IT220: Wireless Networks

Fall 2025

Instructor: Dipesh Patel
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Class: TR 11:30 AM to 12:50 PM KUPF 203
Office Location: TBA
Office Hours: M 09:00 AM to 12:00 PM (via Zoom)

Course Description:

This course introduces the student(s) to the applied topic of Wireless Networks, focusing on applied methods, tools and technologies, as well as practical experience in designing & implementing wireless networks. Topics include hardware, software, data, applications, communication, design & installation of wireless networks, together with the implementation, performance, security and limitations of such systems.

Number of Credit Hours:

3

Prerequisite or Co-requisite:

Computing GUR, IT120: Introduction to Network Technology

Materials Required:

Textbook:

CWNA Guide to Wireless LANs | 3rd Edition
by Mark Ciampa | Pearson Learning | 2013 | ISBN13: 978-1133132172

Software:

1. No additional software is required

Storage:

1. Some place to store files like Flash Drive, OneDrive, Google Drive, Box, etc.

Course Objectives:

The objective of this course is to help student(s):

a. Specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.

   Upon completion of this course, students are able to:
   - Have a good understanding of wireless transmissions
   - Design, develop and implement a wireless network
   - Administer and secure a wireless network

b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

   - An ability to apply knowledge of computing and mathematics appropriate to the discipline

- An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- An ability to use current techniques, skills and tools necessary for computing practice
- An ability to use and apply current technical concepts and practices in the core information technologies
- An understanding of best practices and standards and their application

Course Requirements:

This course is a hybrid course integrating both classroom lecture and lab for hand-on experience.

Exams:

There are two exams. I will notify you of the exam date at least one week before the exam is given. If you are not in class that day, it is your responsibility to find out when the exam will be given. If you miss the exam, your grade for that exam will be zero. **Makeup examinations are provided only under exceptional circumstances, the Dean of Students will need to verify, and the student has to notify me before the exam begins either by e-mail or in person that they will miss the exam.**

Homework / Project Assignments:

Details of the homework assignments will be handed out or posted on Canvas. Assignments are to be submitted via Canvas. Homework assignments are to be completed individually by you. You may work in groups to complete the assignment, but each student must submit their own file. If you are having trouble with an assignment, please feel free to contact me or ask any student in the class. **Do not copy an assignment from another student and submit it as your own. If detected, you will get a zero for the assignment and reported to the Dean's office.** Every assignment must be completed and submitted via Canvas.

Please note that the acquisition of academic work in whole or in part from any source (from textbooks and journal articles to web resources to generative AI) and the subsequent presentation of those materials as the student's own work (whether that material is paraphrased or copied in verbatim or near-verbatim form) constitutes an academic integrity violation, unless appropriately cited.

Class Attendance:

For *Online Virtual* class attendance will not be taken. Your attendance is directly based on performance in the course. You are required to post the Introduce Yourself video to ensure you are participating in the course.

For *in-person (face-to-face, hybrid)* class, attendance will be taken each session we meet. If you missed the class, it is your responsibility to find out about any

lecture material, homework assignments and exams discussed in class. Attendance is highly correlated with good performance in the class, so attendance will be taken at each meeting.

Absences may be excused for athletics, religious holidays, illness, military obligation or family emergencies if you contact me before the missed class. In addition, please ensure you contact the Dean of Students regarding your absence.

Typical Assignments:

Students will be assigned discussion/research topics, homework, quizzes, group project, Midterm exam and Final exam. Homework will be assigned based on the cases discussed in class. Forum posts are assigned on a weekly basis. A comprehensive group project is assigned and involves either a research project or a hands on project on the topic of your choice related to Wireless Networks. Details are found under the Project Topic listed in Canvas.

Late Assignment:

Approved assignments that are turned in late, will be subject to penalty as follows:

1. Homework - 10% reduction of the grade
2. Discussion Board - 10% reduction of the grade
3. Lab - 10% reduction of the grade
4. Project - 20% reduction of the grade
5. Quiz / Exam - 20% reduction of the grade

Academic Dishonesty:

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at *dos@njit.edu*

Communication:

The best communication method to reach me is via email. Once you get in contact with me, I will acknowledge or respond to your inquiry within 48 hours. During

weekends and holidays responses will be delayed. Please refrain from sending multiple emails of same case via different account Canvas and GMail.

In the subject line, please add:
IT220_XX: Subject

where
XX is your section number
Subject is what is your inquiry about

Assessment and Grading:

The course grade would depend upon your performance on assignments and exams. The following is an allocation of weights:

Evaluation	
Participation / Attendance	10%
Lab Projects / Classwork / Homework	10%
Quizzes	10%
Project Charter	10%
Team Project / Presentation	20%
Written Exams (Midterm and Final)	40%
Total	100%

Grading	
A	A(90-100)
B	B+(85-89), B(80-84)
C	C+(75-79), C(70-74)
D	D (60-69)
F	59 or less

Tentative Class Schedule:

Week	Lecture	Activities / Dues
1	Introduction to the course	
2	Introduction to Wireless Networks	
3	Wireless LAN Devices and Standards	
4	Wireless Communication Principles	
5	IEEE 802.11 Physical Layer Standard	
6	IEEE 802.11 Media Access Ctrl & Network Layer	
7	Planning & Deploying a Wireless LAN	
8	Midterm Exam – via Canvas	
9	Conducting a Site Survey	
10	Wireless LAN Security & Vulnerabilities	
11	Implementing Wireless LAN Security	
12	Managing a Wireless LAN	
13	Wireless Network Design	
14	PANs, MANs & WANs	
15	Presentations	
16	Final Exam – via Canvas	
Note:	Chapters to cover on the indicated dates may vary according to each individual class.	

Optional Topics:

Satellite Wireless Networks