

## SEMESTER S7

### CLOUD COMPUTING

<b>Course Code</b>	<b>OECST722</b>	<b>CIE Marks</b>	40
<b>Teaching Hours/Week (L: T:P: R)</b>	3:0:0:0	<b>ESE Marks</b>	60
<b>Credits</b>	3	<b>Exam Hours</b>	2 Hrs. 30 Min.
<b>Prerequisites (if any)</b>	None	<b>Course Type</b>	Theory

#### Course Objectives:

1. To understand the core principles, architecture, and technologies that underpin cloud computing, including virtualization, data storage, and cloud services.
2. To equip students with the skills to use cloud computing tools effectively, implement cloud-based applications, and address security challenges within cloud environments.

### SYLLABUS

<b>Module No.</b>	<b>Syllabus Description</b>	<b>Contact Hours</b>
<b>1</b>	Introduction - Cloud Computing, Types of Cloud, Working of Cloud Computing, Cloud Computing Architecture - Cloud Computing Technology, Cloud Architecture, Cloud Modelling and Design.	<b>8</b>
<b>2</b>	Virtualization - Foundations, Grid, Cloud And Virtualization, Virtualization And Cloud Computing; Data Storage And Cloud Computing - Data Storage, Cloud Storage, Cloud Storage from LANs to WANs.	<b>9</b>
<b>3</b>	Cloud Computing Services - Cloud Computing Elements, Understanding Services and Applications by Type, Cloud Services; Cloud Computing and Security - Risks in Cloud Computing, Data Security in Cloud, Cloud Security Services.	<b>10</b>
<b>4</b>	Cloud Computing Tools - Tools and Technologies for Cloud, Apache Hadoop, Cloud Tools; Cloud Applications - Moving Applications to the Cloud, Microsoft Cloud Services, Google Cloud Applications, Amazon Cloud Services.	<b>9</b>

**Course Assessment Method**  
(CIE: 40 marks, ESE: 60 marks)

**Continuous Internal Evaluation Marks (CIE):**

Attendance	Assignment/ Microproject	Internal Examination-1 (Written)	Internal Examination- 2 (Written)	Total
5	15	10	10	40

**End Semester Examination Marks (ESE)**

*In Part A, all questions need to be answered and in Part B, each student can choose any one full question out of two questions*

Part A	Part B	Total
<ul style="list-style-type: none"> <li>● 2 Questions from each module.</li> <li>● Total of 8 Questions, each carrying 3 marks</li> </ul> <p style="text-align: center;"><b>(8x3 =24 marks)</b></p>	<ul style="list-style-type: none"> <li>● Each question carries 9 marks.</li> <li>● Two questions will be given from each module, out of which 1 question should be answered.</li> <li>● Each question can have a maximum of 3 subdivisions.</li> </ul> <p style="text-align: center;"><b>(4x9 = 36 marks)</b></p>	<b>60</b>

**Course Outcomes (COs)**

At the end of the course students should be able to:

Course Outcome		Bloom's Knowledge Level (KL)
<b>CO1</b>	Articulate the fundamental concepts of cloud computing, its types, and how cloud computing architecture operates.	<b>K2</b>
<b>CO2</b>	Understand and describe the foundations of virtualization, its relationship with cloud computing.	<b>K2</b>
<b>CO3</b>	Describe various cloud computing services, understand the different service models, and identify potential risks.	<b>K3</b>
<b>CO4</b>	Demonstrate proficiency in using cloud computing tools such as Apache Hadoop, and deploy applications using popular cloud platforms.	<b>K3</b>

Note: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create

### CO-PO Mapping Table (Mapping of Course Outcomes to Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>CO1</b>	2	2	2									2
<b>CO2</b>	2	2	2	2								2
<b>CO3</b>	2	2	2	2								2
<b>CO4</b>	2	2	2	2								2

Note: 1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation

<b>Text Books</b>				
Sl. No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Cloud Computing: A Practical Approach for Learning and Implementation	A.Srinivasan, J.Suresh	Pearson	1/e, 2014

<b>Reference Books</b>				
Sl. No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Cloud Computing : Concepts, Technology, Security, and Architecture	Thomas Erl	Pearson	2/e, 2023
2	Cloud Computing	Sandeep Bhowmik	Cambridge University Press	1/e, 2017
3	Cloud Computing: A Hands-On Approach	Arshdeep Bahga and Vijay Madisetti	Universities Press	1/e, 2014

<b>Video Links (NPTEL, SWAYAM...)</b>	
Module No.	Link ID
1	<a href="https://onlinecourses.nptel.ac.in/noc21_cs14/preview">https://onlinecourses.nptel.ac.in/noc21_cs14/preview</a>