Department of B.Voc (Software Development)
Revised Syllabus of II Year Diploma Program (UG)

Title of Program: Cloud Computing

Syllabus Structure (UG)

Year	Semester	Course No.	Course Code	Contact Hours	Credits (1Credit=15 H)	Total Marks
2	III	CT III	DBVT 303	30	2	75
		CL III	DBVL303	60	2	75
	IV	CT IV	DBVT 404	30	2	75
		CL IV	DBVL 404	60	2	75
	Annual	CP II	DBV P202	30	1	50
	Industrial and or Incubation and or Research and or Field Training			30	1	-
		Total		**240**	**10**	**350**

D: Diploma, *: Departmental Code (C: Chemistry, MI: Microbiology, CSE: Computer Science (Entire), etc)

C: Course, T: Theory, L: Lab (Practical), P: Project

Total No. of Courses: 6 (Theory: 02, Practical: 02, Project: 01)

Theory and Practical: Semester, Project: Annual

Semester III

CT-III: D BVT 303: Title: Technological Drivers for Cloud Computing

(Contact Hrs: 30 Credits: 2)

Learning Objectives:

Students will be able to

1) Analyze cloud computing technical issues
2) Analyze the backend Process and Virtualization.

Unit I: Technological Drivers for Cloud Computing-Part I (15)

SOA and Cloud, Virtualization, Multicore Technology, Memory and Storage Technologies, Networking Technologies

Unit II: Technological Drivers for Cloud Computing-Part I (15)

Software Process Models, Programming Models, Operating Systems, Application Environment

Learning Outcomes:

After completion of the unit, Student is able to

1) Explain the concept of SOA and Virtualization.
2) Explain Process Models and Operating system .

Reference Books:

1) A. Velte, T. Velte, R. Elsenpeter, Cloud Computing: A practical approach
2) T. Erl, Cloud Computing: Concepts, Technology & Architecture

CL-III: DBVL303: **Title: Technological Drivers for Cloud Computing**

(Contact Hrs: 60 Credits: 02)

Learning Objectives:

Students will be able to

1. Understand Concept of Virtualization.
2. Understand Networking and Multicore Technology

List of Practical's (15)

1. Project for the year on cloud computing.
2. Write Cloud Computing Interview Questions (100 per head), write it in word pad or word document. Prepare on own, copy it from the internet
3. Write down questions and answers on each topic which is given in the syllabus (So it will cover all Academic preparations)
4. Case Study : Virtualization.
5. Case Study : Cloud Open Source Tools
6. Research Paper on cloud computing (Give different topics to students and ask them to prepare a research paper like IEEE etc for ex: Research Issues and Implications, Storage and security problems etc)
7. Case Study: Different Operating systems on cloud platforms.
8. Case Study: Cloud Computing Evolution
9. Give an assignment on each topic on chapter compilation.
10. Arrange mock interviews on cloud computing. Cover topics which are mentioned in the syllabus of first and second year.
11. Ask students to maintain all above practicals and docs and carry it for the second semester and Give them some marks in the next semester to maintain the data. This will help students in interviews

Learning Outcomes:

After completion of the unit, Student is able to

1. Work in Multiple Cloud Networking technology
2. Understand the Storage and Back end technologies of Cloud

Reference Books:

1) A. Velte, T. Velte, R. Elsenpeter, Cloud Computing: A practical approach

2) T. Erl, Cloud Computing: Concepts, Technology & Architecture

Semester IV

CT-IV: D BVT 404: Title: Cloud Services

(Contact Hrs: 30 Credits: 2)

Learning Objectives:

Students will be able to

1. Understand the Open source tools for cloud
2. Understand the IaaS-PaaS-SaaS Software

Unit I: Open Source Support for Cloud (15)

Introduction, Open Source Tools for IaaS-PaaS-SaaS, Open Source Tools for Research, Distributed Computing Tools for Management of Distributed Systems

Unit II: Cloud Services (AWS + GCP + Azure) (15)

Different Cloud Services, Global Infrastructures of Cloud Providers, Compute Services (EC2,EC2 Instance, AMI,Auto Scaling, ELB,CloudFormation),Network Service (VPC,CloudFront,Route 53,Direct Connect), Storage Services(S3, EBS, EFS), Database Service (RDS, DynamoDB),Cloud Monitoring (CloudWatch),Cloud Messaging Services(SNS, SQS), Cloud Security Services(IAM, Data Security, Application Security) **Serverless Applications**: Serverless Basics, Serverless Use Cases, Serverless Design Patterns, AWS Lambda, Serverless Concepts

Learning Outcomes:

After completion of the unit, Student is able to

1) Work with Iaas-Paas-Saas software.

2) Know the working of Different Cloud Platform.

Reference Books:

1) A. Velte, T. Velte, R. Elsenpeter, Cloud Computing: A practical approach

2) T. Erl, Cloud Computing: Concepts, Technology & Architecture

CL-IV: D BVL404: **Title (Practical):**

(Contact Hrs: 60 Credits: 02)

Learning Objectives:

Students will be able to

3) Understand Iaas-Paas-Saas software.
4) Understand working of AWS Cloud Platform.
5) Understand working of GCP Cloud Platform.
6) Understand working of Azure Cloud Platform.

List of Practical's (15)

1. Access free accounts for different cloud platforms(Providers) which are available and create an infrastructure for your college. (Servers creation, Memory and Storage allocation, processors allocation, network allocation etc). Teachers have to provide infrastructure details to students and students will create the same infrastructure on cloud.
2. Case study: Cloud Computing Automation Tools
3. Case study: Cloud Computing in Public and Private sector
4. Paper Presentation / PPT Presentation on Different Cloud Providers (AWS, GCP, Azure, IBM etc)
5. Create a free tier AWS account and study AWS main services in details
6. Create a free tier GCP account and study GCP main services in details
7. Create two or three instances(servers) with different operating systems using AWS and GCP and connect each with each other (Get them in one LAN Network, try to ping with each other)
8. Complete Analysis on cloud computing Automation Tools. Write down key features , advantages, dis-advantages with each other.
9. Write Cloud Computing Interview Questions (100 per head), write it in wordpad or word document. Prepare on your own, copy it from the internet. Cover each topic from the above syllabus.

10. Write down questions and answers on each topic which is given in the syllabus (So it will cover all Academic preparations)

11. Give an assignment on each topic on chapter compilation.

12. Arrange mock interviews on cloud computing. Cover topics which are mentioned in the syllabus of first and second year.

13. Ask students to maintain all above practicals and docs and carry it for the second semester and Give them some marks in the next semester to maintain the data. This will help students in interviews

Learning Outcomes:

After completion of the unit, Student is able to

1) Work with Iaas-Paas-Saas software.
2) Know the working of AWS Cloud Platform.

Reference Books:

1) A. Velte, T. Velte, R. Elsenpeter, Cloud Computing: A practical approach
2) T. Erl, Cloud Computing: Concepts, Technology & Architecture

CP-II: D BVP202: Project
(Contact Hrs. 60, Credits: 2)

Industrial and or Incubation and or Research and or Field Training
(Contact Hrs. 60, Credits: 2)

BOS Sub-Committee		Expert Committee
1. Mr.Doke S.A	Chairman	1.Mr.Ganesh Dangat (Academic Expert) (K.B.P.,College,Satara)
2. Ms.Jagadale R.S.	Member	2. Mr.Akshay Utale(Industrial Expert) (Ameyo,Mumbai)