	Hashemite University Prince Al-Hussein bin Abdullah II Faculty for Information Technology Department of Computer Science and its Applications	

Course Syllabus

Year: 2018-2019 **Semester: (1)**

Course No.	Course Title	Designation	Prerequisite	Co-requisite	Credit Hours Lectures /Lab.
151001421	Wireless Networks and Mobile applications	Required	151001320	-	3 / 0

Instructor Name	E-mail	Office No.	Office ext.	Office Hours
Dr. Ayoub Alsarhan	ayoubm@hu.edu.jo	229	-	Sun, Tue, Thu (11-12)

Coordinator's Name:	Dr. Ayoub Alsarhan

Course Description	This course provides an introduction to various current and next generation wireless networking technologies, and undertakes a detailed exploration of fundamental architectural and design principles used at all layers. This subject aims to use knowledge about networks and protocols to develop a detailed understanding of how wireless network functions such as radio resource management, mobility management, and traffic management are realised in wireless networks representative of current wireless technologies used by industry. Students study the evolution, architecture, functionality, and operation of wireless networking technologies that exist in the market today. These technologies Wireless Local Area Networks (WLAN), Bluetooth network, sensor network . As part of the practical work, students set up and perform measurements on wireless networks and model the behaviour of the network and wireless propagation. Students work in groups and undertake a review of an emerging wireless technology and deliver a presentation and a report on it.

a) Textbook(s):

1. Wireless Communications and Networks: Pearson New International Edition,2013, Stallings, W.

b) Additional References:

1. Ad Hoc wireless networks: architectures and protocols, 2thEdition, C. Silva Ram Murthy, B.S. Manoj.
   Prentice Hall communications engineering and emerging technologies series 2004.
2. Dynamic Spectrum Access and Management in Cognitive Radio Networks, 1thEdition, by Ekram Hossain, Dusit Niyato and Zhu Han, Cambridge University Press, 2009.

Course Learning and Outcomes CLOs

1. Recognize the importance of wireless communication system and the benefits of using this technology. (I,B)
2. Plan a wireless communications system for a given environment in which it is to be deployed. (A,G)
3. Explain several wireless networks like cellular network, ad hoc, Bluetooth, sensor networks, and wireless local area network. (B)
4. Select a wireless technology or a combination of technologies to suit a given application. (G)
5. Describe the importance and the application of cognitive network for utilizing unused spectrum. (B)
Addressed Student Learning Outcomes (SLOs)
A, B, G, and I

Topic Details	Course ILO number	Reference	No. of Weeks	Contact hours*
1. Introduction to wireless communication systems	1	1	2	6
2. Modern Wireless Communication Systems	2, 3	1	2	6
3. Cellular Concept – System Design Concept	4	1	2	6
4. Ad Hoc Wireless Networks	5	2	2	6
5. Routing Protocols for AD HOC wireless Networks	5	2	2	6
6. Wireless Sensor Networks	7	2	2	9
7. Introduction to cognitive radio	7	2	2	3
Total			14	42

Assessment method	Grade	Comments
First Exam	20%	Covers Chapters 1,2,3
Second Exam	20%	Covers Chapters 5,7
Project	20%	TBA
Final Exam	40%	Covers all topics
Total	100%	