



# National University

## of Computer & Emerging Sciences



### Tentative Course Outline of BS (CS) Degree Program

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Course Title	<b>Introduction to Cloud Computing</b>	Course Code	CS-4037
Pre-Requisite(s)	Various as it is offered as a Final Year Elective Course	Credit Hrs	3

Textbooks	Title	<b>Cloud Computing</b>
	Author	Sandeep Bhowmik
	Publisher	Cambridge University Press
	Title	<b>Learning Microsoft Azure - Cloud Computing and Development Fundamentals</b>
	Author	Jonah Carrio Andersson
	Publisher	O'Reilly Media, Inc.
Reference Materials	Book chapter handouts, Technical Articles and selected research papers to supplement textbooks, to cover current state-of-the-art theory, practices, programming platforms.	

Course Learning Outcomes:	<p>The learning and skill-based course learning outcomes (CLOs) of this course are:</p> <ol style="list-style-type: none"><li>1. Understand cloud computing concepts, models, services, and security fundamentals.</li><li>2. Gain proficiency in Azure's core features and fundamental services.</li><li>3. Manage Azure cloud compute, networking, storage, databases, and security.</li><li>4. Implement effective resource pooling, sharing, and scaling strategies in the cloud.</li><li>5. Integrate Azure services, apply DevOps principles, and manage cloud infrastructure.</li><li>6. Gain proficiency in cloud architectures and understand content delivery networks.</li></ol> <p>Lectures, textbooks and selected research papers are used to achieve learning objectives. Semester Projects and/or small practicum based on Microsoft Azure will develop the necessary introductory programming skills required in this course.</p>
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### Marks Distribution (out of 100):

Sessional Exam 1 & 2	<b>25%</b>
Assignments	<b>10%</b>
Quizzes	<b>10%</b>
Project	<b>10%</b>
Class Participation	<b>5%</b>
Final Exam	<b>40%</b>



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#### Course Outline:

Week	Tentative Course Topics	Chapter	Book	CLO
1	Introduction, Evolution & Enabling Technologies	1,2	Cloud Computing	1
2	Benefits, Challenges, Cloud Computing Model & Services	3,4,5	Cloud Computing	1,6
3	Security Reference, Virtualization & Popular Cloud Services	6,7,20	Cloud Computing	1,2
4	Cloud Computing with Azure	1	Learning Microsoft Azure	1,2,6
5	Azure Fundamentals	2	Learning Microsoft Azure	2,5,6
6	1 <sup>st</sup> Sessional Exam			
7	Microsoft Azure Cloud Compute Services	3	Learning Microsoft Azure	2,3
8	Microsoft Azure Cloud Networking, Cloud Storage & Databases	4,5	Learning Microsoft Azure	2,3
9	Artificial Intelligence, Machine Learning, Big Data & IoT (Overview) & Azure Security & Identity Management	6,7,8,9	Learning Microsoft Azure	3
10	Resource Pooling, Sharing & Provisioning, Scaling in Cloud	8, 9	Cloud Computing	4
11	2 <sup>nd</sup> Sessional Exam			
12	Azure Cloud Integration Services & Tools	10	Learning Microsoft Azure	2,5
13	Cloud Infrastructure, DevOps, Monitoring in Azure, Management & Governance in Azure	11,12	Learning Microsoft Azure	2,3,5
14	Cloud Migration, Hybrid, & Multi-Cloud Solutions in Azure, Cloud Development Tools for Azure	13,14	Learning Microsoft Azure	5
15	Capacity Planning & Load Balancing	10, 11	Cloud Computing	4
16	Service-Oriented Architecture & Content Delivery Network	12, 15	Cloud Computing	6
18	Final Exam			

#### Rules & Regulations:

Rules and regulations related to attendance, all type of exams, class work, homework and others shall be observed as per FAST-NU policy and/or communicated by the HOD CS department or in absence of the same as communicated by the course instructor during the semester.