

Tennessee Tech University
Electrical and Computer Engineering

**ECE 6900 – Special Problems in Electrical Engineering: Security and privacy preservation
for wireless networks**

Lectures: Tuesday and Thursday 12:00 pm - 1:20 pm, BRWN 320, 3 Credit Hours, Fall 16

Instructor: Dr. Mohamed M. E. A. Mahmoud
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Office hours: By email.

Prerequisites by Topic:

1. Basic course on computer networks.
2. Knowledge of high level programming language such as C or Matlab.

Textbook(s) and/or Other Required Material(s):

No textbook is required. The lecture materials will be derived from a number of background papers and textbooks.

- 1- Alfred Menezes, “handbook of applied cryptography”, free chapters can be downloaded from <http://cacr.uwaterloo.ca/hac/>
- 2- Network Security: Private Communication in a Public World (2nd Edition), by Charlie Kaufman, Radia Perlman, and Mike Speciner, Prentice Hall, ISBN-10: 0130460192.
- 3- Security for Wireless Ad Hoc Networks By Farooq Anjum, Petros Mouchtaris Published by Wiley-Interscience, 2007
- 3- Various reading material and research papers will be given.

Course Description:

Introduce the students to the latest advances in the structure and applications of wireless networks such as vehicular ad hoc network, smart grid, delay tolerant wireless networks, sensor networks, etc. Introduce the students to the latest security and privacy issues in wireless networks. Detail new trends and current research directions.

Major Teaching Methods: Lectures, labs, discussion, and written assignments.

Special Instructional Platform/Materials: Laptop and Course website
(http://www.cae.tntech.edu/~mmahmoud/teaching_files/grad/ECE6900/F16/ECE6900.html).

Topics to Be Covered:

1. Basic concepts in wireless communication Networks
2. Introduction to cryptography and security
3. Wireless networks: architecture and applications
4. Security attacks and solutions
5. Privacy issues and privacy preserving techniques
6. Current research directions

Grading and Evaluation Procedures:**Grading Scale**

A	100-90
B	89-70
C	69-50
D	49-40
F	39 and below

University Plagiarism Policy (Tennessee Tech University Student Handbook – Plagiarism (Academic Regulations)): When you use (for example, quote or even summarize or paraphrase) someone else’s media, words, data, ideas, or other works, you must cite your source. You should be especially careful to avoid plagiarizing Internet sources (for example, e-mail, chat rooms, Web sites, or discussion groups). It does not matter whether you borrow material from print sources, from the Internet, from on-line data bases, or from interviews. Failure to cite your source is plagiarism. Students who plagiarize may receive an “F” or a “0” for the assignment, or an “F” for the course. <http://www.tntech.edu/ttustudenthandbook/academic-regulations/>

Disability Accommodation: Students with a disability requiring accommodations should contact the Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. (Disability Accommodation Policy and Procedures - Tennessee Tech University Faculty Handbook and Student Handbook <http://www.tntech.edu/facultyhandbook/disabilityaccom/>)