The Hashemite University

الجامعـــــة الهاشميـــــة

Deanship of Academic Development and International Outreach

عمادة التطوير الأكاديمي والتواصل الدولي

Software Design (2010031332)

Second Semester 2021/2022

COURSE INFORMATION	
Course Name: Software Design **Semester:** Second Semester 2021/2022 **Department:** Department of Software Engineering **Faculty:** Prince Al-Hussein Bin Abdullah II Faculty for Information Technology	**Course Code: 2010031436** **Section:** Mandatory **Core Curriculum**:
Day(s) and Time(s): Section 1: Sun, Tue, Thu 9:00-10:00 **Classroom:** KHB302	**Credit Hours:** 3 **Prerequisites**: 2010031221- Object-oriented software development

COURSE DESCRIPTION

Fundamental design concepts, design notations, architectural design methods for Large-scale software systems, and design patterns. Several design methods are presented and compared, with examples of their use. We will present a range of effective methods to evaluate and meet professional quality standards.

DELIVERY METHODS

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

- PowerPoint lectures and active classroom based discussion
- Video lectures
- E-learning resources: e-reading assignments and practice quizzes through Moodle and Microsoft Team

FACULTY INFORMATION

Name	**Haneen Hijazi**
Academic Title:	**Instructor**
Office Location:	**IT 338**
Telephone Number:	
Email Address:	**haneen@hu.edu.jo**
Office Hours:	**Sun, Tue, Thu** 10:00-11:00

	Please send an e-mail (haneen@hu.edu.jo) to meet at any other time.

REFERENCES AND LEARNING RESOURCES

Required Textbook:

- "Software Architecture and Design illuminated", Kai Qian, Xiang Fu, Lixin Tao, Chong-Wei Xu, and Jorge Diaz-Herrera, Jones and Bartlett Publishers. ISBN: 076375420-X, 2010
- "Software Engineering, A practitioners Approach", Roger Pressman, 7th Edition by Press Man., McGraw Hill 2010.
- "Design Patterns, Elements of Reusable Object-Oriented Software", Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides, Addison-Wesley 1995, ISBN: 0201633612

Suggested Additional Resources:

- Design Patterns in Java, Steven John Metsker and Steven John Metsker, Second edition, Addison-Wesley, 2006. ISBN 0321333020
- Head First Design Patterns, Elisabeth Freeman, Eric Freeman, Bert Bates, Kathy Sierra, and Elisabeth Robson, O'Reilly, 2003, ISBN: 0596007124

STUDENT LEARNING OUTCOMES MATRIX*

Core Curriculum Learning Outcomes	Program Learning Outcomes	Course Objectives	Course Student Learning Outcomes	Assessment Method
	[EA1] Understanding of engineering principles and the ability to apply them to analyse key engineering processes.	• Students will understand basic design concepts and quality attributes • Students will be introduced to architectural styles and design patterns	• [CLO1] Understand design concept • [CLO2] Understand principal design concepts	Exam
	[EP7] Awareness of quality issues and their application to continuous improvement.		• [CLO3] describe quality attributes	Exam
	[EA2] Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques.		• [CLO4] Recognize Architectural styles	Exam
	[EA4] Understanding of, and the ability to apply, an integrated or systems approach to solving engineering problems.		• [CLO5] Recognize Design patterns	Exam

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 %	
Quizzes	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, or descriptive questions.

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 #**
Introduction to software Design	Ch.8 (Pressman)	Week1
Design Quality	Ch. 1 (Qian)	Week2
Component-Level Design	Ch. 10 (Pressman)	Week3
Object Oriented Paradigm	Ch. 4 (Qian)	Week4
Data-Flow Architectures	Ch.5 (Qian)	Week5
Data-Centered Architecture	Ch.6 (Qian)	Week6
Hierarchal architecture	Ch.7 (Qian)	Week7
Introduction to Design Patterns	Class Notes	Week8
Creational Patterns (Abstract Factory, Builder, Factory Method)	Class Notes	Week9
Creational Design Patterns (Singleton, Prototype, Summary)	Class Notes	Week9
Structural Design Patterns (Adapter, Bridge, Composite, Decorator)	Class Notes	Week10
Structural Design Patterns (Flyweight, Façade, Proxy)	Class Notes	Week10
Behavioral Design Patterns (Chain of Responsibility, Command)	Class Notes	Week11
Behavioral Design Patterns (State, Observer, Strategy)	Class Notes	Week11

Behavioral Design Patterns (Visitor, Summary)	Class Notes	Week12
Summary of Design Patterns	Class Notes	Week12