



Course Specification

— (Postgraduate)

Course Title: Wireless And Mobile Security

Course Code: CYBS60307

Program: M.Sc. in Cybersecurity

Department: Department of Computer Science

College: Faculty of Computing and Information

Institution: Al-baha University

Version: 1

Last Revision Date: *Pick Revision Date.*



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A. General information about the course:

1. Course Identification:

1. Credit hours: (3)

2. Course type

A. University College Department Track

B. Required Elective

3. Level/year at which this course is offered: (1/1)

4. Course general Description:

This course introduces the fundamentals of mobile computing concepts and technologies that leads to an emphasis on the evolution of mobile devices, wireless networking and mobile application development. The evolving nature of mobile computing creates new and interesting area known as ubiquitous environment which combines mobility, sensors, distributed computing and wireless technology to create immersive and personalized computer experience to mobile device users. Issues and challenges in mobile computing are also addressed in order to raise an understanding of the nature and limitations of mobile computing environment.

5. Pre-requirements for this course (if any):

None

6. Pre-requirements for this course (if any):

7. Course Main Objective(s):

Upon successful completion of the course, the student will be able:

- Describe the Mobile Computing Principles and ArchitectureComputer Telephony Interface and VoiceXMLPersonal Communication
- Demonstrate how mobile systems function to secure voice and data access.
- Explain how network connectivity is maintained during motion.
- Discuss the main techniques to secure mobile systems and communications.
- Mobile Computing Principles and ArchitectureComputer Telephony Interface and VoiceXMLPersonal Communication
- Build mobile application with mobile technology, principles, design techniques, and development tools
- Outline practice and analytical skills in information security assessment of technology and methods for communication systems that provide services for mobile users by wireless access networks.



2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	26	80%
2	E-learning	7	20%
3	Hybrid <input type="checkbox"/> Traditional classroom <input type="checkbox"/> E-learning		
4	Distance learning		

3. Contact Hours: (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	33
2.	Laboratory/Studio	-
3.	Field	-
4.	Tutorial	-
5.	Others (specify).....	-
	Total	33

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods:

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Describe the Mobile Computing Principles	K1	Lectures Assignments Group Discussion	Assignments Midterm Exam Final Exam



Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.2	Understand the Architecture Computer Telephony Interface	K2	Lectures Assignments Group Discussion	Assignments Midterm Exam Final Exam
1.3	Outline practice and analytical skills in information security assessment of technology and methods for communication systems that provide services for mobile users by wireless access networks.	K3	Lectures Assignments Group Discussion	Assignments Midterm Exam Final Exam
2.0	Skills			
2.1	Build mobile application with mobile technology, principles, design techniques ,and development tools	S1	Lectures Assignments Project	Quiz Midterm exam Final Exam Project
2.2	Demonstrate how mobile systems function to secure voice and data access.	S2	Lectures Assignments Project	Quiz Midterm exam Final Exam Project
3.0	Values, autonomy, and responsibility			
3.1	Discuss scientific research papers to describe the threats in wireless and mobile security systems.	V1	Project	Project evaluation form (rubric)

C. Course Content:

No	List of Topics	Contact Hours
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1.	Brief History of Mobile Computing - Wireless Technology - Telephony and Messaging Services - Mobile Computing Concep	6
2.	Mobile Devices -Device Taxonomy - General Purpose Devices - Targeted Device - Ubiquitous Computing - Location-Awareness and Context-Awareness	3
3.	Mobile Design Principles - Concept of Mobility - Native vs Web-based user interface - Designing for different screen size - The Ubiquity principles	3
4.	Mobile Web Development - Mobile Browsing Experience - Mobile Web Standards - Tools and Libraries for Mobile Web - Designing Interaction for Mobile Web - Geolocation & Context-awareness in Mobile Web - Best Practices in designing Mobile Web	6
5.	Mobile Application Development - Mobile Application Development - Designing Interaction for Mobile Application - Geolocation & Context Awareness in Mobile Application - Deploying Mobile Application - Best Practices in Mobile Application	6
6.	Security in Mobile Computing - Security Issues in Wireless Network - Location Information and Privacy - Cryptographic Libraries in Mobile Computing - Authentication and Authorization - Best Practices in Securing Mobile Application	6
7.	Issues and Challenges in Mobile Computing - Lack of Standards and Device Fragmentation - Connexivity and Mobility - Human Computer Interaction issues - Rapid Technology Growth	3
Total		33





D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignments	Every two weeks	5%
2.	Report, presentation, and Class Discussions	Week 10	5%
3.	Midterm Exam	Within the 6th Week	20%
4.	Quizzes	Week 8	10%
5.	Project	Week 11	10%
6.	Final Exam	Week 13	50%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities:

1. References and Learning Resources:

Essential References	<ul style="list-style-type: none"> <input type="checkbox"/> Mobile computing : technology, applications, and service creation / Asoke K. Talukder, Roopa R. Yavagal. Second Edition, The McGraw-Hill, 2017. ISBN-13: 978-0070144576 <input type="checkbox"/> Himanshu Dwiwedi, Chris Clark and David Thiel, Mobile Application Security, 1st Edition, The McGraw-Hill, 2010. ISBN-13: 978-0071633567, ISBN-10: 0071633561 <input type="checkbox"/>
Supportive References	<ul style="list-style-type: none"> • Communications of ACM (Association for Computer Machinery) - http://cacm.acm.org/ Journal of the ACM - http://jacm.acm.org/
Electronic Materials	<ul style="list-style-type: none"> • Access to the Saudi Digital Library (SDL). • Using the learning management system of the university – Rafid System (https://lms.bu.edu.sa/). • IEEE/ACM Transactions on Networking https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=90
Other Learning Materials	

2. Educational and Research Facilities and Equipment Required:

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> • A classroom or lecture hall with whiteboard for 25 students. A laboratory with 25 computers.
Technology equipment (Projector, smart board, software)	All students shall have





Items	Resources
	<ul style="list-style-type: none"> A laptop or access to a desktop computer with access to a programming development tool High speed Internet connection Power outlets for student's laptop plug-in Relevant programming software for use of students.
<p>Other equipment (Depending on the nature of the specialty)</p>	<ul style="list-style-type: none"> The laboratory should have computers with programming development tools.

F. Assessment of Course Quality:

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students - Program Leaders	Indirect
Effectiveness of students assessment	Program Leaders	Indirect
Quality of learning resources	Students	Indirect
The extent to which CLOs have been achieved	Peer reviewers	Direct
Reviewing course effectiveness and planning for improvement.	Program Leaders - Faculty	Direct

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval Data:

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

