“Cloud essentials” course that focuses on concepts and principles of building and managing cloud infrastructure

COURSE OVERVIEW
This course educates participants on building cloud infrastructure based on a cloud computing reference model that includes five fundamental layers (physical, virtual, control, orchestration, and service) and three cross-layer functions (business continuity, security, and service management). Technologies, components, processes, and mechanisms for each layer and cross-layer function will be covered.

Using the U.S. National Institute of Standards and Technology definition of cloud computing, the course takes an “open” approach, focusing on technology concepts and principles that can be applied in any environment. Upon successful course completion, participants will have the knowledge to make informed decisions on technologies, processes, and mechanisms required to build a cloud infrastructure.

CLOUD INFRASTRUCTURES AND SERVICES v2 COURSE CONSISTS OF 9 MODULES:

Module 1: Introduction to Cloud Computing
- Essential characteristics of cloud computing
- Cloud service models and cloud service brokerage
- Cloud deployment models

Module 2: Building the Cloud Infrastructure
- Cloud computing reference model
- Deployment options and solutions for building cloud infrastructure
- Considerations for building cloud infrastructure

Module 3: Physical Layer
- Compute system
- Storage system architectures
- Network connectivity

Module 4: Virtual Layer
- Virtual layer functions
- Virtualization software
- Resource pool and virtual resources

Module 5: Control Layer
- Control layer functions
- Control software
- Software defined approach for managing IT infrastructure
- Resource optimization techniques
Module 6: Service and Orchestration Layers
- Service layer functions
- Cloud portal
- Cloud interface standards
- Protocols for accessing cloud services
- Service orchestration
- Cloud service lifecycle

Module 7: Business Continuity
- Business continuity and service availability
- Fault tolerance mechanisms
- Backup and replication
- Cloud application resiliency

Module 8: Security
- Cloud security threats
- Cloud security mechanisms
- Governance, risk, and compliance

Module 9: Service Management
- Service portfolio management processes
- Service operation management processes

Faculty profile for success
Faculty who have been teaching courses on the following topics will have an added advantage in successfully teaching the CIS v2 course:
1. Systems integration
2. Computer systems administration
3. Network administration
4. Operating systems, file systems, and data structures

Student profile for success
Students who have completed courses on the following topics will have an added advantage in successfully completing the CIS v2 course:
1. Computer systems and architectures
2. Networking technologies
3. Operating system
4. Information storage and management
### Key activities

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<tr>
<td>1</td>
<td>Explain the importance and benefits of cloud computing and the need for its rapid adoption.</td>
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<td>2</td>
<td>Explain roadmap for building cloud infrastructure using the cloud computing reference model.</td>
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<td>3</td>
<td>Explain the software-defined approach to managing IT infrastructure. Evaluate existing infrastructure and identify components for a cloud transformation.</td>
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<td>4</td>
<td>Describe and identify various cloud interface standards and protocols for building cloud infrastructure.</td>
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<td>5</td>
<td>Explain business continuity options and address common security concerns in a cloud environment.</td>
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<td>6</td>
<td>Describe service management activities in cloud computing.</td>
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### Business Impact

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<tr>
<td>1</td>
<td>Motivate business stakeholders and IT teams alike. Make the needs and benefits of cloud computing clear and consistent to everyone involved.</td>
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<td>2</td>
<td>Establish a common view on the cloud infrastructure roadmap to enable IT functional teams to share a common reference for building the layers and cross-layer functions in the cloud infrastructure.</td>
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<td>3</td>
<td>Create and implement an optimized IT infrastructure that create competitive advantage and higher value through swift and efficient service delivery. Clearly segment responsibility and minimize oversight that may have downstream impact.</td>
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<td>4</td>
<td>Build a cloud infrastructure that provides portable and interoperable cloud services to consumers.</td>
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<td>5</td>
<td>Reduce downtime and performance impact on business applications. Effectively identify and resolve the unique security challenges of cloud computing.</td>
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<td>6</td>
<td>Establish a common language within the team to correlate services to required infrastructure. Essential for Cloud Architects and team members involved in planning and implementing cloud services.</td>
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