

University of Lethbridge  
Department of Mathematics and Computer Science

Computer Science 3615 – Computer Architecture  
Course Outline – Spring 2013

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**LECTURES:** MWF 14:00 – 14:50 **ROOM:** B730

**INSTRUCTOR:** Robert Benkoczi (office C556)  
robert.benkoczi@uleth.ca

**TEXTS:** (recommended) *Digital Design 2*, Vahid, Wiley 2011 (available as e-textbook)  
*Computer Organization and Design 4*, Patterson & Hennessy, Morgan Kaufman 2011 (available as e-textbook)  
*Computer Architecture*, Parhami, Oxford U Press 2005 (@ bookstore)

<b>GRADING SCHEME:</b>	Tests (3)	(18% each)	54%
	Assignments (5)	(4% each)	20%
	Project (1)		6%
	Take home exam		20%

**GRADE DISTRIBUTION:** This information is provided as a guideline only and may be revised in this offering.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Minimum %	95	90	86	82	78	74	70	66	62	58	50	0

**SCHEDULE:**

(as time permits):

- 1) Review of digital systems: gates, flip-flops, multiplexers and decoders, combinational and sequential circuits.
- 2) Datapath components: registers, adders, comparators, shifters, counters, ALU. Register transfer level design.
- 3) Memory systems: memory hierarchy, caches.
- 4) The processor: single and multicore.
- 5) Input/output
- 6) The MIPS assembly language, using OpenMP to program multiple CPU cores, hardware description languages (Verilog)

## COMMENTS:

- COURSE OBJECTIVES:

- To understand how processors and computers are designed.
- To understand how to program parallel (multi-core) architectures.

- COURSE WEBPAGE:

The course resources are on Moodle. There you will find the outline, the lecture notes, the assignment questions, and your grades.

- TESTS, EXAM, AND ASSIGNMENTS

- The tests are closed book exams taken during the lecture. The final covers all the topics in the course and is delivered as a take home exam.
  - The tests must be written at the scheduled time; no provision is made for make-up tests or late assignments, except for medical reasons or emergencies. Missed tests and assignments receive 0 points.
  - Requests for remarking tests and assignments are accepted only in writing *no later than one week from the date your graded work was returned*. On the request: identify the assignment or midterm, briefly explain why you believe the mark is incorrect, date and sign. Note that if your work is remarked, your grade may go up, down, or remain unchanged.
  - Copying is strictly prohibited. Plagiarism can lead to severe penalties – consult the calendar.
- Please be considerate to your classmates: try not to be late in class, limit your discussion to class discussion during the lecture, and turn off the sound on any electronic device (laptop, cell phone, etc).

## LINKS

- Moodle: <http://moodle.uleth.ca/>
- Instructor's page including office hours: <http://www.cs.uleth.ca/~benkoczi/>