



Course Specification

A- Affiliation

Relevant program:	Computer science
Department offering the program:	Mathematics
Department offering the course:	Mathematics
Academic year/level:	Second level / First Semester
Date of specifications approval:	9 /12 / 2015, No. (390) and updated 10/1/2018 meeting no.(419).

B - Basic information

Title:	Code:	Year/level:
Object-Oriented Programming	251 MC	Second level / First Semester
Teaching Hours: 42h	Lectures:	Tutorial: —
	2h/week	
	Practical:	Total: 3 h/week
	2h/week	

C - Professional information

1 – Course Learning Objectives:

At the end of this course, the students must be able to:

Apply computing knowledge and skills to the solution of real life problem. Use computer science applications to solve mathematical and statistical problems. Apply effectively information technology relevant to the field. Use such knowledge and understanding in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoff involved in design choices.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

At the end of this course, the students must be able to:

- a1- To know the developmental progress of the program related knowledge.
- a2- The relation between the studied topics and the environment.
- a3- Select computing knowledge in solving different problems.
- a4- Determine the relevant theories and their applications.
- a5- Explain programming concepts for various branches of mathematics, probability and statistics.



b - Intellectual skills:

At the end of this course, the students must be able to:

b1-Solve abstract and mathematical models of computer and communication system.

b2-Apply appropriate statistical and computing techniques to the development of software solutions.

c - Practical and professional skills:

At the end of this course, the students must be able to:

c1- Examine problems using a range of formats and approaches.

c2- Prepare the concepts and methods of computer science, mathematics and statistics to the solution of the real problems in professional practice.

c3- Design computer-based systems.

d - General skills:

At the end of this course, the students must be able to:

d1-Using internet and information effectively.

d2-Community linked thinking, set tasks and solve problems on scientific basis.

d3-Working in groups effectively, manage time, and communicate with others positively.

d4-Life-long learning.

3 – Contents			
Topic	Lecture hours	Tutorial hours	Practical hours
Introduction to Computers and Programming	2		2
Introduction Java	2		2
Selection Statements, Loops and Function	2		2
Arrays	2		2
Strings and Text I/O	2		2
Strings and Text I/O	2		2
Mid-Term Examination and Objects and Classes	2		2
Objects and Classes	2		2
Objects and Classes	2		2
Inheritance and Polymorphism	2		2
Inheritance and Polymorphism	2		2
Abstract Classes and Interfaces	2		2
Object Oriented Design	2		2
Getting Started with GUI Programming and Creating User Interfaces	2		2
Total hours	28		28



4 - Teaching and Learning methods:

Intended Learning Outcomes			Lecture	Presentations & Movies	Discussions & Seminars	Practical	Problem solving	Brainstorming
Knowledge & Understanding	a1.	To knowThe developmental progress of the program related knowledge.	✓	✓	✓	✓		
	a2.	The relation between the studied topics and the environment.	✓	✓	✓	✓		
	a3.	Select computing knowledge in solving different problems.	✓	✓		✓		
	a4.	Determine the relevant theories and their applications.	✓	✓	✓	✓		
	a5.	Explain programming concepts for various branches of mathematics, probability and statistics.	✓	✓		✓		
Intellectual Skills	b1.	Solve abstract and mathematical models of computer and communication system.		✓	✓	✓	✓	✓
	b2.	Apply appropriate statistical and computing techniques to the development of software solutions.	✓		✓	✓	✓	
Practical and professional skills	c1.	Examine problems using a range of formats and approaches.	✓		✓		✓	✓
	c2.	Prepare the concepts and methods of computer science, mathematics and statistics to the solution of the real problems in professional practice.	✓		✓		✓	✓
	c3.	Design computer-based systems.	✓		✓		✓	✓
Genetal Skills	d1.	Using internet and information effectively.		✓		✓		
	d2.	Community linked thinking, set tasks and solve problems on scientific basis.		✓	✓	✓		
	d3.	Working in groups effectively, manage time, and communicate with others positively.		✓	✓	✓		
	d4.	Life-long learning.	✓	✓		✓	✓	



5- Students' Assessment Methods and Grading:

Tools:	To Measure	Time schedule	Grading
Mid-Term Exam	a1, a2, c2, d2, d4	Week 7	14 %
Oral exam	a5, c1, b1, d2, d3,d4	Week 15	14 %
Practical exams	a3, b2, c3, d1	Week 15	24 %
Written exam	a4, a5, b1, c3, d2	Start of 16 th week	48 %
Total			100 %

6 – Course Matrix

Topic	Knowledge & Understanding					Intellectual Skills		Practical and professional skills			General Skills			
	a1	a2	a3	a4	a5	b1	b2	c1	c2	c3	d1	d2	d3	d4
Introduction to Computers and Programming		x					x		x		x			
Introduction Java					x	x		x						x
Selection Statements, Loops and Function	x		X			x				x			x	
Arrays	x						x			x				
Strings and Text I/O		x							x		x			
Strings and Text I/O				x		x				x				
Mid-Term Examination and Objects and Classes			X						x					x
Objects and Classes				x			x						x	
Objects and Classes	x									x				x
Inheritance and Polymorphism		x				x						x		
Inheritance and Polymorphism	x												x	
Abstract Classes and Interfaces					x	x			x			x		
Object Oriented Design				x		x								x
Getting Started with GUI Programming and Creating User Interfaces					x		x			x			x	



7- List of references:

7-1 Course notes

- Notes approved by Math. Department.

7-2 Required books.

- Arnow, D. and Weiss, G. (2002). *Arnow, D. and Weiss, G. (2000). Introduction to programming using Java. Reading, Mass.: Addison Wesley. 2nd ed. Reading, Mass: Addison Wesley.*

7-3 Recommended books.

- Kendal, S. (2009). *Object Oriented Programming using Java. Denmark: Ventus Publishing ApS, p.216.*

7-4 Periodicals, Web sites, etc.

- <http://www.tutorialspoint.com/java/index.htm> [Accessed 29 Oct. 2015].
- <http://www.javatpoint.com/java-tutorial> [Accessed 29 Oct. 2015].

8- Facilities required for teaching and learning:

- Data Show Device
- Whiteboard

Course coordinator: Dr. Eslam Amr

Head of the Department: Prof. Dr. Abdel Kareem Soliman

Date: 9/ 12 / 2015 Updated 2018