Course Specification

(3105 Advanced Programming)

Faculty:	*HICIT- **Higher Institute for Computers & Information Technology**-El Shorouk Academy*
Programme(s) on which the course is given:	Under graduate program in Computer Science
Major or minor element of programme:	Major
Department offering the programme	Department of Computer Science
Department offering the course:	Department of Computer Science
Year / Class	3rd Year – 1st semester
Date of specification approval	1/8/2022

A- Basic Information

Title: Database Systems	***Code:** 3105*		
Weekly Hours:			
Lecture : 3	**Exercise: -**	**Practical :**3	**Total:** 6

B- Professional Information

1 - Course Aims:

This course will introduce the fundamentals of advanced programming techniques based on JAVA programming language. Course starts with discussing the main feature of Java language and how to implement the advanced topic on it like GUI programming (including Applets and multimedia), concurrency (multithreading) and networking application and discuses also some other topic like Servlets and database programming.

2- Program ILOs Covered by Course

Program Intended Learning Outcomes			
Knowledge and understanding	**Intellectual Skills**	**Professional and practical skills**	**General and Transferable skills**
A2, A13, A20	**B3, B4**	**C1, C5, C10, C16**	**D5**

3- Intended learning outcomes of course (ILOs)

a: Knowledge and Understanding

a1. define a problem solutions in the form of algorithms using pseudo-code [A2]
a2. Describe fundamentals of programming and the construction of computer-based systems.[A13,A20]
a3. Identify the tools, practices and methodologies used in the specification, design, implementation and critical evaluation of computer program [A13, A20]

b: Intellectual skills

b1. Analyze problems, develop conceptual designs that solve those problems.[B3,B4]
b2. Analyze the requirements of a range of computer-based systems and examine the design alternatives based on the constraints imposed by society, organizations, and technology. Abstraction. [B3, B4]
b3. Apply the concepts, principles, theories and practices underpinning computing as an academic discipline. [B3]

c: Professional and practical skills

c1. Practice the different elements of programming language as building blocks to develop correct, coherent programs. [C1, C10]
c2. Implement a fully program using Java proper programming. [C1, C5, C16]
c3. Effectively deploy tools for the implementation and documentation of computer-based systems. [C10]

d: General and transferable skills

d1- Learn some Internet/Library searching strategies. [D5]
d2- write a short report using appropriate scientific language.[D5]
d3. Use IT skills and display mature computer literacy.[D5]

4 -Contents

Topic	Hours	Lecture	Practical
Introduction to JAVA	6	3	3
Object oriented in JAVA	6	3	3
Inheritance	6	3	3
GUI programming	6	3	3
Graphics	6	3	3
Event driven programming	6	3	3
Applets and multimedia	6	3	3
Exception handling	6	3	3
Multithreading	6	3	3
Networking	9	3	6
Select Topic	3	3	---

Servlets and java database programming.	12	6	6

5 -Teaching and learning methods

Teaching and learning methods	Used
Active Learning	
Lectures(blending learning – online learning using virtual classroom)	√
Tutorial Exercises (hybrid learning – online learning)	√
Practical Lab(blending learning– online learning)	√
Exercises	-
Discussions.	-
Self – Learning strategy	
Reading material	√
Websites search	√
Research and reporting	√
Self-studies	-
Experimental strategy	-
Group work	-
Presentation	-
Problem solving strategy	
Problem solving/problem solving learning based	√
Case study	-
Synchronous E-Learning	
Virtual lab	-
Virtual class	-
Chat Room	-
Video lectures	-
Asynchronous E-Learning	
E-Learning	√

6 -Student assessment methods

Methods	Assessment	Used
Electronic Midterm Exam	To assess the knowledge and understanding achieved by the student during the previous weeks. (online on e-learning hub)	√
Pencil-to-Paper Final Exam	To evaluate what the student gain at the end of the course, and to assess: the knowledge and understanding, general skills, and intellectual skills.	√
Course Project	To allow students work in team, and to evaluate knowledge, understanding, intellectual, and transferable skills. (online on e-learning hub ,	√

	FTF)	
Electronic Course Work & Quizzes	To keep the student always in the course, and to evaluate knowledge, understanding, intellectual, and transferable skills.(online on e-learning hub)	√
Practical Exam	to measure the ability of students to design and implement a software program(FTF).	-
Partition	To assess the knowledge and understanding achieved by the student during the previous weeks.	√

Assessment Schedule

Assessment	Week #
Participation	**3-14**
Electronic Mid Term Exam	**8**
Final Exam	**16**
Electronic/ hard copy Course Project	**3-14**
Electronic/ hard copy Course Work &Quizzes	**2-14**

Assessment Weight

Assessment	Weight %
Participation	**5%**
Electronic Mid Term Exam	
Final Exam	**80%**
Electronic / hard copy Course Project	**10%**
Electronic/ hard copy Course Work &Quizzes	**5%**
Total	**100**

- Course Work &Quizzes:
  - Short Exams, Assignments, Researches, Reports, Presentations on e-learning hub
  - Class/Project discussion in a virtual classroom

7 -List of references

Essential books (text books)	• **Liang, Y. Daniel. "Introduction to Java programming and data structures, comprehensive version." (2020).**
Course notes	• **Khot, Atul S. *Concurrent Patterns and Best Practices: Build Scalable Apps With Patterns in Multithreading, Synchronization, and Functional Programming*. 2018.**
Recommended books	• **Loy, Marc, et al. *Learning Java: An Introduction to Real-World Programming With Java*. 2020.**

	• **Verhas, Peter.** ***Java Projects: Learn the Fundamentals of Java 11 Programming by Building Industry Grade Practical Projects, 2nd Edition*****. 2018.**
Periodicals, website	• **PowerPoint presentations of all course materials** • **All labs material** **[https://moodle.sha.edu.eg/course/view.php?id=1366]**

8 -Facilities required for teaching and learning

1- Required Facilities

To assess professional and practical skills given the following facilities:

a. Tools & SW (Technologies facilities):

- **Apache NetBeans 14**
- **portal(MOODLE) to make electronic quizzes and electronic midterm exam**
- **portal(MOODLE) to upload project deliverable and assignment**
- **academy portal(MOODLE) to upload electronic material**

b. Teaching facilities:

	Lecture	*class*	*Lab*
Whiteboard	used	-	used
Pc/laptop	used	-	used
Data show	used	-	used
Webinars	MS TEAMS	-	MS TEAMS
Social Media	Facebook Page for 3rd year	-	Facebook Page for 3rd year
Chat Room	Chat Teams	-	Chat Teams
Videos	Stream-MOODLE	-	Stream-MOODLE
Website	MOODLE	-	MOODLE

9-Course Matrices

9.1-Course Content/ILOs Matrix

Course Contents	Knowledge & understanding			Intellectual skills			Professional and practical skills			General		
	a1	a2	a3	b1	b2	b3	c1	c2	c3	d1	d2	d3
Introduction to JAVA	x	x	x				x	x	x			
Object oriented in JAVA	x	x	x				x	x	x			
Inheritance	x	x	x				x	x	x			
GUI programming	x	x	x				x	x	x			
Graphics	x	x	x				x	x	x			
Event driven programming	x	x	x	x	x		x	x	x			
Applets and multimedia	x	x	x				x	x	x			
Exception handling				x	x		x	x	x			

Multithreading				x	x	x	x	x	x			
Networking				x	x	x	x	x	x			
Select Topic	x	x	x	x	x	x				x	x	x
Servlets and java database programming.				x	x	x	x	x	x			

9.2-Learning Method /ILOs Matrix

Learning Methods	Knowledge and understanding			Intellectual skills			Professional and practical skills			General		
	a1	a2	a3	b1	b2	b3	c1	c2	c3	d1	d2	d3
Lectures	x	x	x	x	x	x	x	x	x			
Tutorial Exercises				x	x	x	x	x	x			
Reading material	x	x	x	x	x	x	x	x	x			
Websites search	x	x	x	x	x	x		x		x	x	x
Research and reporting	x	x	x							x	x	
Problem solving/problem solving learning based						x						
Group work							x	x	x	x	x	x
Presentations												
Practical Lab				x	x	x	x	x	x			
Discussions.				x	x	x	x	x	x	x	x	x

9.3-Assessment Methods /ILOs Matrix

Assessment Methods	Knowledge & understanding			Intellectual skills			Professional & practical skills			General		
	a1	a2	a3	b1	b2	b3	c1	c2	c3	d1	d2	d3
Electronic Mid Term Exam	x	x	x	x	x	x	x	x	x			
Final Exam	x	x	x	x	x	x	x	x	x			
Electronic Course Project	x	x	x	x	x	x	x	x	x	x	x	x
Electronic Course Work &Quizzes	x	x	x	x	x	x	x	x	x	x	x	x

10- Course ILOs Vs Program ILOs

Course ILOs \ Prog ILOs		Knowledge & understanding			Intellectual skills		Professional and practical skills				General
		A2	A13	A20	B3	B4	C1	C5	C10	C16	D5
k&u	a1	√									
	a2		√	√							
	a3		√	√							
int.	b1				√	√					
	b2				√	√					
	b3				√						
p. &p.	c1						√		√		
	c2						√	√		√	
	c3								√		
general	d1										√
	d2										√
	d3										√

Course coordinator: Dr. Mohamed Mostafa ( )

Head of Department: Dr. Ahmed El-Abbassy ( )

Date: 1/8/2022