RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR

FOUR YEAR BACHELOR OF TECHNOLOGY (B. Tech..) DEGREE COURSE

SEMESTER: VI (C.B.C.S.)

BRANCH: COMPUTER SCIENCE AND ENGINEERING

Examination Scheme and Syllabus

Sixth Semester:-

S. N.	Subject	Teaching Scheme			Evaluation Scheme			Credits	Category
		L	T	P	CA	UE	Total		
1	Compiler Design	4	-	-	30	70	100	4	PCC-CS
2	Compiler Design -Lab	-	-	2	25	25	50	1	PCC-CS
3	Elective-II	3	-	-	30	70	100	3	PEC-CS
4	Elective-III	3	-	-	30	70	100	3	PEC-CS
5	Open Elective-I	3	-	-	30	70	100	3	OEC
6	Professional Skills Lab II	-	-	2	25	25	50	1	PCC-CS
7	Hardware Lab	-	-	2	25	25	50	1	ESC
8	Mini Project	-	-	6	50	50	100	3	PROJ-CS
9	Economics of IT Industry	2	-	-	15	35	50	2	HSMC
10	Intellectual Property Rights (AuditCourse)	2	-	-	50	-	-	Audit	PCC
	Total	**17**	**-**	**12**			**700**	**21**	

Elective-II: - 1. Machine Learning 2. Internet of Things 3. Cluster and Cloud Computing

Elective-III: - 1. Data Science 2. Distributed Operating Systems 3. Human Computer Interaction

Open Elective 1:- 1. Linux Fundamentals 2. Android Application Development 3. Blockchain Technologies

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Subject: **Elective 2: Cloud Computing** Subject Code: **BTECH_CSE-602.3T**

Load	Credits	College Assessment Marks	University Evaluation	Total Marks
36 Hrs.	**3**	**30**	**70**	**100**

Aim: The aim of this course is to make students understand the concepts, characteristics, models and benefits of cloud computing.

Prerequisite(s): Database Management System, Data Structures, Operating Systems, Computer Networks

.**Course Objectives:**

1	To study fundamental concepts of cloud computing
2	To understand the implementation of Virtualization in Cloud Computing
3	To learn the application and security on cloud computing

Course Outcomes:

At the end of this course students will be able to:

CO1	Understand the different Cloud Computing environment
CO2	Analyze virtualization technology and install virtualization software
CO3	Use appropriate data storage technique on Cloud, based on Cloud application
CO4	Apply security in cloud applications
CO5	Use advance techniques in Cloud Computing

SYLLABUS:

UNIT 1:

Introduction: Importance of Cloud Computing, Characteristics, Pros and Cons of CloudComputing, Migrating into the Cloud, Seven-step model of migration into a Cloud, Trends in Computing. Cloud Service Models: SaaS, PaaS, IaaS, Storage. Cloud Architecture: Cloud Computing Logical Architecture, Developing Holistic Cloud Computing Reference Model, Cloud System Architecture, Cloud Deployment Models.

UNIT 2:

Introduction to Virtualizations: Definition of Virtualization, Adopting Virtualization, Types of Virtualizations, Virtualization Architecture and Software, Virtual Clustering, Virtualization Application, Pitfalls of Virtualization. Grid, Cloud and Virtualization: Virtualization in Grid, Virtualization in Cloud, Virtualization and Cloud Security.Virtualization and Cloud Computing: Anatomy of Cloud Infrastructure, Virtual infrastructures, CPU Virtualization, Network and Storage Virtualization.

UNIT 3:

Cloud Storage: Data Management, Provisioning Cloud storage, Data Intensive Technologies for Cloud Computing. Cloud Storage from LANs to WANs: Cloud Characteristics, Distributed Data Storage.

UNIT 4:

Risks in Cloud Computing: Risk Management, Enterprise-Wide Risk Management, Types of Risks in Cloud Computing. Data Security in Cloud: Security Issues, Challenges, advantages, Disadvantages, Cloud Digital persona and Data security, Content Level Security. Cloud Security Services: Confidentiality, Integrity and Availability, Security Authorization Challenges in the Cloud, Secure Cloud Software Requirements, Secure Cloud Software Testing.

UNIT 5:

Future Tends in Cloud Computing, Mobile Cloud, Automatic Cloud Computing: Comet Cloud. Multimedia Cloud: IPTV, Energy Aware Cloud Computing, Jungle Computing, Distributed Cloud Computing Vs Edge Computing, Containers, Docker, and Kubernetes, Introduction to DevOps. IOT and Cloud Convergence: The Cloud and IoT in your Home, The IOT and cloud in your Automobile, PERSONAL: IoT in Healthcare.

Text/Reference Books

1. A.Srinivasan, J. Suresh, “Cloud Computing: A Practical Approach for Learning andImplementation”, Pearson, ISBN: 978-81-317-7651-3
2. Rajkumar Buyya, Christian Vecchiola, S. Thamarai Selvi, “Mastering CloudComputing”, McGraw Hill Education, ISBN-13:978-1-25-902995-0
3. Anthony T. Velte Toby J. Velte, Robert Elsenpeter, “Cloud Computing: A PracticalApproach” McGraw Hill Tim Mather, Subra K, Shahid L.,”Cloud Security and Privacy”, Oreilly, ISBN-13 978-81- 8404-815-5

4. Dr. Kris Jamsa, “Cloud Computing: SaaS, PaaS, IaaS, Virtualization and more”, WileyPublications, ISBN: 978-0-470-97389-9