



**Philadelphia University**  
**Faculty of Information Technology**  
**Department of Computer Information Systems**  
**First Semester, 2015/2016**

**Course Syllabus**

<b>Course Title:</b> <i>Wireless and Mobile Networks, Advanced Computer Network</i>	<b>Course code:</b> 0761441
<b>Course Level:</b> 4	<b>Course prerequisite (s) and/or co-requisite (s):</b> 761340
<b>Lecture Time:</b>	<b>Credit hours:</b> 3

**Academic Staff**

**Specifics**

<b>Name</b>	<b>Rank</b>	<b>Office Number and Location</b>	<b>Office Hours</b>	<b>E-mail Address</b>

**Course Description:**

This course provides an explanation and a deeper understanding of the wireless network concepts, architecture, protocols, and applications. It covers mainly wireless local area networks, wireless metropolitan area networks, wireless wide area networks, and wireless sensor networks.

**Course objectives:**

The aim of this course is to provide a deeper understanding of different classes of networks and to enhance the application design and development skills in wireless networks. Wi-Fi, WiMax and ad hoc network technologies along with concepts of wireless networks such as media access control and routing are covered by this course.

**Course components:**

**Textbook:** Wireless and mobile networks, Sunilkumar S. Manvi and Mahabaleshwar S. Kakkasageri, Wiley, 2010

**Support material (s):** books chapters, slides, and simulations animations.

**Teaching methods:** Lectures, discussion sessions, and laboratories.

**Duration:** 16 weeks, 48 hours in total. Lectures: 42 hours, discussion sessions: 6 hours, free labs.

### **Intended Learning Outcomes:**

#### **A. Knowledge and Understanding**

**A3. Understand the principles of various current applications and research areas of the subject including networks and distributed systems.**

**A4. Know and understand a wide range of software and hardware used in development of computer system.**

#### **B. Intellectual Skills**

**B1. Analyze a wide range of problems and provide solutions through suitable algorithms, structures, diagrams and other appropriate methods.**

**B3. Identify a range of solutions and critically evaluate and justify proposed design solutions.**

### **Learning Outcomes Achievement**

- **Development:** A3 and A4 assessed by examinations and quizzes.
- **Assessment:** B1 and B3 are assessed by assignments and labs work.

#### **Assessment instruments**

**Quizzes: 3**

**Labs work: 1**

**Examinations: 3**

<b><u>Allocation of Marks</u></b>	
<b>Assessment Instruments</b>	<b>Mark</b>
First examination	<b>20</b>
Second examination	<b>20</b>
Final examination	<b>40</b>
Reports, research projects, Quizzes, Home works, Projects	<b>20</b>
Total	<b>100</b>

### **Documentation and academic honesty**

- Practical work reports must be presented according to the style specified in the homework and practical work guide.
- Protection by copyright.
- Avoiding plagiarism
- Any stated plagiarism leads to an academic penalty.

### **Course/module academic calendar**

<b>week</b>	<b>Basic and support material to be covered</b>	<b>Homework/reports and their due dates</b>
<b>(1)</b>	<b>Fundamentals of Wireless Communications (1)</b>	
<b>(2)</b>	<b>Fundamentals of Wireless Communications (2)</b>	
<b>(3)</b>	<b>Basics of Wireless Network</b>	
<b>(4)</b>	<b>Wireless Local Area Networks (1)</b>	
<b>(5)</b>	<b>Wireless Local Area Networks (2)</b>	
<b>(6)</b>	<b>Wireless Local Area Networks (3)</b>	
<b>(7)</b>	<b>Wireless Metropolitan Area Networks (1)</b>	
<b>(8)</b>	<b>Wireless Metropolitan Area Networks (2)</b>	
<b>(9)</b>	<b>Wireless Wide Area Networks (1)</b>	

(10)	Wireless Wide Area Networks (2)	
(11)	Wireless and Mobile Ad Hoc Networks (1)	
(12)	Wireless and Mobile Ad Hoc Networks (2)	
(13)	Wireless Sensor Networks (1)	
(14)	Wireless Sensor Networks (2)	
(15)	Applications of Wireless Ad Hoc Networks	
(16)	<b>Final Examination</b>	

**Expected workload:**

On average students need to spend 3 hours of study and preparation for each lecture/tutorial.

**Attendance policy:**

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

**Other references**

1. Wireless communications and networks, William Stallings, 2nd edition, Pearson, 2005
2. Data and Computer Communications, William Stallings, 8 th edition, Pearson, 2007
3. <http://www.philadelphia.edu.jo/academics/mbettaz/>