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South East Technological University

Module Descriptor

Cloud Computing 1 (Computing and Mathematics)

Cloud Computing 1 (A32741)

Short Title: Cloud Computing 1
Department: Computing and Mathematics
Credits: 5 **Level:** Advanced

Description of Module / Aims

This module explores key technologies in the provision of Cloud computing services. The concepts of IaaS, PaaS, SaaS and 'X aaS are covered to examine how Cloud services and applications are deployed and managed. The practical component of this module explores the operation and management of virtualised resources in Public and Private Cloud environments.

Programmes

		stage/semester/status
COMP-0650	BSc (Hons) in Applied Computing (International) (WD_KACCM_BI)	4 / 7 / M
COMP-0650	BSc (Hons) in Applied Computing (WD_KACCM_B)	4 / 7 / E
COMP-0650	BSc (Hons) in Applied Computing (WD_KCOMP_B)	4 / 7 / E
COMP-0650	BSc (Hons) in Computer Science (WD_KCMSC_B)	4 / 7 / E
COMP-0650	BSc (Hons) in Information Technology Management (WD_KITMA_B)	1 / 7 / M
COMP-0650	BSc (Hons) in Information Technology (WD_KINTE_B)	4 / 1 / M
COMP-0509	BSc (Hons) in Physics for Modern Technology (WD_KPHTE_B)	4 / 7 / E

Indicative Content

- Cloud Computing Concepts: IaaS; PaaS; SaaS; 'X'aaS
- Data Center Management: Hypervisors; Compute; Storage; Network
- Reliability and Elasticity: Infrastructure & Applications
- Monitoring: Infrastructure & Applications
- Business Continuity & Recovery
- Cloud Security: Identity and Access Management

Learning Outcomes

On successful completion of this module, a student will be able to:

1. Compare and contrast Cloud Computing Architectures.
2. Develop appropriate Data Center Technologies in the provision of Virtualised environments.
3. Evaluate Cloud technologies for the provision of Infrastructure and Application Services.
4. Determine the technical challenges and solutions in providing a secure cloud services environment.
5. Compare solutions for the provision of highly available, reliable, scalable Cloud environments.

Learning and Teaching Methods

- The practical lab component will be delivered in one double lab session.
- Combination of lectures and computer-based practical and simulation exercises.
- Self-directed learning.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	24	
Lab	24	
Independent Learning	87	

Assessment Methods

	Weighting	Outcomes Assessed
Continuous Assessment	100%	
Lab Report	30%	2,3,4,5
Project	30%	2,3,4,5
In-Class Assessment	40%	1,2,3

Assessment Criteria

<40%: Unable to interpret and describe key concepts of a Cloud Computing Infrastructure environment.

40%–49%: Be able to interpret and describe key concepts of a Cloud Computing Infrastructure environment.

50%–59%: Ability to compare and contrast key concepts and technologies used in Cloud Computing environments. Ability to discover and integrate related knowledge in other knowledge domains.

60%–69%: Ability to analyse and evaluate Cloud Computing technical challenges and solutions. Be able to solve problems within the specific knowledge domain(s) by experimenting with the appropriate skills and tools.

70%–100%: All the above to an excellent level. Be able to analyse and design solutions to a high standard for a range of both complex and unforeseen problems through the use and modification of appropriate skills and tools.

Essential Material(s)

- "Cloud Computing Environment e.g. OpenStack, AWS, Azure." https://aws.amazon.com/ https://www.openstack.org/

Supplementary Material(s)

- Limoncelli, T. *Practice of Cloud System Administration, The: Designing and Operating Large Distributed Systems*. 1st. New York: Addison-Wesley Professional, 2014.
- Saboowala, H. *Designing Networks and Services for the Cloud: Delivering business-grade cloud applications and services*. 1st. New York: Cisco Press, 2013.

Requested Resources

- Computer Lab: BYOD Lab