COURSE FILE

For

Cloud Computing (ECSE304L**)**

Faculty Name : Indrajeet Gupta

Course Type : Core

Semester and Year: VI Semester (III Year)

L-T-P : 3-0-2

Credits : 4

Department : Computer Science Engineering

Course Level : UG

SCHOOL OF ENGINEERING AND APPLIED SCIENCES

Department of Computer Science Engineering

Bennett University

Greater Noida, Uttar Pradesh

Bennett University

Course Details:

Course Name:	**Cloud Computing**	**Course Code:**		**ECSE304L**	
Department:	**Computer Science Engineering**	**Type:**		**Core**	
L-T-P Structure	**3-0-2**	**Credits**	**4**	**Pre-requisite:**	**NA**
Course Objectives	Students will learn the fundamental concepts of distributed systems and understand the cloud architecture, virtualization, models, services, cloud resource management and its application in the cloud computing systems with realization of open source cloud platforms.				
Course Outcome	**At the end of the course, the students will be able to:** 1. Gain depth knowledge of cloud computing environment. 2. Design and Implementation of user applications through virtualization. 3. Working knowledge on how to choose the right technology stack for your needs				
Course Contents:	**Topics**			**No. of Hours**	
1	Introduction of cloud computing, background, system modelling, enabling technologies, vision, hype and innovation toward computing			3	
2	Clusters and Virtualization, Implementation level of virtualization, virtualization tools and methods, virtualization of cpu, memory, I/O and multicore processors			3	
3	Cloud models, timeshared and space shared system, cloud characteristics, benefits and disadvantage of cloud computing			3	
4	Assessing the value proposition, measuring the cloud's value, avoiding capital expenditures, Computing the costs, specifying the service level agreements, defining licensing models			3	

5	Cloud computing architecture: composability, Infrastructure, platform, virtual appliances, communication protocols, applications	3
6	Virtual cluster and resource management, load balancing and virtualization, virtualization of data-centres, understanding of machine imaging, simple cloud API	3
7	Capacity planning, capturing baseline and metrics, determine resources and their ceilings, scaling	3
8	Exploring cloud infrastructure: administrating the clouds, management responsibilities, lifecycle management, management standards, emerging cloud standards	3
9	Task scheduling and resource allocation in IaaS cloud Basic tasks scheduling algorithms	3
10	Handling workflow applications and workflow scheduling in IaaS clouds, scheduling parameters and criterion	3
11	Federated or multi-cloud environment, Exploring the SaaS cloud, SOA, REST, MOOC, cloud programming and supports	3
12	Programming support of google cloud app engine, open nebula, amazon AWS and Microsoft Azure	3
13	Cloud security issues	3
14	Ubiquitous clouds and IOT, online social and professional networking	3
Lab Work	Students will gain practical experience by the followings. 1. Realization of virtualization through the hypervisor. 2. Tour of Amazon AWS cloud by creating some VM instances and policies. 3. Design and implementation of various applications on AWS or Google cloud platform.	
Text Book:	1. Hwang, K., Dongarra, J., & Fox, G. C. (2013). Distributed and cloud computing: from parallel processing to the internet of things. Morgan Kaufmann. 2. Rafaels, R. J. (2015). Cloud Computing: From Beginning to End. CreateSpace Independent Publishing Platform.	
References:	1. Bahga, A., & Madisetti, V. (2013). Cloud computing: A hands-on approach. CreateSpace Independent Publishing Platform. 2. Buyya, R., Vecchiola, C., & Selvi, S. T. (2013). Mastering cloud computing: foundations and applications programming. Newnes.	

Evaluation Components:

Components of Course Evaluation	Percentage
Mid Term Examination	15
Viva-Voce	10
End Term Examination	30
Class Participation	10
Continuous Lab Evaluation	15
Project Demo/End Term Lab Exam/Cloud Certification	20