COMP 2203 N3: Computer Architecture/Organization

Syllabus - web page

Course Overview

Welcome to COMP 2203: Computer Architecture and Organization 1

This course provides an introduction to the hardware principles that are necessary for the understanding of the operation of computers and other digital circuits that are the subject of COMP 2213. It should be noted that the speed, density, and complexity of today's digital devices are made possible by advances in physical processing and digital design methodology. Aside from semiconductor technology, the design of leading-edge devices depends critically on hardware description language (HDLs) and synthesis tools. Three public-domain digital languages, Verilog, VHDL, and SystemVerilog, all play a role in design flows for today's digital devices.

Although the material provide in this course does not go into enough depth to make you an expert digital designer, it provides experience with paper-and-pencil methods and an introduction to SystemVerilog used by professional. SystemVerilog is a hardware description and hardware verification language used to model, design, simulate, test and implement electronic systems. The language-based examples provided throughout the book and explained in all chapters; its use is not a requirement for this course.

I recommend studying each module with the following strategy:

1. Read the summary provided under 'lesson' to obtain a general overview of the contents and purpose of the module.
2. Read the required sections provided for the corresponding chapter. On first reading, you may skip details but if you do, make sure that you return to them on second reading.
3. Read my summary again. It will help you organize the details into a more compact picture.
4. Do the listed solved problems from the book corresponding to the prescribed material. Try to solve each problem without looking at the provided solution and then check whether your solution is correct. Note that this is not required for the course - the purpose of this is only to help you master the material.
5. Do the required exercises and carefully check your solutions before sending them to the instructor.
6. When you receive the marked assignments back, make sure that you understand all comments and corrections.

Being able to solve assignment problems is important not only for proper understanding of the material, but also for the midterm and final exams. Mastering the material is also necessary for acquiring a sufficient background to study more advanced computer courses.

You have 6 months to complete this 3-credit-hour course. You may set your own schedule, but if you intend to complete the course in less than 3 months, you should let me know. You may not be able to finish the course in a short period of time.

Please do not leave all of your course work until a few weeks before your completion date. Although I will make every effort to accommodate your schedule within reason, I need time to grade assignments and mark exams, and I am not able to do so on short notice.

I hope that you will find the subject interesting and discover that the principles of digital technology are not complicated. I wish you success in the course.

Instructor

Elhadi Shakshuki is a professor in the Jodrey School of Computer Science at Acadia University, Canada. His research interests include Intelligent Agents, Pervasive and Ubiquitous Computing, Distributed Systems, and Wireless Sensor Networks. He is the founder and head of the Cooperative Intelligent Distributed Systems Group at the School of Computer Science, Acadia University. He received his BSc degree in Computer Engineering in 1984 from Tripoli University, Libya, MSc and PhD degrees in Systems Design Engineering respectively in 1994 and 2000 from the University of Waterloo, Canada. Prof. Shakshuki is the Editor-in-Chief of the International Journal of Ubiquitous Systems and Pervasive Networks. He serves on the editorial board of several international journals and contributed in many international conferences and workshops with different roles, as a program/general/steering conference chair and

numerous conferences and workshops as a program committee member. He published over 200 research papers in international journals, conferences and workshops. He is the founder of the following international conferences: ANT, EUSPN, FNC, ICTH, MobiSPC, and SEIT. He is also a founder of other international symposia and workshops. In addition, he is the president of the International Association for Sharing Knowledge and Sustainability, Canada, and has guest co-edited over 30 international journal special issues. He is a senior member of IEEE, and a member of ACM, SIGMOD, IAENG and APENS.

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Course Materials

Textbook

Digital Design: With an Introduction to the Verilog HDL, VHDL, and System Verilog, by Morris Mano and Michael D. Ciletti. (Sixth Edition)

ISBN-10: 0134549899   ISBN-13: 978-0134549897

- We will cover all chapters, with the exception to chapter eight and chapter nine that deal with design at the register transfer level and laboratory experiments.
- See the student handbook for ordering information. Students can order the textbook directly from the Acadia University Bookstore. The Vaughan Memorial Library also has a copy.

Supplementary textbook

Digital Design: Principles and Practices, by John F. Wakerly (Latest Edition)

ISBN-10: 013446009X   ISBN-13: 978-0134460093

Evaluation

Assignments (7)	20%
Midterm	30%
Final Exam	50%

The assignments are delivered to the instructor via assignment drop-boxes. Please remember to put your name, student number, course number, and assignment number on the assignment and keep a copy in the event the original is lost.

The last assignment should be received at least 4 weeks prior to the date you wish to write the exam. This will allow adequate processing time for the request, and for setting the exam.

Note files must be readable by Excel 2007 or Word 2007.

Exam

How to apply: Complete the Application for Examination

Proctored at Acadia

- The final exam in an online course must be passed to successfully pass the course unless otherwise stated in the assessment section of the course syllabus. There are no rewrites or supplemental examinations at Acadia University.
- Examination requests must be received one month prior to the date you wish to write your examination.
- Course requirements must be completed to the satisfaction of your instructor.
- ***Graduating Students Note:*** If you are graduating in Spring Convocation you must write by April 15th. If you are graduating in the Fall you must write by September 15th.

Proctored at Another Location

If it isn't practical to take your exam at Acadia, off-campus exams can be written at another university or college. Arrangements for an examination may be made through the Registrar's Office or the Continuing Education office of most universities and colleges. If it is not possible to write your exam at an approved institution, please contact us for assistance.

- ***All fees associated with examinations written at other locations are your responsibility.***
- Some courses may require specific software or internet accessibility at the off-campus examination location.

Student Handbook

You are responsible for becoming familiar with the contents of the Student Handbook. It contains important information about scheduling examinations (if applicable), applying for extensions, withdrawing from your course, ordering books, and computer and library services available to you. If you have questions about the policies outlined in the handbook, contact:

Open Acadia
21 University Avenue (Rhodes Hall)
Wolfville, NS B4P 2R6
Phone: 1-800-565-6568
Fax: 902-585-1068
Email: openacadia@acadiau.ca

Academic Integrity

Academic integrity demands responsible use of the work of other scholars. It is compromised by academic dishonesty such as cheating and plagiarism. A student who is uncertain whether or not a course of action might constitute cheating or plagiarism should seek in advance the advice of the instructor involved.

- Cheating is copying or the use of unauthorized aids or the intentional falsification or invention of information in any academic exercise
- Plagiarism is the act of presenting the ideas or words of another as one's own. Students are required to acknowledge and document the sources of ideas that they use in their written work.
- Self plagiarism is also a form of plagiarism. It is the presentation of the same work in more than one course without the permission of the instructors involved.
- A student who knowingly helps another to commit an act of academic dishonesty is equally guilty.
- Penalties are levied in relation to the degree of the relevant infraction. They range from requiring the student to re-do the piece of work, through failure on that piece of work, to failure in the course, and to dismissal from the university.

Course Schedule

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Click here to return to the Module

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