ENPH 253 – ENGINEERING PHYSICS LABORATORY

Course Syllabus – Winter 2024

This is your course syllabus. Please download the file and keep it for future reference.

Land Acknowledgement

Queen's University is situated on traditional Anishinaabe and Haudenosaunee Territory.
See: http://www.queensu.ca/encyclopedia/t/traditional-territories

Inclusivity Statement

Queen's students, faculty, and staff come from every imaginable background – small towns and suburbs, urban high rises, Indigenous communities, and from more than 100 countries around the world. You belong here: https://www.queensu.ca/inclusive/.

TEACHING TEAM

Course Instructors

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TECHNOLOGIST

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ENPH 253 – ENGINEERING PHYSICS LABORATORY

Course Description

The demonstration of the basic techniques of the engineering physicist in the measurement of electric, magnetic and mechanical properties. The emphasis is on correct measurement techniques, error analysis, treatment of results and the presentation of data.
Corequisites: ENPH 211, ENPH 225, ENPH 239
(0/15/12/15/0) (Mathematics/Natural Sciences/Complementary Studies/Engineering Science/Engineering Design)

Pre-Requisite Knowledge

This course is designed for advanced physicists and engineers. Students are expected to have completed
the first year laboratory course and be somewhat familiar with curve fitting and error propagation. The course assumes a background knowledge at a second year level in mechanics, modern physics and electromagnetism. If you lack any of the required prerequisites, please see one of the instructors.

Course Learning Outcomes (CLO)

By the end of this course, students should be able to:

CLO	Description	Indicator
CLO 1	Operate common mechanical and electrical instrumentation in a physics lab in order to make measurements of physical systems.	
CLO 2	Apply and develop models for physical phenomena and experimental apparatus that can be tested with an experiment.	
CLO 3	Analyze experimental data and infer the physical properties and behaviour of systems from that data, thereby acquiring a deeper understanding of the laws that govern those physical systems	
CLO 4	Estimate the uncertainty of experimental data acquired, propagate those error estimates and produce a credible assessment of the experimental results	
CLO 5	Prepare graphs that clearly illustrate the relationship of the data that was collected to theories or to other observations	
CLO 6	Write reports that summarize the experimental work that was completed, the data that was collected, how the data were interpreted and the conclusions that were drawn	

COURSE EVALUATION

The final mark for the course will be made up as follows:

6% for the lab book marks (marked every other week)

60% for the weekly analysis

17% for the weekly report sections

17% for the analysis and formal report of the last lab

GRADING

All assessments in this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a letter grade according to the established Grade Point Index.

Feedback on Assessments

The teaching team will provide feedback on graded activities. You can expect feedback on your assessments within seven days of the due date.

Accessing Your Final Grade

Your final grades will show on SOLUS. Official transcripts showing final grades will be available on the Official Grade Release Date. Please note that in official transcripts, a mark of IN (incomplete) is considered a grade, and your transcript is released with this grade.

COURSE MATERIALS

Required Textbook

There is no required textbook for the course.

Software

We require you to bring a laptop computer to most sessions. We strongly recommend that you install:

- Python via Anaconda
- Microsoft Teams
- Microsoft OneNote

All other course material is accessible via OnQ.

Suggested Time Commitment

This course represents a study period of one semester spanning 12 weeks. Learners can expect to invest on average 7-9 hours per week in this course. Learners who adhere to a pre-determined study schedule are more likely to successfully complete the course.

COURSE COMMUNICATION

COURSE ANNOUNCEMENTS

The instructor will routinely post course news in the Announcements section on the main course homepage on OnQ. Please sign up to be automatically notified by email when the instructor posts

new information in the Announcements section. Instructions on how to modify your notifications are found in the **Begin Here** section of the onQ course site.

Office Hours

In addition to interaction in the Q&A discussion forums, you will have the opportunity to interact with either a TA or the instructor through office hours. These are generally flexible and differ between the instructors and TAs, but sending an email to schedule an appointment is generally a good way to get in touch.

Confidential Matters

If you have a confidential matter you would like to discuss with your instructor, their contact details are on the first page of this document. Expect email replies within 48 hours.

Absences (Academic Considerations) and missed assignments

For information on academic considerations due to extenuating circumstances, please review the information on the FEAS website. Note that unacceptable reasons include extra-curricular activities, travel plans, generally behind on schoolwork, etc. Do not schedule travel during midterms and final exams, as travel is not an acceptable reason for granting academic considerations.

Late Policy

In general the typical deduction of 10% per day will be applied to all graded coursework unless otherwise defined in the distributed material. In the event of extenuating circumstances, you must follow the policies for requesting an academic consideration (as described above). In the absence of an approved consideration request, the normal late penalty will apply as described in the assignment or any course/departmental policies.

STANDARD QUEEN'S AND FEAS POLICIES

Netiquette

In this course, you may be expected to communicate with your peers and the teaching team through electronic communication. You are expected to use the utmost respect in your dealings with your colleagues or when participating in activities, discussions, and online communication.
Following is a list of netiquette guidelines. Please read them carefully and use them to guide your online communication in this course and beyond.

1. Make a personal commitment to learn about, understand, and support your peers.
2. Assume the best of others and expect the best of them.
3. Acknowledge the impact of oppression on the lives of other people and make sure your writing is respectful and inclusive.
4. Recognize and value the experiences, abilities, and knowledge each person brings.
5. Pay close attention to what your peers write before you respond. Think through and re-read your writings before you post or send them to others.
6. It's alright to disagree with ideas, but do not make personal attacks.

7. Be open to be challenged or confronted on your ideas and challenge others with the intent of facilitating growth. Do not demean or embarrass others.
8. Encourage others to develop and share their ideas.

Student Code of Conduct

Queen's University values maintaining an environment free of, and will not tolerate, harassment, discrimination, and reprisal. The Student Code of Conduct applies to all students at Queen's. It outlines the activities and behaviours that could be considered Non-Academic Misconduct (NAM). The Code also describes the NAM process and the sanctions that could be imposed on a student found responsible for a violation.
All students should be familiar with the Student code of conduct and related policies on sexual violence prevention and response and harassment and discrimination prevention and response.
https://www.queensu.ca/nonacademicmisconduct/policies

Copyright

Course materials created by the course instructor, including all slides, presentations, synchronous and asynchronous course recordings, handouts, tests, exams, and other similar course materials, are the intellectual property of the instructor. It is a departure from academic integrity to distribute, publicly post, sell or otherwise disseminate an instructor's course materials or to provide an instructor's course materials to anyone else for distribution, posting, sale or other means of dissemination, without the instructor's ***express consent***. A student who engages in such conduct may be subject to penalty for a departure from academic integrity and may also face adverse legal consequences for infringement of intellectual property rights and, with respect to recordings, potentially privacy violations of other students.

Academic Integrity

As an engineering student, you have made a decision to join us in the profession of engineering, a long-respected profession with high standards of behaviour. As future engineers, we expect you to behave with integrity at all times. Please note that Engineers have a duty to:

•Act at all times with devotion to the high ideals of personal honour and professional integrity.

•Give proper credit for engineering work

The standard of behaviour expected of professional engineers is explained in the Professional Engineers Ontario Code of Ethics. Information on policies concerning academic integrity is available in the Queen's University Code of Conduct, in the Senate Academic Integrity Policy Statement, on the Faculty of Engineering and Applied Science website, and from your instructor.
Departures from academic integrity include plagiarism, use of unauthorized materials or services, facilitation, forgery, falsification, unauthorized use of intellectual property, and collaboration, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulation on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the University.
In the case of online or remotely proctored exams, impersonating another student, copying from another student, making information available to another student about the exam questions or

possible answers, posting materials to online services, communicating with another person during an exam or about an exam during the exam window, or accessing unauthorized materials, including internet sources and using unauthorized materials, including smart devices, are actions in contravention of academic integrity.

GENERATIVE ARTIFICIAL INTELLIGENCE (AI) TOOLS, LIKE CHATGPT

Using generative AI writing tools such as ChatGPT in your submitted work is prohibited in this class. This type of use constitutes a Departure from Academic Integrity.

ACADEMIC AND STUDENT SUPPORT

Queen's has a robust set of supports available to you including the Library, Student Academic Success Services (Learning Strategies and Writing Centre), and Career Services. Learners are encouraged to visit the Faculty of Engineering and Applied Science Current Students web portal for information about various other policies such as academic advisors, registration, student exchanges, awards and scholarships, etc. Students are also encouraged to review the information that is available in the EngQ Hub, posted in onQ.

ABSENCES (ACADEMIC CONSIDERATIONS) AND ACADEMIC ACCOMMODATIONS

For academic accommodations and considerations please review the information on the FEAS website.

ACCOMMODATIONS FOR DISABILITIES

Queen's University is committed to working with students with disabilities to remove barriers to their academic goals. Queen's Student Accessibility Services (QSAS), students with disabilities, instructors, and faculty staff work together to provide and implement academic accommodations designed to allow students with disabilities equitable access to all course material (including in-class as well as exams). If you are a student currently experiencing barriers to your academics due to disability related reasons, and you would like to understand whether academic accommodations could support the removal of those barriers, please visit the QSAS website (https://www.queensu.ca/studentwellness/accessibility-services) to learn more about academic accommodations. To start the registration process with QSAS, click the ***Access Ventus*** button found on the Ventus student portal: https://www.queensu.ca/studentwellness/accessibility-services/ventus

Ventus is an online portal that connects students, instructors, Queen's Student Accessibility Services, the Exam's Office, and other support services in the process to request, assess, and implement academic accommodations. To learn more about Ventus, visit A Visual Guide to Ventus for Students: https://www.queensu.ca/ventus-support/students/visual-guide-ventus-students

For questions or assistance with requesting Academic Consideration or Accommodation, contact the FEAS Program Advisor (Accommodations and Considerations) at engineering.aac@queensu.ca

Every effort has been made to provide course materials that are accessible. For further information on accessibility compliance of the educational technologies used in this course, please consult the links below.

Educational Technology	Accessibility Compliance Information
onQ (Brightspace Learning Management System by D2L)	https://www.d2l.com/accessibility/standards/
MS-Teams	https://support.microsoft.com/en-us/office/accessibility-support-for-microsoft-teams-d12ee53f-d15f-445e-be8d-f0ba2c5ee68f
Zoom	https://zoom.us/accessibility

If you find any element of this course difficult to access, please discuss with your instructor how you can obtain an accommodation.

Religious Observance

Students in need of accommodation for religious observance are asked to speak to their professor within a week of receiving their syllabus. Note also that alternative assignments are considered a "reasonable accommodation" under the Ontario Human Rights Code. Students with questions about their rights and responsibilities regarding religious accommodation should contact the Chaplain Chaplain@queensu.ca.

Other human-rights based accessibility needs

Students who have accessibility needs based on human-rights covered grounds, should inform their instructors within a week of receiving their syllabus. Student can also contact the contact the FEAS Program Advisor (Accommodations and Considerations) at engineering.aac@queensu.ca for guidance.

Technical Support

Some basic comfort level with basic hardware and software skills are required for this course. If you require technical assistance, please contact Technical Support.

Supportive Personal Counselling

If at any time you find yourself feeling overwhelmed, anxious, sad, lonely, or distressed, consider confidential personal counselling and wellness services offered by the Faculty of Engineering and Applied Science and the Queen's student wellness services.