

 <p>POINT LOMA NAZARENE UNIVERSITY</p>	<p>Department of Physics and Engineering EGR1023/1023L - Introduction to Engineering II 2 +1 Units T/R 1:30-2:25; T 10-11:45 RS265</p>
<p>Spring 2021 March 1 - June 11</p>	

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<p>Office hours: MWF 1-2 and by appointment as needed.</p>

PLNU Mission

To Teach ~ To Shape ~ To Send

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

Department Mission

The Physics and Engineering Department at PLNU provides strong programs of study in the fields of Physics and Engineering. Our students are well prepared for graduate studies and careers in scientific and engineering fields. We emphasize a collaborative learning environment which allows students to thrive academically, build personal confidence, and develop interpersonal skills. We provide a Christian environment for students to learn values and judgment, and pursue integration of modern scientific knowledge and Christian faith.

COURSE DESCRIPTION

An introduction to the engineering design process building on the tools introduced in EGR 1012. In addition to designing a prototype, students learn the engineering aspects of teamwork development, ethics, professionalism, and reporting.

COURSE LEARNING OUTCOMES

1. understand the basics of the engineering profession, including problem solving, design, teamwork, creativity, and ethics.
2. develop skill in communicating complex and technical ideas
3. acquire skills to learn how to develop solutions for certain kinds of physics and engineering problems using computational techniques
4. ability to apply engineering design to produce solutions that meet specified needs
5. develop skills in solid geometry model creation in software like SOLIDWORKS
6. develop skills in prototyping using techniques such as the practice of basic additive manufacturing using 3D printing

PROGRAM OUTCOMES: This course contributes to meeting the program outcomes by developing student skills in the following areas. Students will have

1. an ability to apply knowledge of mathematics, science, and engineering;
2. an ability to design a system, component, or process to meet desired needs within realistic; constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
3. an understanding of professional and ethical responsibility;
4. an ability to communicate effectively;
5. a recognition of the need for, and an ability to engage in life-long learning;
6. an ability to use the techniques, skills, and modern engineering tools necessary for engineering

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

Note:

1. Access to [MATLAB \(Links to an external site.\)](#) (recommended purchase at least the basic \$50 license which will last as long as you are a student)
2. Access to Excel
3. Arduino kit (minimum [here \(Links to an external site.\)](#), or if you want some extras to play with later or possibly for use with your project, [here \(Links to an external site.\)](#) is a bit more)
4. Access to SOLIDWORKS
5. Access to Fusion360

COURSE CREDIT HOUR INFORMATION

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 3 unit class delivered over fifteen weeks. (Based on 37.5 hours of student engagement per credit hour.)

Distribution of Student Learning Hours

Category	Time Expectation in Hours
Class meeting Discussions	30
Team Project	40
Individual Projects	40
Exams	4
Total Hours	114

ASSESSMENT AND GRADING

Student grades will be posted in the Canvas grade book no later than midnight on Tuesday of each week beginning in Week Two of this course. It is important to read the comments posted in the grade book as these comments are intended to help students improve their work. Final grades will be posted within one week of the end of the class. Grades will be based on the following:

(40%) MiniProjects/Homework

(30%) Team Project

(30%) Exams(2)

Standard Grade Scale Based on Percentages

A	B	C	D	F
A 93-100	B+ 87-89	C+ 77-79	D+ 67-69	F Less than 59
A- 90-92	B 83-86	C 73-76	D 63-66	
	B- 80-82	C- 70-72	D- 60-62	

STATE AUTHORIZATION

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in

that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on [State Authorization](#) to view which states allow online (distance education) outside of California.

EXAMS

Examinations and the Final Examination will include problems and questions over material assigned in the text, readings and handouts, as well as material presented in class. No examination shall be missed without prior consent or a well-documented emergency beyond your control. A score of zero will be assigned for an examination that is missed without prior consent or a well-documented emergency beyond your control. Exams through the semester may be administered using Honorlock.

Final Exam: Date and Time:

The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor. This schedule can be found on the university website and in the course calendar. No requests for early examinations will be approved. Only in the case that a student is required to take three exams during the same day of finals week, is an instructor authorized to consider changing the exam date and time for that particular student.

INCOMPLETES AND LATE ASSIGNMENTS

All assignments and exams must be turned in on time to receive credit. **Late work will not be accepted** without prior consent or a well-documented emergency. Incompletes will only be assigned in extremely unusual circumstances.

PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See [Academic Policies](#) [Links to an external site.](#) for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center. (DRC@pointloma.edu or 619-849-2486). The DRC's policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 (a) prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. The AP must be implemented in all such courses.

If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that course. PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all **synchronous** class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions (virtual or face-to-face), the faculty member will issue a written warning of de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation. In some courses, a portion of the credit hour content will be delivered **asynchronously** and attendance will be determined by submitting the assignments by the posted due dates. See [Academic Policies site](#). in the Undergraduate Academic Catalog. If absences exceed these limits but are due to university excused health issues, an exception will be granted.

Class Enrollment:

It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.

Asynchronous Attendance/Participation Definition

A day of attendance in asynchronous content is determined as contributing a substantive note, assignment, discussion, or submission by the posted due date. Failure to meet these standards will result in an absence for that day. Instructors will determine how many asynchronous attendance days are required each week.

SPIRITUAL CARE

Please be aware PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith. If students have questions, a desire to meet with the chaplain or have prayer requests you can contact the [Office of Spiritual Development](#) [Links to an external site.](#)

USE OF TECHNOLOGY

Since most courses will have online components, in order to be successful in the online environment, you'll need to meet the minimum technology and system requirements; please refer to the [Technology and System Requirements](#) information. Additionally, students are required to have headphone speakers compatible with their computer available to use. If a student is in need of technological resources please contact student-tech-request@pointloma.edu

Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

Course Summary:

Date	Details
Tue Mar 2, 2021	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
	Calendar Event EGR1023-Intro T-Th PM
Thu Mar 4, 2021	Calendar Event EGR1023-Intro T-Th PM
Fri Mar 5, 2021	Assignment Reflect & Decisions
	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
Tue Mar 9, 2021	Calendar Event EGR1023-Intro T-Th PM

Date	Details
Thu Mar 11, 2021	Calendar Event EGR1023-Intro T-Th PM
	Assignment 3D-1
	Assignment 3D-2
Fri Mar 12, 2021	Assignment 3D-3
	Assignment 3D-4
	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
Tue Mar 16, 2021	Calendar Event EGR1023-Intro T-Th PM
Thu Mar 18, 2021	Calendar Event EGR1023-Intro T-Th PM
	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
Tue Mar 23, 2021	Calendar Event EGR1023-Intro T-Th PM
Thu Mar 25, 2021	Calendar Event EGR1023-Intro T-Th PM
	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
Tue Mar 30, 2021	Calendar Event EGR1023-Intro T-Th PM
Thu Apr 1, 2021	Calendar Event EGR1023-Intro T-Th PM
Mon Apr 5, 2021	Assignment Exam 1
Tue Apr 6, 2021	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom

Date	Details
	Calendar Event EGR1023-Intro T-Th PM
Thu Apr 8, 2021	Calendar Event EGR1023-Intro T-Th PM
Tue Apr 13, 2021	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
	Calendar Event EGR1023-Intro T-Th PM
Thu Apr 15, 2021	Calendar Event EGR1023-Intro T-Th PM
Tue Apr 20, 2021	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
	Calendar Event EGR1023-Intro T-Th PM
Thu Apr 22, 2021	Calendar Event EGR1023-Intro T-Th PM
Tue Apr 27, 2021	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
	Calendar Event EGR1023-Intro T-Th PM
Thu Apr 29, 2021	Calendar Event EGR1023-Intro T-Th PM
Tue May 4, 2021	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
	Calendar Event EGR1023-Intro T-Th PM
Thu May 6, 2021	Calendar Event EGR1023-Intro T-Th PM
Tue May 11, 2021	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
	Calendar Event EGR1023-Intro T-Th PM

Date	Details
Thu May 13, 2021	Calendar Event EGR1023-Intro T-Th PM
	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
Tue May 18, 2021	Calendar Event EGR1023-Intro T-Th PM
	Assignment Exam 2
Thu May 20, 2021	Calendar Event EGR1023-Intro T-Th PM
	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
Tue May 25, 2021	Calendar Event EGR1023-Intro T-Th PM
Thu May 27, 2021	Calendar Event EGR1023-Intro T-Th PM
	Calendar Event EGR1023-1 - Intro - Tuesday AM zoom
Tue Jun 1, 2021	Calendar Event EGR1023-Intro T-Th PM
Thu Jun 3, 2021	Calendar Event EGR1023-Intro T-Th PM
	Assignment Brainstorm
	Assignment Final Poster
	Assignment Final Presentation
	Assignment Final Product
	Assignment Poster Draft

Date

Details

Assignment [Proposal](#)

Assignment [Revision](#)

Assignment [Update 1](#)

Assignment [Update 2](#)
