With effect from the Academic Year 2021-22

VASAVI COLLEGE OF ENGINEERING(Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Computer Science & Engineering

DISTRIBUTED SYSTEMS & CLOUD COMPUTING LAB

SYLLABUS FOR B.E. VII-SEMESTER

L:T:P (Hrs./week): 0:0:2	SEE Marks : 50	Course Code: **U18PC711CS**
Credits : 1	CIE Marks : 30	Duration of SEE : 3 Hours

COURSE OBJECTIVES	**COURSE OUTCOMES** *On completion of the course, students will be able to*
1 Implement distributed transactions 2 Install, configure and deploy applications using various cloud platforms	1 Implement a distributed transaction model 2 Launch and run a highly available web application on Amazon cloud platform 3 Deploy and develop scalable compute model using Distributed Storage 4 Develop full stack application using Google cloud 5 Develop an end to end application over a Cloud environment

Programming Exercise:

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1. Design a TCP & UDP socket based communication system
2. Design a Web service using Simple Object Access Protocol (SOAP)
3. Developing a Multichat application
4. Implement a 2PC for distributed transaction management.
5. Hosting a static website on Amazon AWS
6. Deploying a Node.js Web Application using AWS services
7. Use native MySQL connections from Google App Engine to Google Cloud SQL
8. Deploying a cloud application on Google App Engine using backed database hosted on Google Cloud SQL to perform CRUD operations
9. Deploy a EMR Cluster for doing Big data analytics using Spark
10. Installation and deploying a PhP application on a Docker Container
11. Implement a distributed application on Hadoop framework to count word frequency with Map Reduce
12. Deploy a Node.js application on a Docker container

Learning Resources:

1. George Coulouris, Jean Dollimore, Tim Kindberg, Gordon Blair, DISTRIBUTED SYSTEMS Concepts and Design, Fifth Edition, Addison-Wesley, 2012.
2. Kai Hwang. Geoffrey C. Fox, Jack J. Dongarra, "Distributed and Cloud Computing from parallel processing to the internet of things", Elsevier, 2012.
3. Rajkumar Buyya, James Broberg and Andrzej M. Goscinski, "Cloud Computing: principles and paradigms (Wiley Series on Parallel and Distributed Computing), Wiley Publishing (c) 2011.
4. Raluca Ada Popa, Catherine M.S. Redfiled, NickolaiZeldovich, and Hari Balakrishnan, "Crypt DB" Protecting confidentiality with encrypted Query Processing" 23rd ACM Symposium on Operating Systems principles (SOSP 2011), Cascais, Portugal October 2011.
5. Craig Gentry, A fully Homomorhic Encryption Scheme, Doctoral Dissertation, September 2009.
6. Ajay D. Kshemkalyani and Mukesh Singhal, Distributed Computing: Principles, Algorithms, and Systems, Cambridge, 2008.
7. https://www.virtualbox.org/wiki/Documentation
8. https://cloud.google.com/docs
9. https://docs.aws.amazon.com/
10. https://docs.microsoft.com/en-us/azure/?product=featured
11. https://wiki.openstack.org/wiki/Documentation
12. http://www.manjrasoft.com/aneka_architecture.html
13. https://www.docker.com/resources/what-container
14. http://www.haproxy.org/

No. of Internal Tests:	01	Max. Marks for Internal Test:	12
Marks for day-to-day laboratory class work			18
DurationofInternalTest:2Hours			