GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme	Bachelor of Technology					Branch/ Spec.	Computer Science & Engineering (CBA)		
Semester	VI					Version	1.0.0.2		
Effective from Academic Year			2022-23			Effective for the batch Admitted in			June 2020
Subject code	2CSE606		Subject Name			Enterprise Application Development for Cloud			
Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	2	0	5	Theory	40	60	100
Hours	3	0	4	0	7	Practical	60	40	100

Pre-requisites:

Web Programming, Virtualization, Microservices, Agile Methodologies, Source code & version management

Objectives of the Course:

After completion of the course, student will be able to:

- Develop different types of applications on the public cloud.
- Use different types of database services
- Implement deployment strategies over public cloud
- Develop cloud native applications using modern frameworks and tools.

Theory syllabus

Unit	Content	Hrs
1	**Fundamentals of Cloud Computing** Cloud Computing basics, cloud service models , cloud deployment models,PaaS case studies.	**3**
2	**Developing & Deploying cloud native applications** Development Life Cycle and EcoSystem, Development Environments on Cloud, Core and advanced Services, Configurations Managements , Application Monitoring	**10**
3	**Continuous Integration & Continuous Development** Introduction to Pipelines,Pipeline Management Life Cycle, Various Stages of Pipelines SCM Polling, Automated build and deployment	**8**
4	**REST architecture and Watson APIs** REST architecture, Watson REST API and Watson Studio	**8**
5	**Cloud Data services** Introduction to database,storage and analytics services on cloud, Cloudant database.	**5**
6	**Advanced cloud services** APPID service, Watson natural language understanding service, Cognitive tweets analyser.	**5**
7	**Advanced Kubernetes** Postgres Docker Image, Config Maps for storing Postgres configurations, Persistent Storage Volume, PostgreSQL Deployment, PostgreSQL Service	**6**

Practical content

Practicals will be based on:

- Cloud application development using CF CLI, local workstation(Eclipse)-JAVA,MySQL and NODE.JS,PHP,Python, Toolchain- DevOps, Cloudant-NO SQL database,JSON, APPID service Implementation for Node.js and Android , Developing containerized kubernetes application, Hands on IBM Watson services, Cloud object storage, Node-red, Streaming analytics on cloud

CC0103EN : IBM Cloud Essentials offered by IBM Developer Skills Network Link: https://guni.skillsnetwork.site/courses/course-v1:IBMDeveloperSkillsNetwork+CC0103EN+v2	
Text Books	
1	Essentials of Cloud Application Development, IBM Red Book
2	Developing Node.js Applications on IBM Cloud
3	Pro SQL Server on Linux: Including Container-Based Deployment with Docker and Kubernetes
Course Outcomes	
COs	Description
CO1	Develop and deploy different types of applications on the public cloud.
CO2	Use different types of database services to store data and bind with applications on the cloud.
CO3	Understand Kubernetes,DevOps Approach.
CO4	Develop an Application Using Watson Services IBM Watson application & Understand Node.js and web application framework,Adopting security practices for cloud based applications or systems.

Mapping of CO and PO:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	3	3	2	1	1	3	3	2	3
CO2	2	3	2	3	2	2	2	2	2	3	3	2
CO3	3	3	3	3	2	3	2	1	3	2	2	2
CO4	2	3	3	2	3	3	3	2	3	3	3	3