Department of Computer Science & Design

COURSE MODULE FOR THE SESSION 2024(ODD SEMESTER)

Course Syllabus with CO's

Academic Year: 2024

Department: Computer Science & Design

Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
21CS72	**Cloud Computing**	Core	**Fundamentals of Cloud concept and virtualization**	3	-	-	24

Objectives:

- Introduce the rationale behind the cloud computing revolution and the business drivers
- Introduce various models of cloud computing
- Introduction on how to design cloud native applications, the necessary tools and the design tradeoffs.
- Realize the importance of Cloud Virtualization, Abstraction`s and Enabling Technologies and cloud security.

Topics Covered as per Syllabus

Module -1

Introduction: Introduction ,Cloud Computing at a Glance, Historical Developments, Building Cloud Computing Environments, Amazon Web Services (AWS), Google AppEngine, Microsoft Azure, Hadoop, Force.com and Salesforce.com, Manjrasoft Aneka.

Module -2

Virtualization: Introduction, Characteristics of Virtualized, Environments Taxonomy of Virtualization Techniques, Execution Virtualization, Other Types of Virtualization, Virtualization and Cloud Computing, Pros and Cons of Virtualization, Technology Examples

Module -3

Cloud Computing Architecture: Introduction, Cloud Reference Model, Types of Clouds, Economics of the Cloud, Open Challenges

Module -4

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.

Module -5

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.

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.

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.

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. Weblinks and Video Lectures (e-Resources): •

List of URL's

- https://www.youtube.com/watch?v=1N3oqYhzHv4
- https://www.youtube.com/watch?v=RWgW-CgdIk0

Course outcomes: The students should be able to:

- Understand and analyze various cloud computing platforms and service provider.
- Illustrate various virtualization concepts.
- Identify the architecture, infrastructure and delivery models of cloud computing.
- Understand the Security aspects of CLOUD.
- Define platforms for development of cloud applications.

Internal Assessment Marks: 40 (3 Session Tests are conducted during the semester and Marks allotted based on average of all performances).

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

Subject Code	21CS72			Title: Cloud Computing								
List of Course Outcomes	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	Total
CO-1	3	2	2	-	-	-	-	-	-	-	-	-	7
CO-2	3	2	2	-	-	-	-	-	-	-	-	-	7
CO-3	3	2	2	-	-	-	-	-	-	-	-	-	7
CO-4	3	2	2	-	-	-	-	-	-	-	-	-	7
Total	12	8	8	-	-	-	-	-	-	-	-	-	28

The Correlation of Program Specific Outcome's (PS0's) and Course Outcome (CO's)

Subject Code	21CS72	Title: Cloud Computing	
List of Course Outcome's	PSO1	PSO2	Total
CO-1	-	-	-
CO-2	-	-	-
CO-3	-	-	-
CO-4	-	-	-
Total	-	-	-

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