University/Academy: Arab Academy for Science and Technology & Maritime Transport
Faculty/Institute: College of Computing and Information Technology
Program: Computer Science

Form No. (12)
Course Specification

1- Course Data

Course Code:	Course Title:	Academic Year/Level:
CS244	Advanced Programming Applications	Year 3 / Semester 5
Specialization:	**No. of Instructional Units:** 1.5 hrs lecture 1.5 hrs lab	**Lecture:**

2- Course Aim	This course utilizes Java as a platform-independent object-oriented programming language and C as platform-based programming language. It introduces advanced programming features through applications. Among those advanced features: building user interface using swing, multi-threaded programming, database connectivity using JDBC, and distributed computing using Remote Method Invocation (RMI). The course also covers the basics of web programming using Java web technologies. Unix/Linux programming tools and environments are introduced. Scripting languages as another problem solving technique is introduced, such as python.
3- Intended Learning Outcome:	
a- Knowledge and Understanding	**Students will be able to demonstrate knowledge of:** **K3.** Tools, practices and methodologies used in the specification, design, implementation and evaluation of computer software systems. **K6.** The current and underlying technologies that support computer processing and inter-computer communication. **K13.** Use high-level programming languages. **K18.** Understand the fundamental topics in Computer Science, including hardware and software architectures, software engineering principles and methodologies, operating systems, compilers, parallel and distributed computing, systems and software tools. **K19.** Select advanced topics to provide a deeper understanding of some aspects of the subject, such as hardware systems design, object-oriented analysis and design, and artificial intelligence, and parallel and concurrent computing.
b- Intellectual Skills	**By the end of the course, the student acquires high skills and an ability to understand:** **I3.** Identify criteria to measure and interpret the appropriateness of a computer system for its current deployment and future evolution. **I13.** Identify attributes, components, relationships, patterns, main ideas, and errors.

c- Professional Skills	**By the end of the course the student will have the ability to:**
	P2. Implement comprehensive computing knowledge and skills in projects and in deployment of computers to solve position practical problems.
	P3. Deploy the equipment and tools used for the construction, maintenance and documentation of computer applications.
	P4. Apply computing information retrieval skills in computing community environment and industry.
	P6. Design, implement, maintain, and manage software systems.
	P9. Use appropriate programming languages, web-based systems and tools, design methodologies, and knowledge and database systems.
	P14. Specify, design, and implement computer-based systems.
	P16. Apply the principles of effective information management, information organization, and information-retrieval skills to information of various kinds, including text, images, sound, and video.
	P19. Deploy effectively the tools used for the construction and documentation of software, with particular emphasis on understanding the whole process involved in using computers to solve practical problems.
d- General Skills	**Students will be able to:**
	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.
	G2. Demonstrate skills in group working, team management, time management and organizational skills.
	G7. Show the use of general computing facilities.

4- Course Content

1	Build advanced user interfaces using Java swing package.
2	Communicate with a DBMS using JDBC.
3	Understand multi-threaded programming.
4	Discuss distributed computing using RMI
5	Understand the basics of Java web programming, such as servlets, JSPs.
6	Understand Unix/Linux code development tools
7	Understand scripting languages such as python
8	Work in teams and effectively communicate ideas and outcomes.

5- Teaching and Learning Methods	Lectures, Labs, Projects, Individual study & self-learning.
6- Teaching and Learning Methods for Students with Special Needs	• Students with special needs are requested to contact the college representative for special needs (currently Dr Hoda Mamdouh in room C504) • Consulting with lecturer during office hours. • Consulting with teaching assistant during office hours. • For handicapped accessibility, please refer to program specification.

7- Student Assessment:

a- Procedures used:	Exams and Individual Projects
b- Schedule:	Week 7 exam Projects through the semester Week 16 Final exam
c- Weighing of Assessment:	15% - Midterm Exam 5% - Lab Submissions 10% - Lab Quizzes 30% - Assignments 20% - Project 20% - Final Exam

8- List of References:

a- Course Notes	From the Moodle on moodle.manalhelal.com
b- Required Books (Textbooks)	-Y Daniel Liang, Introduction to JAVA Programming, 9th Edition, Prentice Hall, 2013.
c- Recommended Books	Neil Matthew, Richard Stones, Beginning Linux Programming, Third Edition, Wiley Publishing, Inc., 2004 -Mark Summerfield, Programming in Python 3: A Complete Introduction to the Python Language , Addison-Wesley, 2008. M Welsh, M K Dalheimer, T Dawson , and L Kaufman, **Running Linux**, 4th Edition, O'Reilly, 2002 Eric Steven Raymond, **The Art of Unix Programming**, Addison Wesley, 2003 R. Allen Wyke Jason D. Gilliam Charlton Ting Sean Michaels, **Pure JavaScript**, Second Edition Copyright, Sams Publishing, 2002
d- Periodicals, Web Sites, ..., etc.	

Course Instructor: **Head of Department:**

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