MURANG'A UNIVERSITY OF TECHNOLOGY

COURSE OUTLINE

Unit Code: SIT 407

Unit Title: Cloud Computing

Prerequisite(s): None

Lecturer's Name: Kevin Agina Onyango

Lecturer's Tel. No. 0716257978

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Semester: 3

Academic Year: 2021/2022

Credit hours: 3 hours

Groups: BIT

Purpose of the course

This course introduces cloud computing and its techniques, issues, ecosystem and case studies. Students can familiar with cloud services and their techniques through labs and the term project.

Learning Outcomes:

At the end of the course students should:

i. Demonstrate knowledge in state-of-the-art in architectures, software, algorithms and protocols related to cloud computing and data centers,

ii. Discuss how scientific research should be done in this area.

Teaching Methodologies

Lectures, practical and tutorial sessions in Computer Laboratory, individual and group assignments, exercises and project work.

Instructional Materials/Equipment

Overhead projector and computer, handouts, white boards, Textbooks, appropriate software.

Course Assessment

30% Continuous Assessment

70% End of Semester Examination.

Reading Materials for the Course
Course Textbooks

1. Rajkumar Buyya, James Broberg and Andrzej M. Goscinski (2011). Cloud Computing: Principles and Paradigms, Wiley, ISBN: 0470887990.
2. Tanenbaum and van Steen (2007). Distributed Systems: Principles and Paradigms, Pearson, ISBN: 56-34567
3. Jean Dollimore, Tim Kindberg, George Coulouris (2005). Distributed Systems: Concepts and Design, Addison Wesley, ISBN: 657-35788
4. Velte, A., Velte, T., Elsenpeter, R. (2010). Cloud Computing: A Practical Approach, McGraw-Hill Osborne, ISBN: 564-57756778

Reference Textbooks:

1. Randal E. Bryant and David R. O'Hallaron (2003). Computer Systems: A Programmer's Perspective, ISBN: 45-68485
2. Patterson and Hennessy (2011). Computer Organization and Design: The Hardware/Software Interface, 4th Edition. ISBN: 756-6286844
3. Jason Venner (2009). Pro Hadoop, ISBN 456-6285753

Course Journals

1. Acta Informatica ISSN 0001-5903
2. Advances in Computational Mathematics ISSN 1019-7168
3. Advances in data Analysis and Classification ISSN1 1862-5347
4. Annals Of software Engineering ISSN 1022-7091

Reference Journals

1. Journal of computer science and Technology ISSN 1000-9000
2. Journal of Science and Technology ISSN 1860-4749
3. Central European Journal of Computer Science ISSN 1896-1533
4. Cluster computing ISSN 1386-7857

COURSE OUTLINE

WEEK	TOPIC	SUB-TOPIC
1	Overview of Distributed Computing	● Trends of computing, ● Introduction to distributed computing ● Cloud computing
2	Introduction to Cloud Computing	● What's cloud computing Properties and Characteristics ● Service models
	Cloud deployment model	● The cloud architecture ● Classification of cloud ○ Public Cloud ○ Private Cloud ○ Hybrid Cloud ○ Community Cloud
	Features of a Cloud	● Per-usage metered and billed ● Self-service ● Elastic ● Customizable
3	Components of SaaS **CAT 1**	● SaaS services, ● Vendor solutions and mainstream offering
4	Components of SaaS, PaaS and IaaS	● PaaS services, vendor solutions and mainstream offering ● IaaS services, vendor solutions and mainstream offering
5	Data integrity and security	● Data integrity and security on cloud platforms ● Major vendors in public cloud, and their products and services;

6	**CAT 2**	
7	Migrating into a cloud	● The Cloud Service Offerings and Deployment Models ● Seven-Step Model of Migration into a Cloud ● Migration Risks and Mitigation
8	Service Level Agreement	● Types of SLA ● Stakeholders and actors ● SLA Life cycle ● SLA management in cloud
9	Cloud Computing Management and application trends	● Cloud Computing Management and application trends ● Evolving cloud computing standards and best practices
10	**CAT 3**	
11	Cloud issues and challenges	● Cloud issues and challenges ● Cloud provider Lock-in Security
12	REVISION	
13	EXAMS	
14	EXAMS	