ECE 499/590 – Cyber-Physical Sytems Security

Department of Electrical and Computer Engineering
George Mason University
Spring 2014

Class Meeting Information

Day and Time: Thursday, 7:20-10:00 pm
Location: Theater Building 1008

Instructor Information

Instructor: Lloyd Griffiths
Office: Engineering Building, Room 3206
Phone: 703-993-1729
Email Address: griffiths@gmu.edu
Office Hours: Monday 3-5 pm, Other times by appointment

Course Website

- Go to mymason.gmu.edu and login with your Mason email username and password
- Click on “Courses”
- Under “Course List”, click on: ECE-590-001 (Spring 2014)

Reading assignments, problem sets, projects, solutions, announcements, and any miscellaneous handouts will be posted on the website.

Recommended Textbook

Sajal K. Das, Krishna Kant and Nan Zhang, *Securing Cyber-Physical Critical Infrastructure*, Elselvier, 2012.

ISBN: 978-0-12-415815-3

Prerequisites

Principles of Discrete-Time Signal Processing
Probability and Introduction to Random Processes
Senior Standing or Undergraduate Degree in ECE

Course Topics

- Theoretical Foundations of Security
- Security for Wireless Mobile Networks
- Security for Sensor Networks
- Platform Security
- Cloud Computing and Data Security
- Event Monitoring and Situation Awareness
- Policy Issues in Security Management
- Security Issues in Real-World Systems

Class Attendance

There is no explicit attendance requirement for this course. However, it is expected that you will attend class meetings. It is strongly recommended that you do the assigned reading before coming to class. If you are absent, you are responsible for the material covered during the class and for obtaining notes from another student. Additionally, you are responsible for turning in any assignments due at the beginning of the class period.

Problem Sets

Problem sets will be assigned during the course. Problem sets are due at the beginning of the class period on the due date. No late problem sets will be accepted. Solutions will be posted on the course website.

Problem sets should be written neatly. Pages should be stapled, and problems should appear in order. The instructor reserves the right to return problem sets ungraded if they don't meet these requirements. You are encouraged to work in groups and discuss the assigned problems. However, the work you turn in must be your own. Copying or other forms of cheating will not be tolerated. Copying existing solutions will be treated as a violation of the honor code.

Student Presentations

Students in the class will be divided up into teams of 3-4 members. During the semester, each team will receive assignments involving reading and research of a specific topic. For example: *Security and Privacy in the Smart Grid*. Each team will be required to perform research using existing papers, publications, and web-based information on the assigned topic. Their research will be summarized as a PowerPoint presentation and will be presented orally to the entire class during one class period. All members of the team will be required to participate in the presentation.

Exams

One mid-term exam and one final exam project. The dates for these exams are as follows:

- Midterm Exam: Thursday, March 6
- Final Exam: Thursday, May 1, Final project due
- The mid-term exam will be in-class and focus on the material that has been covered prior to March 6.
- The final exam is a take-home and will consist of a project assignment that requires background research using existing papers, publications, and web-based information.

Grade Changes

A request for a grade change for any assignment must be provided to the instructor within two class periods (e.g. two weeks) after the assignment is returned. The request must include the graded assignment in question and a statement describing why a grade change is requested.

Honor Code

All students are expected to abide by the George Mason University Honor Code. Any reasonable suspicion of an honor code violation will be reported.

Grading

Your final score will be based on a weighted combination of your quiz, problem set, project, and exam grades as follows:

- Problem Sets: 20%
- Team Presentations: 25%
- Mid-term : 25%
- Final Exam Project: 30%

Tentative Weekly Schedule

January 23	–	Review of Basic Material Needed for Class
January 30	–	Theoretical Foundations of Security
February 6	–	Mobile Wireless Network Security
February 13	–	Robust Wireless Infrastructure and Mobile Ad Hoc Networks
February 20	–	Security for Sensor Networks
February 23	–	Platform Security
March 6	–	Midterm Exam – in class
March 13	–	Spring Break
March 20	–	Cloud Computing and Data Security
March 27	–	Event Monitoring
April 3	–	Pattern Tracking
April 10	–	Policy Issues in Security Management and Access Control
April 17	–	SmartGrid and Health-Care Applications
April 24	–	Vehicular Networks
May 1	–	Overview of Class Subject Matter: Final Project Due