Course Syllabus – GENG-8030
Faculty of Engineering
University of Windsor, Canada
Semester: Summer 2023

Instructor information
Name: **Dr. Yasser M. Alginahi**
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Mailbox: ECE Department - CEI Room 3042

Office Hours*:

No.	Days & Times	Room
1	Tuesdays: 3:00 – 3:50 PM.	CEI Room – 3069
2	Wednesdays: 3:00 – 3:50 PM.	CEI Room – 3069

* By appointment.

Course Information:
- Delivery mode: Face-2-Face
- Credit hours: 3.0
- Lecture: 3 hours/week

Pre-requisites:
- Mathematics: Participants should feel comfortable with the basics of mathematics. An undergraduate level is fine - there will not be much theory.
- Note: various practical examples and applications will be presented in MATLAB.

Course Sections:

No.	Section	Days & Times	Room
1	GENG 8030-2	Tuesdays - 4:00PM - 6:50PM	Toldo Health Education Ctr 104
1	GENG 8030-3	Wednesdays - 4:00PM - 6:50PM	Toldo Health Education Ctr 104

*Note you must attend during the time of your scheduled section. Under no circumstances you will be allowed to take the quiz with the other section.

Course Tutorial (Optional):

No.	Days & Times	Room
1	Tuesdays: 7:00 PM– 8:00 PM	Toldo Health Education Ctr 104
2	Wednesdays: 7:00 PM – 8:00 PM	Toldo Health Education Ctr 202

*Note that the tutorial questions will be posted on Bright Space and solutions will be provided during the tutorial session, no solutions will be posted on Bright Space. Students can attend any of these sessions. Please note that these tutorial sessions are optional.

Graduate Assistants (GAs) Contact Information

| No.	Name	Office	Office Hours (& by appointment)		Email
1	Sepideh Nasr	CEI 3081	Friday:	2:30pm – 3:30pm	nasr3@uwindsor.ca
2	Abtin Sadri	CEI 2184	Wednesday:	10:00am – 12:00pm	Sadri1@uwindsor.ca
3	Hongfu Cheng	CEI 3081	Wednesday:	1:00pm – 3:00pm	cheng24@uwindsor.ca
4	Roche Christopher	CEI 3082	Mondays:	3:00pm – 5:00pm	christor@uwindsor.ca

Course Description

This course covers the basics of computational analysis for real-world engineering applications. Students will learn the fundamentals of programming and modeling with MATLAB. Topics include computational Methods, Model Building, for Engineering Projects, Hardware for Real-time Testing, Data Acquisition from Sensors. Students will complete a real-world project in the areas of their interests.

Resources

- Course Bright Space site: https://brightspace.uwindsor.ca/ (use your UWindsor username and password).
- Required textbook

    Title   MATLAB for engineering applications
    Author   William J. Palm
    Publisher McGraw-Hill Education; 5th Edition
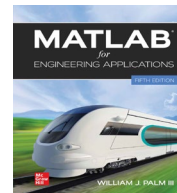
- MATLAB Software:

    You will have remote access to MATLAB during your lectures and outside class time you can visit the lab in person room CEI-2105.

    MATLAB is a well-developed and well-tested software that has been recently achieved widespread applications in various engineering communities. MATLAB, same as other programming languages, is programmable and benefits from the logical, relational, conditional, and loop structures, and can be considered as a principal computational tool for engineering students.

The Implied Contract

The instructor will strive to

- establish an educational environment conducive to learning,
- provide quality instruction, and
- provide differentiating assessment, *i.e.*, not every student deserves an A.

You, as a student in this class, will strive to

- prepare for class,
- attend class and engage in your instruction,
- complete the assigned work, and
- prepare for the tests.

Course Schedule

NOTE: This schedule is subject to change at any time upon notification by the instructor. In some chapters, some material may be omitted.

Week No.	Lecture Date	Subject, activity, assignment, etc.	Textbook Chapter
1	May 8	Topics: An Overview of MATLAB, built-in functions, MATLAB help system, and problem-solving strategies. **Activity:** Practice In-class exercises.	Chapter 1
2	May 15	Topics: Numeric, cell, and structure arrays, multidimensional numeric arrays, matrix operations, and polynomial operations using arrays. **Activity:** Practice In-class exercises.	Chapter 2
3	May 22	Topics: Elementary mathematical functions, user-defined functions, and file functions. **Activity:** Quiz 1 (6 %), deadline to form project groups.	Chapter 3
4	May 29	Topics: Programming with MATLAB, conditional statements, and debugging MATLAB programs **Activity:** Practice In-class exercises. Group project assignment & project description files become available.	Chapter 4
5	June 5	Topics: Advanced plotting, interactive plotting in MATLAB, and three-dimensional plots. **Activity:** Quiz 2 (6 %).	Chapter 5
6	June 12	Topics: Model building, regression, and the basic fitting interface. **Activity:** Practice In-class exercises.	Chapter 6
	June 19	**No Classes – Reading Week**	
7	June 26	Topics: Topics: Statistics and Histogram, the normal distribution, random number generation, and interpolation. **Activity:** Quiz 3 (6 %). Deadline to submit primary reports (5%).	Chapter 7
8	July 3	Topics: Linear algebraic equations, underdetermined systems, overdetermined systems, and the left division method. **Activity:** Practice In-class exercises.	Chapter 8
9	July 10	Topics: Numerical integration and differentiation, first order differential equations, High order differential equations and examples. **Activity:** Quiz 4 (6 %).	Chapter 9
10	July 17	Topics: Introduction to Simulink, simulation diagram, linear state-variable models, transfer function models, and subsystems. **Activity:** Practice In-class exercises.	Chapter 10
11	July 24	Project Presentations and Evaluation (10% MATLAB code & 10% final report).	Projects' Evaluations
12	July 31	Topics: Introduction to Simulink, simulation diagram, linear state-variable models, transfer function models, and subsystems. **Activity:** Quiz 5 (6 %).	Chapter 10
13 – 14	Final Exam (45%) Weeks (Aug. 12 – 21) – Date as scheduled by the University.		Final Exam

Project: There will be a course project, which involve developing and programming using MTLAB. The students will work in groups of two or three (no more than three). The project will have to be demonstrated during the semester (Final Demo is mandatory).

Learning Outcomes

In this course, students will…

Number	Learning Outcome	Learning Outcome Code (i.e., 1a)
1	Acquire advanced knowledge of programming for engineering applications	1b
2	Define engineering problems and develop models to simulate them through programming	1c
3	Analyze and characterize the building blocks of engineering systems	1c,2b
4	Analyze and interpret simulation results and optimize implemented systems	1c,2b
5	Write clear and accurate technical reports.	3b
6	Contribute critically and productively in group interactions.	1c,2b,3b
7	Define engineering problems and develop models to simulate them through programming	2b,3b

Evaluation Methods

The course grade will be evaluated as follows:

Method of Evaluation	% Of Final Grade	Due Dates*	Related Learning Outcomes
Quizzes	30%	During lecture time. (See schedule above)	1b, 1c, 2b, 5b
Course Project	25%	Week 11	1b, 1c, 2b, 3b, 5b
Final Exam	45%	(TBA)	1b, 1c, 2b, 5b

Grading

Grades for the course will be consistent with the following table, per the University of Windsor Policy on Grading and Calculation of Averages.

Letter	A+	A	A-	B+	B	B-	C+	C	C-	F
% Range	90-100	85-89.9	80-84.9	77-79.9	73-76.9	70-72.9	67-69.9	63-66.9	60-62.9	0-59.9

Important Academic Dates:

May 8, 2023	First Day of Classes
May 22, 2023	Victoria Day: University Closed
Jun 17 - 26, 2023	Reading Week
Jun 30, 2023	Canada Day: University Closed
Jul 19, 2023	Last Day to Voluntarily Withdraw from Summer 2023 courses
Aug 7, 2023	Civic Holiday: University Closed
Aug 9, 2023	Last Day of Classes
Aug 12 - 21, 2023	Final Exams Week

Note: Per University of Windsor Senate Bylaw 51,

"The last seven calendar days prior to, and including, the last day of classes in each period of instruction of twelve (or greater) weeks in duration must be free from any procedures for which a mark will be assigned, including the submission of assignments such as essays, term papers, and take-home examinations. Courses that are presented by a specialized teaching method, where the testing procedures are an integral part of the instructional process, shall be exempt from this regulation subject to approval of the Dean of the Faculty in which the course is given."

Assessment Considerations

- **Late assignments, reports, or projects**
  - It is expected that students who are experiencing difficulty meeting a deadline will contact the course instructor at least 48 hours before the due date(s). It is the student responsibility to keep track of all due dates and any changes which are communicated during the class or through Bright Space. Please note that NO accommodations will be provided after the due dates has passed and NO accommodations will be granted without proper documentation.

- **Missed Assignments, Tests, Reports, or Projects**
  - Documentation must be submitted to the Office of the Associate Dean no later than 72 hours following the absence. Documentation shall include the Faculty of Engineering Medical Form or other appropriate documents.
  - With approved medical documentation, students that miss the Final Exam will be subject to a make-up at **the instructor's earliest convenience** in a time slot that does not conflict with your scheduled classes. There is no bargaining with the instructor to change the date of the make-up.
  - Note that there will not be any makeups for quizzes.

- **Late Registration into Course**
  - Students who register late for the course are responsible to familiarize themselves with course information that they missed prior to registration. No special accommodation will be provided for missed assignments/assessments.

Electronic Devices:

You will need to bring you laptops to class to practice the MATLAB examples presented during class time and solve the quizzes. The use of the internet other than BrightSpace and MATLAB is not allowed unless you are asked to do so by the instructor.

Acceptable Use of Technology During Class

The use of technology during lectures is limited to resources associated with this course, such as lecture notes and property data information. Social media and general web surfing are never acceptable uses of technology during class; additionally, you distract the students around you. Always keep you phones in silent or vibrate mode. If a situation arises where you need to communicate by e-mail or cell phone, please respect your fellow students and leave the classroom to attend to the matter. You may return to class when the matter is resolved.

The Student Evaluation of Teaching (SET)

The SET will be administered in the course during the last two weeks of the semester.

Accommodation

Students with disabilities who require academic accommodations in this course must contact an Advisor in Student Accessibility Services (SAS) to complete SAS Registration and receive the necessary Letters of Accommodation. After registering with Student Accessibility Services, you must present your Letter of Accommodation and discuss your needs with me as early in the term as possible. Please note that deadlines for the submission of documentation and completed forms to Student Accessibility Services are available on their website: http://www.uwindsor.ca/studentaccessibility/.

General Class Expectations

Attendance and punctuality

- Attendance in classes is critical to student success. The course is designed to move swiftly and efficiently. If a student is going to miss a class, s/he should study the missed material before the following lecture. It is also encouraged that you read the lecture notes before coming to the lecture. Quizzes will be conducted during lecture time and no makeup quizzes will be allowed.

Communication

- Email: Only emails sent from a UWindsor email address will be responded to. Emails should be sent with courtesy; they should include an informative subject line, a salutation (e.g., Hello Dr. Name), a body, and a closing (e.g., Best regards, Name). Make sure your emails have a subject and the section of your course.

- Any emails received after noon on Fridays and during the weekends will be replied to on the following Monday.
- Communication about grades in the course should be addressed to me except for the course project.

Group work
- Groups are encouraged to develop ground rules, identify roles and responsibilities, set timelines, and set standards of communication for the group.

Academic Integrity

All incidents of academic dishonesty will be documented with the Associate Dean of Engineering – Academic. University procedures will be followed. Such incidents may include, but are not limited to: submission of assignments other than your own, receiving or sharing prior knowledge of test questions, sharing or receiving information during a test by any means (including electronic), possession of any electronic device (including cell phones) during a test except for an approved calculator, sharing or receiving knowledge of a test with students who have not yet written the test, sharing a calculator or formula sheet during the test, using a solutions manual to prepare submitted assignments.

Per the University of Windsor Policy on Student Code of Conduct (http://www.uwindsor.ca/secretariat/48/senate-policies)
*"**Plagiarism:** the act of copying, reproducing or paraphrasing significant portions of one's own work, or someone else's published or unpublished material (from any source, including the internet), without proper acknowledgement, representing these as new or as one's own. Plagiarism applies to all intellectual endeavours: creation and presentation of music, drawings, designs, dance, photography and other artistic and technical works. (Students have the responsibility to learn and use the conventions of documentation as accepted in their area of study and instructors have the responsibility of informing students in writing of any significant individual interpretations of plagiarism.)"*

Use of Plagiarism-Detection Software in This Course

⊠ Plagiarism-detection software may be used in this course.

1. *Rationale.* The University believes in the right of all students to be part of a University community where academic integrity is expected, maintained, enforced, and safeguarded; it expects that all students will be evaluated and graded on their own individual work; it recognizes that students often have to use the ideas of others as expressed in written, published, or unpublished work in the preparation of essays, assignments, reports, theses, and publications. However, it expects that both the data and ideas obtained from any and all published or unpublished material will be properly acknowledged and sources disclosed. Failure to follow this practice constitutes plagiarism. The University, through the availability of plagiarism-detection software, desires to encourage responsible student behaviour, prevent plagiarism, improve student learning, and ensure greater accountability.

2. *Procedure.* Plagiarism-detection software, [*insert specific software name*]*,* will be used for all student assignments in this course. You will be advised how to submit your assignments. Note that students' assignments that are submitted to the plagiarism-detection software become part of the database. This assists in protecting your intellectual property. However, you also have the right to request that your assignment(s) not be run through the student assignments database. If you choose to do so, that request must be communicated to me in writing at the beginning of the course.

3. *Privacy and Copyright.* Your privacy is protected even if your name and/or student number is on your assignments because the plagiarism-detection software does not make students' assignments available to outside third parties. Further, you retain the copyright in your work. Copyright, in relation to a work, is defined in Canada's Copyright Act, R.S.C. 1985, c. C-42, s. 3(1), which is available on the Department of Justice Canada website. Plagiarism-detection software use of student work complies with Canadian copyright and privacy laws.

4. *Originality Reports.* If the results of an originality report may be used to charge you with academic misconduct, you will be notified of the result of the report, and you will be given the opportunity to respond before any disciplinary penalty is imposed.

5. Plagiarism. Information about plagiarism and appropriate acknowledgement of sources can be found at the Office of Academic Integrity: http://www1.uwindsor.ca/academicintegrity/
Services Available to Students at the University of Windsor
Students are encouraged to discuss any disabilities, including questions and concerns regarding disabilities, with the course instructor. Let's plan a comfortable and productive learning experience for everyone. The following services are also available to students:
- Student accessibility services: http://www.uwindsor.ca/studentaccessibility/
- Skills to enhance personal success (S.T.E.P.S):
    - http://www.uwindsor.ca/lifeline/steps-skills-to-enhance-personal-success
- Student counseling centre: http://www.uwindsor.ca/scc
- Academic advising centre: http://www.uwindsor.ca/advising/

Bylaws and Policies
The following are links to the University of Windsor bylaws and policies. The intention is to share these policies and bylaws with engineering students in a way that is straightforward and clear – because our learning depends on our ability to create an environment and culture that supports our individual and collective needs for learning and teaching.
University senate bylaws can be found: http://www.uwindsor.ca/secretariat/49/senate-bylaws
University senate policies can be found: http://www.uwindsor.ca/secretariat/48/senate-policies