TISHK INTERNATIONAL UNIVERSITY
FACULTY OF APPLIED SCIENCE
Department of INFORMATION TECHNOLOGY,
2025-2026 Fall
Course Information for IT 417 WIRELESS NETWORKING

Course Name:	WIRELESS NETWORKING

Code	Regular Semester	Theoretical	Practical	Credits	ECTS
IT 417	7	3	-	3	5

Name of Lecturer(s):	Alaa Ghazi
Teaching Assistant:	-
Course Language:	English
Course Type:	Area Elective
Office Hours	Tue 2:30 - 4:30 PM
Contact Email:	alaa.ghazi@tiu.edu.iq Tel:0000
Teacher's academic profile:	MSc. in Computer Engineering BSc. in Electronics and Communications Engineering
Course Objectives:	The objective of this course is to provide an understanding of various wireless networking technologies ranging from cellular networks to wireless personal area networks and how they differ from wired networks (e.g., signal transmission, interference, mobility, etc.). The course will cover the architecture and protocols of cellular networks (1G, 2G, 3G and LTE), IEEE 802.11 networks, and IEEE 802.15 networks. Deployment issues will be discussed. Physical layer details are provided as necessary, but will not be the primary focus. There will be a brief treatment of satellite systems and positioning technologies.
Course Description (Course overview):	This course will cover the fundamental aspects of wireless networks, with emphasis on current and next-generation wireless networks. Various aspects of wireless networking will be covered including: fundamentals of cellular communication, mobile radio propagation, multiple access techniques, and mobility support, channel allocation, Wireless PAN/LAN/MAN standards, mobile ad-hoc networks, wireless sensor networks, and routing in wireless and mobile networks.

COURSE CONTENT

Week	Hour	Date	Topic
1	3	05-09/10/2025	Radio Propagation 1
2	3	12-16/10/2025	Radio Propagation 2
3	3	19-23/10/2025	Antennas
4	3	26-30/10/2025	Modulation and Multiple Access Techniques 1
5	3	02-06/11/2025	Modulation and Multiple Access Techniques 2
6	3	09-13/11/2025	Satellite Systems
7	3	16-20/11/2025	Midterm Exam
8	3	23-27/11/2025	Cellular Networks 1
9	3	30/11-04/12/2025	Cellular Networks 2
10	3	07-11/12/2025	Wireless LAN 1
11	3	14-18/12/2025	Wireless LAN 2
12	3	21-25/12/2025	IoT
13	3	28/12-01/01/2026	Review
14	3	04-08/01/2026	Review
15	3	11-15/01/2026	Final Exam

COURSE/STUDENT LEARNING OUTCOMES

1 Distinguish the technical details of wireless and mobile communication.

2	Explain different communication networks; and compute the link budget of any wireless communication link.
3	Demonstrate WiMAX networks applications and propose a design for multilink networks for certain traffic load.
4	Differentiate cellular networks types, and evaluate basic coverage parameters for certain cell design.
5	Analyze future trends in wireless networks.

COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES

(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced)

	Program Learning Outcomes	Cont.
1	Analyze a problem, and identify the computing requirements appropriate to its solution	P
2	Design, implement, and evaluate computer-based systems, process, component, or program to meet desired needs	P
3	Function effectively in teams to accomplish a common goal	A
4	Identify professional, ethical, legal, security, social, and economic issues and responsibilities	P
5	Analyze the local and global impact of computing on individuals, organizations, and society	
6	Use current techniques, skills, and tools necessary for computing practice	I
7	Apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, web systems and technologies	A
8	Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems	
9	Effectively integrate it-based solutions into the user environment	P
10	Apply problem solving skills, core it concepts, best practices and standards to information technologies	
11	Identify and evaluate organizational requirements and current and emerging technologies	I
12	Design and integrate it-based solutions into the organizational environment	P

Prerequisites (Course Reading List and References):	Data Communication and computer networks I and II , Calculus I
Student's obligation (Special Requirements):	Submission of reports is expected in electronic format (PDF, Word files) and hard copy. No make ups will be given for missed exams with out a verified medical excuse. A grade of 0 will be assigned to missed exams. Class attendance is expected. Please be on time. University policies regarding academic dishonesty will be implemented
Course Book/Textbook:	WIRELESS COMMUNICATIONS Second Edition Andreas F. Molisch, 2011 Wireless Communication and Networking , Vijay K. Garg. Wireless Communications, Andrea Goldsmith, Cambridge University Press.
Other Course Materials/References:	Wireless Communications and Networking, Jon Mark, WeihuaZhuang, Prentice Hall. VSAT Video
Teaching Methods (Forms of Teaching):	Lectures, Exercises, Presentation, Project, Assignments, Case studies, Demonstation, , ,

COURSE EVALUATION CRITERIA

Method	Quantity	Percentage (%)
Quiz	2	8
Homework	2	8
Project	1	8
Midterm Exam	1	20
Final Exam	1	40
Total		**100**

Examinations: True-False, Fill in the Blanks, Multiple Choices, Short Answers, Matching, , ,

Extra Notes:

ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD

Activities	Quantity	Workload Hours for 1 quantity*	Total Workload
Theoretical Hours	15	3	45
Practical Hours	15	0	0
Final Exam	1	30	30
Quiz	2	8	16

Homework	2	6	12
Project	1	10	10
Midterm Exam	1	15	15
Total Workload			**128**
ECTS Credit (Total workload/25)			**5**

Peer review

Signature:	Signature:	Signature:
Name:	Name:	Name:
Lecturer	Head of Department	Dean