

Course Specification
(3105 Advanced Programming)

Faculty: HICIT- Higher Institute for Computers & Information Technology

Programme(s) Title: Computer Science

Department Title: Computer Science

Academic year / Level: 3rd Year – 1st Semester

Main/Secondary: Main

Date of specification approval: 22/9/2015

A- Basic Information

Title: Advanced Programming

Code: 3105

Weekly Hours:

Lecture: 3

Exercise: -

Practical: 3

Total: 6

B- Professional Information

1 - Overall aims of course

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 discusses 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

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

b: Intellectual skills

- b1. Analyze problems, develop conceptual designs that solve those problems.

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. Apply the concepts, principles, theories and practices underpinning computing as an academic discipline.

c: Professional and practical skills

c1. Use the different elements of programming language as building blocks to develop correct, coherent programs.

c3. Design, develop and test fully program using Java proper programming.

c4. Effectively deploy tools for the implementation and documentation of computer-based systems.

d: General and transferable skills

d1- Learn some Internet/Library searching strategies.

d2- write a short report using appropriate scientific language.

d3. Use IT skills and display mature computer literacy.

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	12	6	6
Servlets and java database programming.	12	6	6

5 -Teaching and learning methods

5.1 Lectures

5.2 Tutorial Exercises

5.3 Practical Lab

5.4 Discussions.

6 -Student assessment methods

6.1 Midterm Exam: To assess the knowledge and understanding achieved by the student during the previous weeks.

6.2 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.

6.3 Course Work &Quizzes: To keep the student always in the course, and to evaluate knowledge, understanding, intellectual, and transferable skills.

Assessment Schedule

Assessment	Week #
Mid Term Exam	8
Final Exam	16
Course Work & Quizzes	2-14

Assessment Weight

Assessment	Weigh %
Mid Term Exam	10%
Final Exam	80%
Course Work & Quizzes	10%
Total	100

Course Work & Quizzes: (Short Exams, Assignments, Researches, Reports, Presentations, Class/Project discussion)

7 -List of references

7.1 -Course notes

Some cases in power point

7.2 -Essential books (text books)

Liang, Y. Daniel. "Introduction to java programming comprehensive 9th edition".

7.3 -Recommended books

- **Concurrent Programming in Java: Design Principles and Patterns** by Doug Lea ISBN: 0-201-69581-2
- **The Java Handbook** by Patrick Naughton , Michael Morrison
Publisher: Osborne/McGraw-Hill, ISBN: 0-078-82199-1
- **The Java AWT Reference** ,by John Zukowski , Publisher: O'Reilly & Associates, Inc.
ISBN: 1-565-92240-9

7.4 -Periodicals, Web sites ... etc.

None

8 -Facilities required for teaching and learning

- White board
- Overhead projector
- MS Project SW Package for scheduling projects
- MS Power Point SW Package for presenting the system status to the system owner and users.
- NetBeans.

9-Course Matrices

9.1-Course Content/ILOs Matrix

Course Contents	a1	a2	a3	b1	b2	b3	c1	c2	c3	c4	d1	d2	d3
Introduction to JAVA	√	√	√				√	√	√	√			
Object oriented in JAVA	√	√	√				√	√	√	√			
Inheritance	√	√	√				√	√	√	√			
GUI programming	√	√	√				√	√	√	√			
Graphics	√	√	√				√	√	√	√			
Event driven programming	√	√	√	√	√		√	√	√	√			
Applets and multimedia	√	√	√				√	√	√	√			
Exception handling				√	√		√	√	√	√			
Multithreading				√	√	√	√	√	√	√			
Networking				√	√	√	√	√	√	√			
Servlets and java database programming.				√	√	√	√	√	√	√			

9.2-Learning Method /ILOs Matrix

Learning Methods	a1	a2	a3	b1	b2	b3	c1	c2	c3	c4	d1	d2	d3
Lectures	√	√	√	√	√	√	√	√	√	√			
Tutorial Exercises				√	√	√	√	√	√	√			
Practical Lab				√	√	√	√	√	√	√			
Discussions.				√	√	√	√	√	√	√	√	√	√

9.2-Assessment Methods /ILOs Matrix

Assessment Methods	a1	a2	a3	b1	b2	b3	c1	c2	c3	c4	d1	d2	d3
Mid Term Exam	√	√	√	√	√	√	√	√	√	√			
Final Exam	√	√	√	√	√	√	√	√	√	√			
Course Work &Quizzes	√	√	√	√	√	√	√	√	√	√	√	√	√

Course coordinator: Dr. Mohammed Moustafa

Head of Department: Dr. Farouk A. Shabaan

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