications of Microservice and APIFICATION.	13
3	Devops fundamentals. Tools and Applications Containerization Process and application.	7
4	Python (Overview, Use cases for cloud application development)	5
5	Design and developing solution steps using containers containerization of application and deployment using Kubernetes , Projects use cases covering this.	3
6	Cloud Security and Monitoring Tools.	3

Practical Content:

Team Presentation of Project work/Thesis- Preliminary Round) and Review

Text Books

1	Cloud Computing: Principles and Paradigms by Rajkumar Buyya, James Broberg, Andrzej M Goscinski, Wiley publication
2	Cloud computing a practical approach by Anthony T.Velte , Toby J. Velte Robert Elsenpeter, TATA McGraw- Hill
3	Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online by Michael Miller

Reference Books

1	Cloud Computing: A Practical Approach by Toby Velte, Anthony Velte, McGraw-Hill Osborne Media.
2	Cloud computing concepts, technology and architecture by Thomas Erl, Z Mahmood and Ricardo Puttini, Prentice Hall

3	Cloud computing for dummies by Judith Hurwitz , Robin Bloor , Marcia Kaufman ,Fern Halper, Wiley Publishing, Inc
4	Cloud Computing (Principles and Paradigms) by Rajkumar Buyya, James Broberg, Andrzej Goscinski, John Wiley & Sons
ICT/MOOCs Reference	
1	http://nptel.ac.in/courses/106105167/
2	http://nptel.ac.in/courses/106106129/28 3
3	https://www.coursera.org/learn/cloud-computing
4	https://aws.amazon.com/microservices/

Mapping of CO with PO and PSO:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	1	1	2	1	1	0	0	1	1	2	3	2	3
CO2	1	2	2	2	2	0	3	0	2	1	2	2	3	3	1
CO3	2	2	2	3	2	3	3	2	1	1	2	3	1	2	2
CO4	2	3	1	1	2	1	1	0	0	1	1	2	3	2	3