



**COLLEGE OF INFORMATION TECHNOLOGY
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE SYLLABUS/ SPECIFICATION**

CODE& TITLE:	ITCS 221 – Object Oriented Programming II
WEIGHT:	(2 - 2 - 3)
PREREQUISITE:	ITCS 201
NQF Level Allocated:	6
NQF Notional Hours / Credits:	120 notional hours/ 12 NQF credit

DESCRIPTION: This course is built on the information gained from the previous Java programming courses. It concentrates on modeling the GUI and advanced software programming issues such as: Java Applets, Multimedia (applets and applications) and Multithreading.

OBJECTIVES:

1. To understand advanced concepts of Java Programming Language such as exception and error handling, Multithreading and applets.
2. To explain how to create and use generic methods and types effectively.
3. To teach students how to write multimedia and multithreaded applets and applications.
4. Write applications and applets, and develop a GUI interface.

Semester:

Instructor (s):

Office Telephone:

Email (s):

INTENDED LEARNING OUTCOMES (ILOS)

Upon successful completion of the course, students should be able to:

A. Knowledge and Understanding		NQF Descriptor/ Level
A1	<u>Concepts and Theories:</u> Demonstrate an understanding of advanced Java programming concepts, such as exception and error handling, generic methods and classes, Java applets, multimedia and multithreading.	Knowledge: theoretical understanding [Level 7]
A2	<u>Contemporary Trends, Problems and Research:</u> NA	
A3	<u>Professional Responsibility:</u> NA	
B. Subject-Specific Skills		NQF Descriptor/ Level
B1	<u>Problem Solving:</u> Analyze and identify real world and computer application problems, and develop effective java applications and applets to solve these problems.	Knowledge: Practical Application [Level 6] Generic Problem Solving & Analytical skills [Level 6] Skills: Communication, ICT & Numeracy [Level 6]
B2	<u>Modeling and Design:</u> Design computer programs that meet user specifications utilizing Java programming language.	Knowledge: Practical Application [Level 6]
B3	<u>Application of Methods and Tools:</u> Apply Java programming language constructs and tools to write, run, trace, and debug object oriented programs.	Knowledge: Practical Application [Level 6] Skills: Communication, ICT & Numeracy [Level 6]
C. Thinking Skills		NQF Descriptor/ Level
C1	<u>Analytic:</u> Analyse user requirements and problems, and evaluate the effectiveness and performance of java programs needed to meet users' expectations.	Generic Problem Solving & Analytical skills [Level 6]
C2	<u>Synthetic:</u> Integrate Java application components into one java project to organize the data and make the program more flexible.	Generic Problem Solving & Analytical skills [Level 6]
C3	<u>Creative:</u> Demonstrate creativity in solving new problems by developing Java programs and applets.	Generic Problem Solving & Analytical skills [Level 6]
D. General and Transferable Skills (Other Skills Relevant to Employability and Personal Development)		NQF Descriptor/ Level
D1	<u>Communication:</u> NA	
D2	<u>Teamwork and Leadership:</u> NA	

D3	<u>Organizational and Developmental Skills</u> : Demonstrate ability to organize ideas and effectively allocate time in given assignment.	<u>Competence: Autonomy, Responsibility and Context</u> <u>[Level 6]</u>
D4	<u>Ethical and Social Responsibility</u> : NA	

Course Structure (Outline)						
Week	Week		ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
	Lec.	Lab				
1	2	2	A1	Introduction	Lecture	
2	2	2	A1, B1, B3	Exception Handling: Exceptions and Exception Types, Throwing Exceptions, Catching Exceptions.	Lecture/ Lab Demonstration	In-Lab Exercises
3-5	6	6	B1, B2, B3, C1	Exception Handling: Creating user defined exception classes. The finally Clause Cautions, chained exceptions, precondition and preconditions Assertions.	Lecture/ In-Lab Supervised Work	In-Lab Exercises
6	2	2	A1, B1, B2, B3, C1	Generics: Introduction and motivation for Generic methods, and overloading generic methods.	Lecture/ In-Lab Supervised Work	In-Lab Exercises
7	2	2	B1, B2, B3, C1, C2, C3, D3	Generics: Generic classes, Generic and inheritance.	Lecture/ In-Lab Supervised Work/ Project Supervision	Lab Project1/ In-Lab Exercises
8-9	4	4	A1, B1, B2, B3, C1, C2, D3	Introduction to Java Applets: Sample Applets, simple Java Applet, Applet life-Cycle methods, Security in Applets.	Lecture/ Lab Demonstration/ In-Lab Supervised Work	Lab Test1 (week 8)/ In-Lab Exercises
10	2	2	B1, B2, B3, C1, C2	Java Applets: Generic methods, Generic classes and Java Applets.	In-Lab Supervised Work	In-Lab Exercises
11	2	2	A1, B1, B2, B3	Multimedia: Introduction, manipulating images, loading and playing audio clips, Java media framework.	Lecture/ In-Lab Supervised Work	In-Lab Exercises
12-13	4	4	B1, B2, B3, C1, C2, C3	Multimedia: Manipulating images, loading and playing audio clips, Java media framework.	Lecture/ In-Lab Supervised Work	Lab Test2 (week13)/ In-Lab Exercises
14	2	2	A1, B1, B2, B3, C1, C2, C3, D3	Multithreading and RMI: Introduction, life-Cycle of a thread, thread's properties and thread scheduling, thread synchronization, DeadLock, Socket Class.	Lecture/ Lab Demonstration/ In-Lab Supervised Work/ Project Supervision	Lab Project2/ In-Lab Exercises

15	2	2	A1, B2, B3, C2	Remote Method Invocation	Lecture/ Lab Demonstration/ In-Lab	In-Lab Exercises
16	2	-	A1, B1, B2, C1, C2, C3	All Topics		Final Exam

TEACHING MATERIALS:

TEXTBOOK(S): Deitel T. R. Nieto. (2017) *Java How to Program*, 11th Edition, Prentice Hall.

HANDOUT(S): PowerPoint slides available on Moodle i.e. <http://www.ahlia.edu.bh/moodle>

REFERENCE(S):

1. Gaddis T. and Muganda G. (2015) *Starting Out with Java, From Control Structures through Data Structures*, 3rd Edition, Pearson Education.
2. Barnes D. J. and Kölling M. (2012) *Objects First with Java: A Practical Introduction Using BlueJ*, 5th Edition, Prentice Hall.
3. Savitch, W. (2017). *Java: An Introduction to Problem Solving and Programming Plus MyProgramming Lab with Pearson eText-Access Card Package*. Pearson.

ASSESSMENTS:

Type of Assessment	Description	ILOs	Weighting
Lab Tests	The student will be assessed through two practical tests, which will take two hours each. In each test, the students will be asked to develop a JAVA program for solving a problem.	B1, B3, C1, C2, D3	40%
Lab Projects	Two lab projects to be given, each worth 10%. The project could cover any topic in the course.	A1, B1, B2, B3, C1, C2, C3, D3	20%
Final Exam	Final exam will be for two hours, including all types of question: MCQs, short answers questions, true/false, problem solving, etc.	A1, B1, B2, C1, C2, C3	40%
In-Lab Exercises	Exercises will help the students in understanding and digesting all the course topics.	B1, B3, C1, C2	Formative
Overall			100%

Admissions	
Minimum number of students	5
Maximum number of students	20

Ahlia University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.ahlia.edu.bh/integrity for more information).