

## Cloud Computing

<b>CourseCode</b>	23EC4702D	<b>Year</b>	IV	<b>Semester</b>	I
<b>Course Category</b>	PE-V	<b>Branch</b>	ECE	<b>Course Type</b>	Theory
<b>Credits</b>	3	<b>L-T-P</b>	3-0-0	<b>Prerequisites</b>	Data Structures
<b>Continuous Internal Evaluation</b>	30	<b>Semester End Evaluation</b>	70	<b>Total Marks</b>	100

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<b>Course Outcomes</b>		
Upon successful completion of the course, the student will be able to		BL
<b>CO1</b>	Describe the key concepts and components of cloud computing to illustrate its significance in cloud-enabled computing environments.	L2
<b>CO2</b>	Apply cloud architecture and distributed computing principles to implement service models, deployment types, and communication mechanisms in cloud environments.	L3
<b>CO3</b>	Deploy and manage cloud integration services such as storage, compute, and networking	L4
<b>CO4</b>	Analyse cloud platforms for data monitoring and Processing	L4
<b>CO5</b>	Develop and assess the effectiveness of secure and efficient cloud-based solutions.	L4

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### Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3-High, 2: Medium, 1:Low)

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
<b>CO1</b>	2												
<b>CO2</b>	3												
<b>CO3</b>	3												
<b>CO4</b>	2	2	2								2		
<b>CO5</b>	2	2	2		2								
<b>Avg.</b>	2	2	2		2						2		

### Syllabus

UnitNo.	Contents	Mapped CO
1	<b>Introduction to Cloud Computing</b> Cloud Computing in a Nutshell, Layers, Desired Features of a Cloud, Cloud Infrastructure Management, Challenges and Risks, migrating into a Cloud, Broad Approaches to Migrating into the Cloud, The Seven-Step Model of Migration into a Cloud	CO1
2	<b>Cloud Computing Architecture</b> Introduction, Cloud Reference Model, Architecture, Infrastructure / Hardware as a Service(IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), Types of Clouds, Public Clouds, Private Clouds, Hybrid Clouds, Community Clouds.	CO2
3	<b>Integration as a Service</b> New Integration Scenarios, Integration Methodologies, SaaS Integration Services, A Framework of Sensor—Cloud Integration, Issues for Enterprise Applications on the Cloud, Transition Challenges, Enterprise Cloud Technology and Market Evolution. <b>Cloud-Enabling Technology</b> Broadband Networks and Internet Architecture, Data Center Technology,	CO3

	Virtualization Technology, Web Technology, Service Technology	
4	<b>Cloud infrastructure &amp; Security</b> Cloud Infrastructure, Cloud Storage Device, Cloud Usage Monitor, Load Balancer, SLA Monitor, Security Controls, Security Mechanisms, Security Policies, Cloud Security Threats, Threat Agents, Security Mechanisms-Encryption, Hashing, Digital signature, Public key infrastructure (PKI)	CO4
5	<b>Cloud Platforms in Industry:</b> Amazon Web Services- Compute Services, Storage Services, Communication Services and Additional Services. <b>Google App Engine:</b> Architecture and Core Concepts, Application Life-Cycle, Cost Model. Microsoft Azure: Azure Core Concepts, SQL Azure.	CO5

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<b>Learning Resources</b>	
<b>Text Books</b>	
1	Rajkumar Buyya, Cloud Computing: Principles and Paradigms –Wiley, 2011
2	Thomas Erl, Cloud Computing: Concepts, Technology & Architecture –Prentice Hall Press, 2013
<b>Reference Books</b>	
1	, Kai Hwang, Geoffrey C. Fox, and Jack J. Dongarra, Distributed and Cloud Computing, 1 <sup>st</sup> Ed., 2012, Elsevier
2	Michael Kavis, Architecting The Cloud, 1 <sup>st</sup> Ed., Wiley publications, 2014
<b>e-Resources &amp; other Digital Material</b>	
1.	<a href="https://nptel.ac.in/courses/106105173">https://nptel.ac.in/courses/106105173</a>
2.	<a href="https://nptel.ac.in/courses/106105167">https://nptel.ac.in/courses/106105167</a>