



CENG 448/ELEC 548 – Hardware Security

Sep–Dec 2016

Instructor

S. Moein

E-mail: samerm@uvic.ca (put HW Security in Subject line)

Lectures

Days: Thursday

Time: 14:30 – 17:20

Location: ELL 060

Office Hours

Days: Wednesday (12:00-2:00)

S. Moein Office: EOW 403

Course Objectives

1. Understand hardware security vulnerabilities and side channel attacks.
2. Analyze hardware attacks and mitigation techniques.
3. Analyze hardware trojans and hardware trojan detection techniques.
4. Learn trusted design in FPGAs.
5. Learn security in embedded systems.
6. Design for hardware trust, security, and testing.

Learning Outcomes

Upon completion of this course you will acquire the following skills:

1. Describe and analyze hardware design and fabrication and their interrelations.
2. Develop solutions for hardware security problems.
3. Characterize and assess hardware attacks and hardware trojans.
4. Use appropriate resources to stay abreast of new hardware attacks and tools and techniques.

Syllabus

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| 1. Introduction to hardware security | 2. Basics of VLSI design and test |
| 3. Hardware trojans | 4. Hardware trojan detection |
| 5. Introduction to abstract algebra | 6. Hardware attacks |
| 7. Hardware attack mitigation | 8. Intellectual property protection (IPP) |
| 9. Hardware security primitives | 10. Modern HW design, vulnerability & security |

Required Text

Lecture notes by Dr. S. Moein.

Assessment: CENG 448/ ELEC 548)

Activity	Grade
Project	48 %
Midterm	40 %
Presentation	12 %
Total	100 %

The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate & Grad Calendars:

Undergrad: <http://web.uvic.ca/calendar2016-09/undergrad/info/regulations/grading.html>

Grad: <http://web.uvic.ca/calendar2016-09/grad/academic-regulations/grading.html>

There will be no undergraduate supplemental examination for this course.

Note to Students:

Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair's Secretary to set up an appointment.

Accommodation of Religious Observance

<http://web.uvic.ca/calendar2016-09/general/policies.html>

Policy on Inclusivity and Diversity

<http://web.uvic.ca/calendar2016-09/general/policies.html>

Standards of Professional Behaviour

You are advised to read the Faculty of Engineering document Standards for Professional Behaviour in current Undergraduate Calendar, which contains important information regarding conduct in courses, labs, and in the general use of facilities.

<http://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf>

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the entry in the current Calendar for the UVic policy on academic integrity.

<http://web.uvic.ca/calendar2016-09/undergrad/info/regulations/academic-integrity.html>

Course Lecture Notes

Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.