

**Arab Academy for Science and Technology and Maritime Transport  
Computer Science Curriculum  
Course Syllabus**

<b>Course Code:</b> CS428	<b>Course Title:</b> Cloud Computing	<b>Classification:</b>	<b>Coordinator's Name: Dr. Mohamed Mostafa Lecturer:</b>	<b>Credit Hours:</b> 3
<b>Pre-requisites:</b> <ul style="list-style-type: none"> <li>• CS322 (Operating Systems)</li> <li>• CE231 (Introduction to Networks)</li> </ul>	<b>Co-requisites:</b> None	<b>Schedule:</b> Lecture: 2 hours Tutorial-Lab: 2 hours		
<b>Course Description:</b>				
<p>This course covers how to build a cloud infrastructure based on a cloud computing reference model. The reference model includes five fundamental layers, namely, physical, virtual, control, orchestration, and service and three cross-layer functions, namely, business continuity, security, and service management for building a cloud infrastructure. For each layer and function, this course covers the comprising technologies, components, processes, and mechanisms. This course follows an open approach to describe concepts and technologies. However, EMC-related product examples are included to reinforce the concepts and technologies learnt in this course.</p> <p>This course follows the U.S. National Institute of Standards and Technology as a guide for all definitions of cloud computing. After completing this course, the participants will acquire knowledge to make informed decisions on technologies, processes, and mechanisms that are required to build cloud infrastructure.</p>				
<b>Textbook:</b>				
<p><b>Thomas Erl, Ricardo Puttini, Zaigham Mahmood, <i>Cloud Computing: Concepts, Technology &amp; Architecture</i>, ISBN-10: 0133387526 • ISBN-13: 9780133387520</b></p>				
<b>References:</b>				
<p><b><i>Cloud Infrastructure and Services: Virtualization and Cloud Infrastructure Technology Concepts and Principles</i>, by EMC Education Services (Author).</b></p>				
<p><b>1. (SO 1) Describe cloud computing, cloud deployment models, and cloud service</b></p>		<p>(SO1) Analyze a complex computing problem and to apply principles of computing and other</p>		

<b>models</b>	relevant disciplines to identify solutions.
<b>2. (SO 1) Describe the reference model and the key considerations to build a cloud infrastructure</b>	(SO1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
<b>3. (SO 6) Describe the key components and processes required to build the physical, virtual, control, orchestration, and service layers of a cloud infrastructure</b>	(SO6) Apply computer science theory and software development fundamentals to produce computing-based solutions.
<b>(SO 6) Describe the business continuity, security, and service management functions of a cloud infrastructure Analyze process data and propose improvements</b>	(SO6) Apply computer science theory and software development fundamentals to produce computing-based solutions.
<b>Course Outline:</b> <ol style="list-style-type: none"> <li>1. Introduction to Cloud Computing</li> <li>2. Building the Cloud Infrastructure</li> <li>3. Physical Layer-1</li> <li>4. Physical Layer-2</li> <li>5. Virtual Layer-1</li> <li>6. Virtual Layer-2</li> <li>7. 7<sup>th</sup> exam</li> <li>8. Control Layer</li> </ol>	<ol style="list-style-type: none"> <li>9. Service Orchestration Layers</li> <li>10. Service Layers</li> <li>11. Business Continuity</li> <li>12. <b>12<sup>th</sup> exam</b></li> <li>13. Security</li> <li>14. Service Management</li> <li>15. Revision</li> </ol>
<b>Grade Distribution:</b> <p><b>7th Week Assessment (30%):</b> Exam (20%) + Assignments 10%</p> <p><b>12th Week Assessment (20%):</b> Exam (15%) + Assignments 5%</p> <p><b>Year Work (10%):</b> Project (10%)</p> <p><b>Final Exam (40%)</b></p>	

**Policies:**

**Attendance:**

**AASTMT Education and Study Regulations (available at [aast.edu](http://aast.edu))**

**Academic Honesty:**

**AASTMT Education and Study Regulations (available at [aast.edu](http://aast.edu))**

**Late Submission:**

***Late submissions are graded out of 75% (1 week late***