The University of Jordan
School of Engineering
Department of Computer Engineering
Spring Semester – A.Y. 2021 - 2022

Course:	Cloud Computing – 0907523 (3 Cr. – Elective Course)
Course Description:	Cloud computing has transformed the traditional IT industry into an agile, elastic, and economical IT paradigm. This course covers the principles of distributed systems and cloud computing. The course will familiarize students with cloud characteristics, deployment models, and enabling technologies; hypervisors and virtual machines, secure data centers architecture, and service-oriented architecture. Students, also, will gain hands-on experience with Amazon Web Services (AWS) such as EC2, S3, Dynamo database, and Amazon EMR to leverage the latest Big data processing platforms (Apache Hadoop). Additionally, students will be exposed to GENI infrastructure and Microsoft's Azure and conduct experiments that leverage cutting-edge cloud services. Advanced topics related to cloud architecture and applicationssecurity will be discussed.
Prerequisites by Course:	0907422 Computer Networks.
Prerequisites by Topic:	Students must have the basics of computer networks and familiarity with Python.
Textbook:	• Cloud Computing: A Comprehensive Guide to Cloud Computing, Austin Young, 1st edition, 2019. • Cloud Computing: Master the Concepts, Architecture and applications with Real-world examples and Case studies, Kamal Kant Hiran et al., 1st edition, BPB, 2019.
References:	• Amazon Web Services: A Beginner's Guide to Cloud Computing, app Development and Big Data Storage with AWS, Paul Wood, Eurosolutions2ltd, 2018. • Cloud Computing Concepts, Technology & Architecture, Thomas Erl, Zaigham Mahmood, and Ricardo Puttini, 1st edition, Prentice hall, 2013. • Amazon Web Services Website, http://aws.amazon.com • Microsoft Azure Website, https://azure.microsoft.com/
Minimum Student Material:	Textbook, class handouts, some instructor keynotes, Labs instructions, and access to a personal computer and Internet.
Minimum CollegeFacilities:	Classroom with whiteboard and projection display facilities, library.

Course Objectives:	The objectives of this course are:

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The objectives of this course are:

1. Introduce students to cloud computing concepts and fundamentals.

2. Familiarize students with cloud deployment models, platforms, and vendors.

3. Introduce students to cloud-enabling technologies such as virtualization.
4. Hands-on-experience on AWS and GENI.

Course Topics:

1. Cloud characteristics, fundamentals, and deployment models (private, hybrid, and public cloud) and their advantages and disadvantages

2. Cloud providers and services: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), and finally Anything as a Service (XaaS)

3. AWS services: Elastic Cloud Computing (EC2), Simple Storage Service(S3), Virtual Private Cloud (VPC), CloudFront, and load balancing services

4. Virtualization: Hypervisors, Virtual Machines Managers (VMMs) and Virtual Machines (VMs)

5. Cloud and IoT

6. GENI researchers' portal

7. Microsoft's Azure cloud services

8. Cloud security

Attendance:

Class attendance will be taken every class and the university's polices will be enforced in this regard.

Assessments:

Homeworks, Labs and Exams.

Grading	
Labs	20%
Midterm exam	30%
Final exam	50%

Instructor:

Dr. Samah Rahamneh

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Office hour:

11-12 Mon