

Department of Computer Science Engineering – (Data Science)

COURSE MODULE

Academic Year:2024-25							
Department: Electronics and Communication Engineering							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
21CS72	CLOUD COMPUTING	CORE	Basic Computer Knowledge, Networking fundamentals, Virtualization	2	-	-	24
Course objectives: This course (21CS72) will enable students to: CLO1: Introduce the rationale behind the cloud computing revolution and the business drivers CLO 2: Introduce various models of cloud computing CLO 3: Introduction on how to design cloud native applications, the necessary tools and the design trade-offs. CLO 4: Realize the importance of Cloud Virtualization, Abstraction`s and Enabling Technologies and cloud security							
Topics Covered as per Syllabus							
<u>MODULE-I</u>							
Introduction: Introduction, Cloud Computing at a Glance, Historical Developments, Building Cloud Computing Environments, Amazon Web Services (AWS), Google App Engine, Microsoft Azure, Hadoop, Force.com and Salesforce.com, Manjrasoft Aneka Textbook 1: Chapter 1: 1.1,1.2 and 1.3 (RBT: L1, L2)							
<u>MODULE-2</u>							
Virtualization: Introduction, Characteristics of Virtualized, Environments Taxonomy of Virtualization Techniques, Execution Virtualization, Other Types of Virtualizations, Virtualization and Cloud Computing, Pros and Cons of Virtualization, Technology Examples Textbook 1 : Chapter 3: 3.1 to 3.6 (RBT: L1, L2)							
<u>MODULE - 3</u>							
Cloud Computing Architecture: Introduction, Cloud Reference Model, Types of Clouds, Economics of the Cloud, Open Challenges Textbook 1: Chapter 4: 4.1 to 4.5 (RBT: L1, L2)							
<u>MODULE-4</u>							
Cloud Security: Risks, Top concern for cloud users, privacy impact assessment, trust, OS security, VM Security, Security Risks posed by shared images and management OS. Textbook 2: Chapter 9: 9.1 to 9.6, 9.8, 9.9 (RBT: L1, L2)							
<u>MODULE-5</u>							
Cloud Platforms in Industry: Amazon web services: - Compute services, Storage services, Communication services, Additional services. Google AppEngine: - Architecture and core concepts, Application life cycle, Cost model, Observations. Textbook 1: Chapter 9: 9.1 to 9.2 (RBT: L1, L2) Cloud Applications: Scientific applications: - HealthCare: ECG analysis in the cloud, Biology: gene expression data analysis for cancer diagnosis, Geoscience: satellite image processing. Business and consumer applications: CRM and ERP, Social networking, media applications. Textbook 1: Chapter 10: 10.1 to 10.2 (RBT: L1, L2)							
List of Textbooks							
1. Rajkumar Buyya, Christian Vecchiola, and Thamrai Selvi Mastering Cloud Computing McGraw Hill Education. 2. Dan C. Marinescu, Cloud Compting Theory and Practice, Morgan Kaufmann, Elsevier 2013							
List of Reference Books							
1. Toby Velte, Anthony Velte, Cloud Computing: A Practical Approach, McGraw-Hill Osborne Media. 2. George Reese, Cloud Application Architectures: Building Applications and Infrastructure in the Cloud, O'Reilly Publication. 3. John Rhoton. Cloud Computing Explained: Implementation Handbook for Enterprises, Recursive Press.							

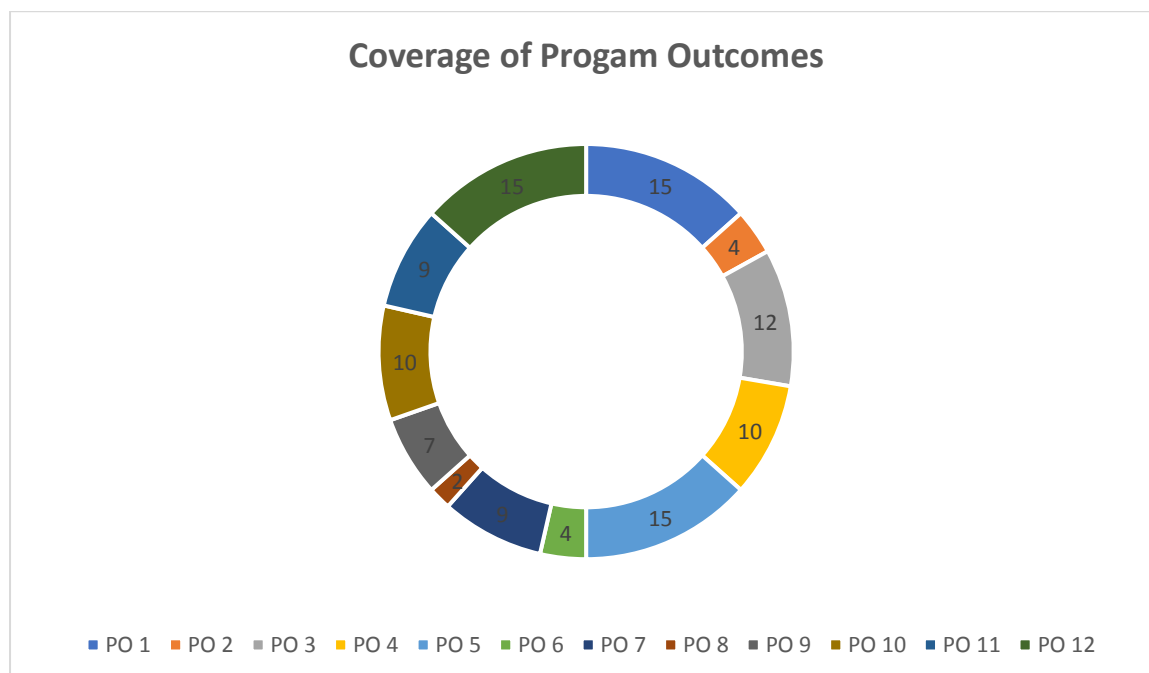
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List of URLs, Text Books, Notes, Multimedia Content, etc	
1.	https://www.youtube.com/watch?v=1N3ogYhzHv4
2.	https://www.youtube.com/watch?v=RWgW-CgdIk0
Course Outcomes (Course Skill Set): Students will be able to	
CO 1. Understand and analyze various cloud computing platforms and service provider.	
CO 2. Illustrate various virtualization concepts.	
CO 3. Identify the architecture, infrastructure and delivery models of cloud computing.	
CO 4. Understand the Security aspects of CLOUD.	
CO 5. Define platforms for development of cloud applications	
Assessment Details (both CIE and SEE):	
The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together	

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	21CS72		TITLE: Cloud Computing										
List of Course Outcomes	Program Outcomes												Total
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO-1	3	3	2	2	3	-	2	-	1	2	2	3	23
CO-2	3	3	2	2	3	-	1	-	-	2	-	3	19
CO-3	3	3	3	2	3	1	2	-	2	2	2	3	26
CO-4	3	2	2	2	3	2	2	2	2	2	2	3	27
CO-5	3	3	3	2	3	1	2	-	2	2	3	3	27
Total	15	14	12	10	15	4	9	2	7	10	9	15	122

Note: 3 = Strong Contribution 2 = Average Contribution
1 = Weak Contribution - = No Contribution



Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution