

ECE 8410: Trusted Computing

Electrical and Computer Engineering Department
Villanova University

FALL 2020

Time: Zoom, Tuesdays 12:00 - 2:30 pm

Instructor: Dr. Danai Chasaki (danai.chasaki@villanova.edu)

Office: Tolentine Hall 435A

Office Hours: M 2:00-4:00 pm

Course webpage: <https://elearning.villanova.edu/webapps/login/>

Textbook: Introduction to Hardware Security and Trust by Mohammad Tehranipoor; Springer, 2011

Prerequisites: Undergraduate level knowledge of digital logic design

Course objectives

The goal for students in this course is to learn the fundamentals of hardware security including hardware-based cryptanalysis, hardware Trojans, embedded systems security, security for RFID/NFC, protection from side channel attacks, tamper resistance and crypto processor design, trusted FPGA design.

Grades

The grades will be determined as follows:

HW assignments	25%
Midterm Exam	25%
Final Exam	25%
Project	25%

The final grade will be norm-referenced (i.e., "curved").

Class Attendance

The primary teaching method will be class lectures and discussions. The lectures will discuss topics presented in the textbook and cover additional material. Class attendance is expected in every class. For students who choose to study asynchronously, the definition of attendance is watching the recorded lectures on Blackboard within two days.

Homework

Three sets of homework will be assigned during the semester. The assignments will be posted on Blackboard and announced in class. Students will work individually; the due date for each assignment will be given at the time it is assigned. The reports will be collected on Blackboard on the due date at midnight.

Exams

There will be two exams, midterm and final, scheduled for the week of September 29th and the week of December 1st respectively. Details will be discussed one week prior to the exam.

Project Presentation and Report

Students are also expected to actively read the state-of-the-art research papers. Each student will research on a “hot” area and submit a 1-3 page proposal before the mid-term exam. Before the final exam submit a 5-10 page summary reporting your findings, and give one presentation to the rest of the class. The schedule of the presentation will be discussed at a later time. The presentations are meant to update fellow students on current trends, technologies, and issues that related to network security. The grades of the presentation come from evaluation from fellow students in the class as well as the instructor. A list of recommended papers will be distributed later in the class. Students are also encouraged to search for their own papers. In this case, you need to get the approval from the instructor for the topic and papers you select to study.

Late Submissions

Assignments are due as posted on the course web page (or stated in the syllabus). Late submissions will not be accepted unless by prior arrangement with the instructor. Scheduling conflicts regarding exams should be reported to the instructor immediately. In case of a medical emergency, late submission or a make-up exam can be requested if a note from a medical professional is provided.

Academic Integrity

The College of Engineering is committed to creating an environment of academic integrity and ethical decision-making that we hope is reflected in the actions of our students and graduates. As Villanova students, integrity is central to the University mission. As engineers, our code of conduct requires us to place honor and integrity at the forefront of everything we do. As engineering students, it is expected that you will begin to adopt these values and instill them into your work habits. Students violating the academic integrity policy will receive a zero on that assignment or exam and the violation will be reported to the Associate Dean for Academic Affairs.

The University's academic integrity policy can be found here:

<https://www1.villanova.edu/villanova/provost/resources/student/policies/integrity.html>.

The College of Engineering has adopted the following exam guidelines:

- Students must arrive before the start of the exam. Under exceptional circumstances a student may need to arrive late, but he/she can enter the exam no later than 5 minutes after the start of the exam.
- All cell phones must be turned off and stored away until the student exits the exam.
- The official Villanova class attendance policy must be followed when requesting excuses for absences or lateness to an exam.
- Each student must write and sign the following statement, *"I have neither given nor received any unauthorized assistance in the completion of this exam."*

Students with Disabilities

It is the policy of Villanova to make reasonable academic accommodations for qualified individuals with disabilities. If you are a person with a disability please contact me after class or during office hours to make arrangements.

If you have a non-physical disability you need to register with the Learning Support Office by contacting 610-519-5176 or at learning.support.services@villanova.edu as soon as possible. Registration is needed to receive accommodations.

The Office of Disability Services collaborates with students, faculty, staff, and community members to create diverse learning environments that are usable, equitable, inclusive and sustainable. The ODS provides Villanova University students with physical disabilities the necessary support to successfully complete their education and participate in activities available to all students. If you have a diagnosed disability and plan to utilize academic accommodations, please contact and register with Gregory Hannah, advisor to students with disabilities @ 610-519-3209 or visit the office on the second floor of the Connelly Center.

* Note: The instructor reserves the right to make changes to this syllabus throughout the semester.