Syllabus*: Cloud Computing Applications (151003334)

Second Semester 2021 / 2022

COURSE INFORMATION	
Course Name: Cloud Computing Applications **Semester:** Second Semester **Department:** Department of Software Engineering **Faculty:** Prince Al-Hussein Bin Abdullah II Faculty for Information Technology	**Course Code: 151003334** **Section:** **Core Curriculum**:
Day(s) and Time(s): Monday: 11:00-12:30 Wednesday: 11:00-12:30 **Classroom:** IT302	**Credit Hours:** 3 **Prerequisites**: 151002240 Introduction to database systems, and good knowledge in software engineering and familiarity with basic concepts of operating systems and networking

COURSE DESCRIPTION

The course is an advance topic in Software Engineering and because Cloud Computing has recently emerged as one of the buzzwords in the ICT sector, this course will be mainly focuses in Cloud Computing. The primary purpose of this course is to capture the state-of-the-art in Cloud Computing technologies and applications. The course focuses on cloud computing services, types, models, security issues, Quality of Service(QoS), Service−Level Agreements (SLA) , Virtual Machines, performance monitoring, pricing, risk management, scientific computing, tools for building different types of clouds, legal issues in cloud computing, business computing on clouds, and novel applications of cloud computing. The course aims also to identify potential research directions and technologies that will facilitate creation global market-place of cloud computing services supporting scientific, industrial, business and consumer applications

DELIVERY METHODS

The course will be delivered through a combination of active learning strategies. These will include:

- PowerPoint lectures and active classroom based discussion
- Collaborative learning through small groups acting in an interdisciplinary context.
- Relevant films and documentaries
- Video lectures
- E-learning resources: e-reading assignments and practice quizzes through Model and Microsoft Team

FACULTY INFORMATION

Name	**Dr. Abdel-Rahman Falah Al-Ghuwairi**
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Office Hours:	**Monday** 10 -11 **Wednesday** 10 -11 *Please send an e-mail (ghuwairi@hu.edu.jo) to meet at any other time.*

REFERENCES AND LEARNING RESOURCES

Required Textbook: Cloud Computing: Theory and Practice

Also, There is no required textbook for purchase. All compulsory weekly readings are available electronically on Model.

Author: Dan C. Marinescu. Publisher: Elsevier – Morgan - Kaufmann, (2013) ISBN: 978-0-12404-627-6.

Suggested Additional Resources:

- Cloud Computing: Principles ad Paradigms, Authors: Rajkumar Buyya, James Broberg, and Andrzej M. Goscinski. Wiley Press, New York, USA (March 2011) ISBN: 978-0-470-88799-8.
- Cloud Computing: Concepts, Technology & Architecture by Thomas ErlPublished May 2013.
- Architecting the Cloud: Design Decisions for Cloud Computing Service Models (SaaS, PaaS, & IaaS)
  by Michael J. Kavis Published January 2014.
- Cloud Computing Protected: Security Assessment Handbook by John Rhoton Published January 2013
- Building the Infrastructure for Cloud Security by Raghuram Yeluri Published March 2014
- Cloud Computing: Theory and Practice by Morgan Kaufmann
- Selected research papers will be addressed to students during the classes
- Selected websites on cloud computing will be addressed during the classes

STUDENT LEARNING OUTCOMES MATRIX*

Core Curriculum Learning Outcomes	Program Learning Outcomes	Course Objectives	Course Student Learning Outcomes	Assessment Method
	SM1] Knowledge and understanding of scientific principles and methodology necessary to underpin their education in their engineering discipline, to enable appreciation of its scientific and engineering context, and to support their understanding of relevant historical, current and future developments and technologies.	• Have a good understanding of cloud computing fundamentals, services, and types. • Have a good understanding of Service Level Agreements in cloud computing. • Know the Quality of Service parameters. • Know how to build a cloud • Know how to measure and monitor the QoS • Deploy an application in the cloud environment • Know the main factors which affect the cloud application performance • Know the main challenges and concerns in the cloud computing environment	• [CLO1] Understand the essentials of the cloud computing fundamentals, services, and types.	• Exams • Quizzes • "On-line' reading assignments • homework assignments
	EA1] Understanding of engineering principles and the ability to apply them to analyse key engineering processes.		• [CLO2] Understand the main components of the cloud computing service level agreement.	• Exams • Quizzes • "On-line' reading assignments
	EA4] Understanding of, and the ability to apply, an integrated or systems approach to solving engineering problems.		• [CLO3] Demonstrate the ability to design and build a cloud computing service level agreement.	• Exams • Quizzes • "On-line' reading assignments • homework assignments • Term project
	[D4] Apply advanced		• [CLO3] Demonstrate the ability to set up the Quality of	• Exams • Quizzes

	problem-solving skills, technical knowledge and understanding, to establish rigorous and creative solutions that are fit for purpose for all aspects of the problem including production, operation, maintenance and disposal.		Service Parameters (QoS) of the cloud computing service level agreement.	• "On-line' reading assignments • homework assignments
	EP1] Understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, application and development of technology, etc.).		• [CLO4] Demonstrate the ability to set up the Quality of Service Parameters (QoS) of the cloud computing service level agreement.	• "On-line" reading assignments • Term project
	EP3] Ability to apply relevant practical and laboratory skills.		• [CLO5] Demonstrate the ability to build a cloud and deploy an application on the cloud environment	• Term project • "On-line" reading assignments
			• [CLO6] Demonstrate the ability to know the challenges and concerns of cloud computing	

ACADEMIC SUPPORT

It is The Hashemite University policy to provide educational opportunities that ensure fair, appropriate and reasonable accommodation to students who have disabilities that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to contact their Instructor to ensure that their individual needs are met. The University through its Special Need section will exert all efforts to accommodate for individual's needs.

Special Needs Section:
Tel:
Location:
Email:

COURSE REGULATIONS

Participation

Class participation and attendance are important elements of every student's learning experience at The Hashemite University, and the student is expected to attend all classes. A student should not miss more than 15% of the classes during a semester. *Those exceeding this limit of 15% will receive a failing grade regardless of their performance*. It is a student's responsibility to monitor the frequency of their own absences. **Attendance record begins on the first day of class irrespective of the period allotted to drop/add and late registration. It is a student's responsibility to sign-in; failure to do so will result in a non-attendance being recorded.**

In exceptional cases, the student, with the instructor's prior permission, could be exempted from attending a class provided that the number of such occasions does not exceed the limit allowed by the University. The instructor will determine the acceptability of an absence for being absent. A student who misses more than 25% of classes and has a valid excuse for being absent will be allowed to withdraw from the course.

Plagiarism

Plagiarism is considered a serious academic offence and can result in your work losing marks or being failed. HU expects its students to adopt and abide by the highest standards of conduct in their interaction with their professors, peers, and the wider University community. As such, a student is expected not to engage in behaviours that compromise his/her own integrity as well as that of the Hashemite University.

Plagiarism includes the following examples and it applies to all student assignments or submitted work:

- **Use of the work, ideas, images or words of someone else without his/her permission or reference to them.**
- **Use of someone else's wording, name, phrase, sentence, paragraph or essay without using quotation marks.**
- **Misrepresentation of the sources that were used.**

The instructor has the right to fail the coursework or deduct marks where plagiarism is detected

Late or Missed Assignments

In all cases of assessment, students who fails to attend an exam, class project or deliver a presentation on the scheduled date without prior permission, and/or are unable to provide a medical note, will automatically receive a fail grade for this part of the assessment.

- Submitting a term paper on time is a key part of the assessment process. Students who fail to submit their work by the deadline specified will automatically receive a 10% penalty. Assignments handed in more than 24 hours late will receive a further 10% penalty. Each subsequent 24 hours will result in a further 10% penalty.

- In cases where a student misses an assessment on account of a medical reason or with prior permission; in line with University regulations an incomplete grade for the specific assessment will be awarded and an alternative assessment or extension can be arranged.

Student Complaints Policy

Students at The Hashemite University have the right to pursue complaints related to faculty, staff, and other students. The nature of the complaints may be either academic or non-academic. For more information about the policy and processes related to this policy, you may refer to the students' handbook.

COURSE ASSESSMENT

Course Calendar and Assessment

Students will be graded through the following means of assessment and their final grade will be calculated from the forms of assessment as listed below with their grade weighting taken into account. The criteria for grading are listed at the end of the syllabus

Assessment	Grade Weighting	Deadline Assessment
First Exam	25%	
Second Exam	25%	
Assignments, quizzes, project	10%	
Final Exam	40%	

Description of Exams

Test questions will predominately come from material presented in the lectures. Semester exams will be conducted during the regularly scheduled lecture period. Exam will consist of a combination of multiple choice, short answer, match, true and false and/or descriptive questions.
Homework: Will be given for each chapter, while the chapter in progress you are supposed to work on them continuously and submit in next lecture when I finish the chapter.
You are also expected to work on in-chapter examples, self-tests and representative number of end of chapter problems. The answers of self-tests and end of chapter exercises are given at the end of the book.

Quizzes: Unannounced quizzes will be given during or/and at the end of each chapter based upon the previous lectures. It will enforce that you come prepared to the class.

No make-up exams, homework or quizzes will be given. Only documented absences will be considered as per HU guidelines.

Grades are not negotiable and are awarded according to the following criteria*:

Letter Grade	Description	Grade Points
A+	Excellent	4.00
A		3.75
A-		3.50
B+	Very Good	3.25
B		3.00
B-		2.75
C+	Good	2.50
C		2.25
C-		2.00
D+	Pass	1.75
D	Pass	1.50
F	Fail	0.00
I	Incomplete	-

WEEKLY LECTURE SCHEDULE AND CONTENT DISTRIBUTION		
Topic	**Chapter in Text**	**Week #**
Cloud Computing	Selected Material (Chapter 0)	Week1
Introduction to Cloud Computing	Chapter 1	Week2, Week3
SLA Management	Selected Material	Week4, Week5
Cloud Infrastructure	Chapter 3	Week6, Week7
Cloud Computing: Applications and Paradigms	Chapter 4	Week8, Week9
Cloud Resource Virtualization	Chapter 5	Week10, Week11
Cloud Resource Management and Scheduling	Chapter 6	Week12, Week13
Advances features	Selected Material	Week14