



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

Form No. (12)
Course Specification

1- Course Data

Course Code: IS433	Course Title: Mobile Computing Applications	Academic Year/Level: Year 4 / Semester 8
Specialization: Information Systems	No. of Instructional Units: 2 hrs lecture 2 hrs lab	Lecture:

2- Course Aim	This course involves the design and development of mobile application for cell phones, PDAs, and related remote computing devices. After an introduction to mobile computing infrastructures and Mobile Application Software Development tools and Frameworks , the students will be introduced to web-based mobile application architecture.
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3- Intended Learning Outcome:

a- Knowledge and Understanding	<p>Students will be able to demonstrate knowledge of:</p> <p>K14. The principles and techniques of database management systems, management, data mining, geographical information systems, multimedia, application development, business process management, enterprise systems, human-computer interaction, object-oriented analysis and design, e-technologies, multimedia, image processing, information and infrastructures security and computer graphics techniques.</p> <p>K17. The principles of Information communication and information security.</p> <ul style="list-style-type: none">•Understand the constraints and architectural requirements for developing mobile applications. (K14,K17)•Understand the standard mobile frameworks(K14,K17)•Understand the structure of the Android Operating System(K14,K17)•Understand some general design principles for user interface development(K14,K17)•explain different interaction styles and their use(K14,K17)•Identify when to use graphical and textual information presentation(K14,K17)•explain the principal activities in the user design process•Understand the UML Standard(K14,K17)
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	<ul style="list-style-type: none"> •Identify the role of UML in Mobile applications design(K14,K17) •Understand the XML Standard(K14,K17) •Understand the role of XML in Mobile applications development (K14,K17) •Understand the main aspects of mobile web application(K14,K17) •Understand difference between Web Apps vs. Mobile Native Apps(K14,K17) •Identify the different mobile network information(K14,K17) •Understand how to create application using Web API(K14,K17) •Understand the Basics of Wi-Fi(K14,K17) •Understand the Basics of Wi-Max(K14,K17) •Understand the Basics of GSM(K14,K17) •Understand the Basics of Bluetooth (K14,K17) •Understand the Basics of IRDA (K14,K17) •Identify basic security requirements when developing mobile applications. (K14,K17) •Identify Attack based on SMS(K14,K17) •Understand Attack based on MMS(K14,K17) •Understand Attack based on WiFi(K14,K17) •Understand Attack based on GSM(K14,K17) •Understand Bluejacking , Bluesnarfing(K14,K17)
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<p>b- Intellectual Skills</p>	<p><u>By the end of the course, the student acquires high skills and an ability to understand:</u></p> <p>I12. Identify attributes, components, relationships, patterns, main ideas, and errors.</p> <p>I16. Solve IS problems with pressing commercial, time, and industrial constraints.</p> <p>I17. Suggest an innovative design to solve a problem containing a range of commercial and industrial constraints.</p> <ul style="list-style-type: none"> • Identify the design patterns involved in multi-tier distributed applications.(I12) • Compare between different Mobile Frameworks (I12) • Apply usability attributes and approaches to Mobile system evaluation (I16,I17) • Apply UML diagrams according to design purpose (I12) <p>Analyze Security threats in wireless communication (I16,I17)</p>
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<p>c- Professional Skills</p>	<p><u>By the end of the course the student will have the ability to:</u></p> <p>P15. Apply the principles of effective information acquisition, information management, organization, and information-retrieval to text, images, sound, and video.</p> <p>P16. Apply the principles of human-computer interaction to the evaluation and construction of a wide range of materials including user interfaces, web pages, and multimedia systems.</p> <ul style="list-style-type: none"> • Install Android Operating System(P15) • Develop basic mobile applications(P15) • Developing UI using XML on Android Platform (P16) • Create Mobile web Application (P15) • create applications that use network-based information(P15) • Developing UI using XML on Android Platform(P16) • Developing mobile app using PhoneGap(P15,P16)
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d- General Skills	Students will be able to: G 1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7. Show the use of general computing facilities.														
4- Course Content	<table border="1"> <thead> <tr> <th>#</th> <th>CLO</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Understand the constraints and architectural requirements for developing mobile applications.</td> </tr> <tr> <td>2</td> <td>Identify the design patterns involved in multi-tier distributed applications.</td> </tr> <tr> <td>3</td> <td>Develop basic mobile applications and incorporate enhanced GUI and VUI.</td> </tr> <tr> <td>4</td> <td>Create efficient, event-driven user GUI and VUI interfaces</td> </tr> <tr> <td>5</td> <td>Be able to create applications that use network-based information.</td> </tr> <tr> <td>6</td> <td>Understand basic security requirements when developing mobile applications.</td> </tr> </tbody> </table>	#	CLO	1	Understand the constraints and architectural requirements for developing mobile applications.	2	Identify the design patterns involved in multi-tier distributed applications.	3	Develop basic mobile applications and incorporate enhanced GUI and VUI.	4	Create efficient, event-driven user GUI and VUI interfaces	5	Be able to create applications that use network-based information.	6	Understand basic security requirements when developing mobile applications.
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5- Teaching and Learning Methods	Lectures, Labs, Projects, Individual study & self-learning.														
6- Teaching and Learning Methods for Students with Special Needs	<ul style="list-style-type: none"> • 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. • Private Sessions for redelivering the lecture contents. For handicapped accessibility, please refer to program specification														
7- Student Assessment:															
a- Procedures used:	Exams, labs, and Projects														
b- Schedule:	Week 7 exam Week 12 exam Week 16 Final exam														
c- Weighing of Assessment:	7 th week exam 30% 12 th exam 20% Lab and project 10 % Final exam 40%														
8- List of References:															
a- Course Notes	From the Moodle on www.aast.edu														
b- Required Books (Textbooks)	Mobile Computing Principles, B'FAR, REZA, CAMBRIDGE 2005														

c- Recommended Books	
d- Periodicals, Web Sites, ..., etc.	

Course Instructor:

Head of Department:

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