



Ministry of Higher Education and Scientific Research
Lebanese French University – Erbil
College of Engineering and Computer Science
Department of Computer Networking



Wireless & Mobile Network

Fourth Year – First Semester

Asst. Prof. Ashish Sharma

Academic Year: 2023 – 2024

Course Book



S. No.	Information	Details
1.	Course Name	Wireless & Mobile Network
2.	Course Code	CN401WMN
3.	Lecturer In-charge	Ashish Sharma
4.	College/Department	College of Engineering & Computer Science / Department of Information Technology
5.	Contact Information	E-mail: ashish.sharma@lfu.edu.krd Mobile No.: 0964-7507231261
6.	Time (in hours) per Week	Theory:2 Practical: 2
7.	Office Hours	8:30 AM - 3:00 PM
8.	Teacher's Academic Profile	<p>Master of Technology in Computer Science (CS) Degree passed in 2012 from Jamia Hamdard University Campus, New Delhi, India, with an 08.09 CGPA. (Division: First)</p> <p>Master of Computer Applications passed in 2007 from MIET, Meerut, UP, India, affiliated with UP Technical University Lucknow, India. (Division: First)</p> <p>Bachelor of Science passed in 2003 from NAS PG Degree College, Meerut, UP, India, affiliated to CCS. University, Meerut, UP, India with (Mathematics, Optical Instrumentation, and Physics). (Division: Second)</p> <p>I work on minimizing the technical gap of our society from technological and physical aspects by contributing areas of research work: Education Improvement Research, Artificial Intelligence, Blockchain, and the Internet of Things. I have presented and attended various Training, Workshops, Conferences, and Seminars to enhance or share my knowledge/ideas. So far, I have published more than ten (10) Research Articles, a Book Chapter, and a Patent in various reputed International Journals.</p>
9.	Academic Title	Assistant Professor
10.	Keywords	Internet addressing protocols Transport Layer Application Layer WWW & Domain Name System



11.	<p>Course Overview: The goal of this course is to provide deeper understanding of different classes of networks and to enhance the application design and development skills in wireless networks. This course provides an explanation on the wireless network concepts, architectures, protocols, and applications. It covers wireless network architectures, basics of wireless networking, wireless network reference model, wireless communication problems, and various other issues in wireless networks including mobility, bandwidth scarcity, delays, security, routing, etc.</p>
12.	<p>Aims & Objective: Learning Objectives includes Upon completing this course, students will:</p> <ul style="list-style-type: none"> • Introduce the concept of wireless media. • Know the frequency spectrum for wireless communications. • Review the principles of coding and modulation schemes. • Understand wireless local area networks (WLANs). • Understand the architecture of WLANs. • Study the protocols of different layers of WLANs and illustrate the applications of WLANs.
13.	<p>Course Requirement: The tasks assigned to the students in this article are to attend weekly theoretical and practical lectures, as well as to assign the students to the theoretical, practical aspect and to complete the reports on the material.</p>
14.	<p>Teaching and Learning Method:</p> <ul style="list-style-type: none"> • Book, Data Show and PowerPoint, white board, Lectures, homework's, and assignments.
15.	<p>Assessment Scheme:</p> <ul style="list-style-type: none"> • 5 % Attendance • 10 % Class Tests and Quizzes • 25 % Mid-term Examination • 10 % Practical Exam • 50 % Final Examination
16.	<p>Students Learning Outcome: Students will: After completing the course, students are expected to:</p> <ul style="list-style-type: none"> • Design the wireless transmission and switching technologies. • Understood the diversity techniques for wireless systems. • Implement performance improvement techniques for wireless communication systems.
17.	<p>Course Reading List and References Textbooks</p> <ul style="list-style-type: none"> • Wireless and Mobile Networks – Concepts & Protocols, Sunil Kumar & Mahabaleshwar, Wiley Publications. • Wireless and Mobile Network Architectures, Yi-Bing Lin & Imrich, Wiley Publications. • Fundamentals of Wireless Communication, David Tse and Pramod Viswanath, Cambridge University Press.
18.	<p>Course Content</p>



Course Content

S. No.	Lecture Date	No. of Hours	Topics
1.	Week 1	4	Wireless Communication System Fundamentals
2.	Week 2	4	Wireless Media
3.	Week 3	4	Frequency Spectrum
4.	Week 4	4	OFDM & MIMO
5.	Week 5	4	Wireless Network Architecture
6.	Week 6	4	Wireless Switching Technology
7.	Week 7	4	Wireless Networking Issues
8.	Week 8	4	Wireless Local Area Networks Components
9.	Week 9	4	WLAN Network Architecture
10.	Week 10	4	IEEE 802.11 standard
11.	Week 11	4	Physical Layer Protocols
12.	Week 12	4	MAC Layer Protocols
13.	Week 13	4	IEEE 802.11P standard
14.	Week 14	4	WLAN Applications
15.	Week 15		Examination
19.	Examinations: <ol style="list-style-type: none"> 1. Illustrate OFDM & MIMO in detail 2. Explain WLAN architecture 3. Differentiate IEEE 802.11 & IEEE 802.11P. 4. Explain the Wireless switching technology. 		
20.	Course Policy: Designed to cover the structure, implementation, and theoretical underpinnings of Wireless and Mobile networks.		
21.	Notes: Students will work in groups to prepare a 20-minute presentation on a topic of their choosing. The presentations will be conducted during the last few weeks of class.		