ECGR 6890:
Fundamentals of Reconfigurable Computing
◀ Fall 2008 ▶

Class Time: 140 Woodward Hall, MTWR 4:30–5:45pm

Home Page: http://rcs.uncc.edu/~rsass/courses/2008-Fall/6890/

All announcements will be posted on the course blog. Use the associated RSS feed to receive important news (such as clarifications to assignments).

Instructor: Ron Sass ✉ <rsass@uncc.edu> r0nsass (AIM) ☎ 704.687.8196

Office Hours: 235F Woodward Hall by appointment
(To make an appointment: (1) check my weekly schedule on the web, (2) email a proposed time to meet that does not conflict with an existing meeting.)

Text: Photocopies of *Platform FPGAs* by Ron Sass
(Morgan-Kauffman) ISBN X-ABCD-EFGH-0

Selected Readings from the research literature

Objectives: This course aims to prepare students for an industry or academic research or career in the design and implementation of custom computing machines. Its primarily focus is on the study of Platform FPGA *systems.* After completing the course, students will have (1) proficiency with the FPGA design tools; (2) an understanding of the underlying engineering and global economics that guide embedded and high-end computing system design; (3) knowledge of the system software and tools required to deploy a Platform FPGA system; and (4) the ability to apply these principles in diverse, international marketplace.

Prerequisite: Students are expected to have a basic computer engineering background. Specifically, this includes an understanding of computer organization (virtual memory, processes, etc), computer architecture (pipelined processors), and programming skills. Lab assignments will use UNIX/Linux workstations and *competency in C is required.* Some experience with either VHDL or Verilog is helpful but not strictly required.

Attendance: Lecture attendance is optional. However, you are responsible for all material presented in lecture.

Incompletes: The University and College policy for incomplete grades will apply. In particular, *late submission of work is not justification for an incomplete grade.*

Academic Integrity: You are responsible for understanding the UNCC Code of Student Academic Integrity (Policy Statement 105, http://www.legal.uncc.edu/policies/ps-105.html). Please note that cheating includes the giving as well as receiving of unauthorized help. Every student is responsible for protecting their work. This includes setting the appropriate permissions on computer files, proper disposal of printouts, and preventing others from seeing test solutions during an exam. *If you have any question about whether an action is allowed, ask the instructor or TA.*

Grading:

	Points
Lab Exercises (6)	25
Quizzes & Homework ($\approx 6 - 12$)	15
Mid-Term Exam (Thur, June 12th)	25
Final Exam (Wed, July 3th, 4:30-5:45)	35
	100

Points	Grade
90	A
80	B
70	C
60	D

- The mid-term exam date is tentative; the final exam schedule is determined by the University.
- The table to the right indicates the minimum points required to ensure the final grade reported to the University. Graduate students must earn 70 points or more to pass the class.
- Students with special needs are encouraged to visit the Disability Services Office. Please provide a letter of accommodation at the beginning of semester along with any requests.
- **Academic dishonesty will result in a zero for the specific work and, at the instructor's discretion, failure for the course. For graduate students, the latter is likely.**
- Students enrolled in 8890 must also complete a semester project worth 20 points. The final grade (out of 120) will be normalized to 100 and the table to right will be used to determine the letter grade.

Diversity Statement: UNC Charlotte strives to create an academic climate in which the dignity of all individuals is respected and maintained. Therefore, we celebrate diversity, which includes, but is not limited to, disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.

Outline: An outline of the course, with an abridged set of lectures notes, is available at the course web site. (Please note that the material provided online is *not* complete: definitions, solutions, and other critical information has been selectively removed. Pedagogical studies indicate that this is the best way to foster student learning.)

A week-by-week schedule with links to material to be covered is on the web. See http://rcs.uncc.edu/~rsass/courses/2008-Fall/6890/sched/.

Topics

- I. Overview
- II. FPGA Devices
- III. Design Tools and Core Library
- IV. Building System Software
- V. System Design Principles

revised: 17 May 2008