

# CS3853 – Computer Architecture and Organization

## Course Outline – Summer 2024

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<b>Calendar Description</b>	Introduction to computer organization and architecture, digital logic, interfacing and I/O strategies, memory architecture, functional organization, multiprocessing, performance enhancements.
<b>Prerequisite</b>	Prerequisites: <a href="#">CS 2253</a> . Note: Credit is not given for both CS 3853 and CS 3813.
<b>Lecture</b>	M, Tu, W, Th 10:00 – 11:20 ITC 317
<b>Lab</b>	Wed. 13:00-15:50 ITD 415
<b>Office Hours</b>	Mon. 11:30 – 12:30 ITC 321
<b>Instructor</b>	Joannah Nanjeyke E-mail: <a href="mailto:jnanjeyke@unb.ca">jnanjeyke@unb.ca</a>

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<b>Textbook</b>	W. Stallings, Computer Organization and Architecture, Designing for Performance (publisher's website: <a href="http://williamstallings.com/ComputerOrganization/">http://williamstallings.com/ComputerOrganization/</a> ).
<b>Course Web Site</b>	Additional course information, including additional references, reading materials and assignments, will be made available on the instructor's website ( <a href="http://cs.unb.ca/~jnanjeyke/">http://cs.unb.ca/~jnanjeyke/</a> ) as well as via Desire2Learn ( <a href="https://lms.unb.ca/">https://lms.unb.ca/</a> ) . The instructor's website might have more resources but D2L will have all the basics for the course

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<b>Marking Scheme</b>	35% - Labs 20% - Assignments (you may be asked to discuss your results in class) 5% - Two 30-minute quizzes – in person 40% - Final Exam
	You must pass the final exam (50% or higher) and have an overall percentage of 50% or higher to earn a D or higher in the course
	Letter mark requirements will not be higher than

A+	95%	A	90%	A-	85%	B+	80%
B	75%	B-	70%	C+	65%	C	55%

<b>Assignments</b>	Assignments will include analytical, design and programming questions. Assignments may require programming in assembly, but we will mostly use a high-level programming language
<b>Labs</b>	Labs will be conducted at scheduled times in ITD 415

and will require written submissions by the posted deadline. Labs may also require using logic circuit simulators, and programming in assembly but we will mostly use a high-level programming language. You are allowed to work in groups, but submissions should be original, individual and will be graded as such

**Quizzes**            The quizzes will be open book  
 Dates:

- July 17
- August 7

**Final Exam**        The final exam will be on Monday, Aug. 12, 14:00 – 17:00

Week	Lecture Topic	Reading	Assignment	Quiz	Lab
1	Computer evolution and performance	Ch. 1, 2, 3			
2	Digital logic, Boolean Algebra, logic gates, combinational and sequential circuits	Ch. 9, 10, 11	✓		✓
3	Memory architecture	Ch. 4, 5, 6	✓	✓	✓
4	Interfacing and I/O strategies	Ch. 5	✓		✓
5	Processor architecture and structure	Ch. 12 – 15, Ch. 20, 21	✓ (optional)		✓ (optional)
6	Parallelism and parallel organizations, performance enhancements	Ch. 16 - 19		✓	

**Plagiarism** (from the UNB Calendar)

“Plagiarism includes: quoting verbatim or almost verbatim from a source (such as copyrighted material, notes, letters, business entries, computer materials, etc.) without acknowledgment; adopting someone else's line of thought, argument, arrangement, or supporting evidence (such as, for example, statistics, bibliographies, etc.) without indicating such dependence; submitting someone else's work, in whatever form (film, workbook, artwork, computer materials, etc.) without acknowledgment; knowingly representing as one's own work any idea of another. NOTE: In courses which include group work, the instructor must define and warn against plagiarism in group work. Unless an act of plagiarism is identified clearly with an individual student or students, a penalty may be imposed on all members of the group. Procedures In the case of plagiarism, the instructor must make every reasonable effort to discuss the case with the student or group and follow one of two courses of action. If the instructor is satisfied that the plagiarism was the result of a genuine misunderstanding, the instructor shall complete an academic offence incident report, and the instructor or the instructor's representative shall submit the academic offence incident report and attached information to the Registrar. Where applicable, the Registrar shall advise the appropriate Dean, and the Chair of the student's program or Department where applicable. The Registrar shall notify the student by registered letter of the regulations governing plagiarism, the possible consequences, the student's right to appeal, the right to appear before the appropriate Committee, and the procedures involved. The Registrar shall also include, with this registered letter, a copy of the academic offence incident report and attached information. While a case of genuine misunderstanding will not be considered a student's first offence, a second plea of ignorance by the student will be so considered. A student appealing the instructor's decision must do so in writing within three weeks of the date of the

Registrar's notification. The student is urged to submit to the appropriate Committee a written statement regarding the case. In the case of plagiarism resulting from genuine misunderstanding, the instructor may permit the student to submit a genuine piece of work to be graded in place of the one plagiarized. If the student does not appeal, the time allowed for submission of work is three weeks from the date of the Registrar's letter of notification. In the case of an appeal, where the instructor's decision is upheld, the period of time allowed for submission is as determined by the appropriate Committee. If, in the view of the instructor the plagiarism was deliberate, the instructor shall complete an academic offence incident report, and the instructor or the instructor's representative shall submit the academic offence incident report and attached information to the Registrar. Where applicable, the Registrar will advise the Dean, and the Chair of the student's program or department where applicable. The Registrar shall notify the student by registered letter of the regulations, the right to respond, the right to appear before the appropriate Committee, and the procedures involved. The student is urged to submit to the Committee a written statement regarding the case. A student responding to the instructor's academic offence incident report, must do so in writing within three weeks of the date of the Registrar's letter of notification. At the discretion of the Registrar, cases may be referred to the appropriate Committee for review and action. The Registrar shall inform the student by registered letter of the referral to the Committee, and the wish of the Committee that the student be present when the case is heard. The Registrar shall also include, with this registered letter, a copy of the academic offence incident report and attached information. Penalties for Deliberate Plagiarism In a case of deliberate plagiarism, the penalties are: First Offence: If the student does not appeal, or if, on appeal, the Committee upholds the instructor's decision: A notation will be placed on the student's transcript of academic record concerning the academic offence. The length of time the notation appears on the student's transcript of academic record is to be decided when the penalty is imposed and will depend on the severity of the offence. The student may be required to submit a satisfactory and genuine piece of work to replace the one involving plagiarism. If the assignment is not resubmitted or is unsatisfactory, the student will receive a grade of F(zero) in the course. Note: If this penalty is assessed, the period of time allowed for the submission of the work will be determined by the Registrar in consultation with the faculty member making the charge, and, where appropriate, the Committee. The student will receive a grade of F (zero) on the piece of work and, depending on the severity of the offence, may receive a grade of F for the course. Other penalties as outlined in penalties for Other Academic Offences may be imposed. Subsequent Offence: In cases where the Committee considers that the student has plagiarized again: the student will receive a grade of F in the course and a notation of the academic offence will appear on the student's transcript of record. The length of time the notation appears on the student's transcript of academic record is to be decided when the penalty is imposed. Other penalties as outlined in penalties for Other Academic Offences may be imposed."

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