POINT 1902 LOMA NAZARENE UNIVERSITY	**Department/School Name: Physics and Engineering** **Course Number and Name:** **EGR 1023/1023L – Introduction to Engineering II and Lab** **Number of Units: 2 + 1**
Spring 2022	

Meeting Days: **(Lecture) TR** **(Lab) R**	**Professor: Dr. Anthony Cortez**
Meeting Times: **(Lecture) 1:30 pm – 2:25 pm** **(Lab) 10:00 am – 11:45 am**	**Phone: (619) 849-2439**
Meeting Location: Rohr Science 265	**Email: AnthonyCortez@pointloma.edu**
Final Exam: Tue. 3-May 1:30pm	**Office hours:** **Mon 1pm-2pm** **Tue 9am-10am** **By Appointment** **Location: Rohr Science 282**

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

EGR 1023 – Introduction to Engineering II (2)

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.

Prerequisite(s): EGR 1012 with a grade of C- or higher.
Corequisite(s): EGR 1023L EGR 2014L – Engineering Mechanics: Statics Lab (1)

EGR 1023L – Introduction to Engineering II Lab (1)

Laboratory to compliment EGR 1023. Meets two hours per week.

Corequisite(s): EGR 1023 with a grade of C- or higher.

COURSE LEARNING OUTCOMES

1. Understand the basics of the engineering profession, including problem solving, design, teamwork, creativity, and ethics.
2. Apply engineering design to produce solutions that meet specified needs.
3. Develop skills in solid geometry model creation in software like SOLIDWORKS.
4. Develop skills in prototyping using techniques such as the practice of basic additive manufacturing using 3D printing.
5. Develop skills in presenting work/projects orally.
6. Operate introductory engineering tools/equipment safely in the lab setting (for example 3D printers and laser cutters).

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

1. Access to MATLAB
2. Access to SOLIDWORKS

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 2+1 unit class delivered over fifteen weeks. It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their coursework. For this course, students will spend an estimated 112.5 total hours meeting the course learning outcomes.

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.

ASSESSMENT AND GRADING

Graded Components

- **Homework/Assignments**: There will be assigned Homework/Assignments to keep you on track with the MiniProjects. Some of these will be submitted as a team and some will be submitted individually.
- **Mini Projects**: You will be creating a mini project using the engineering design process for each new tool/technique we are learning in class.
- **Team Project**: The class will culminate with a Team Project where you have the freedom to choose which technique/tool you learned from lecture to complete a project. This project will then be presented to the class.
- **Examinations and the Final Examination**. 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. 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.

Grading Distribution	Percent
MiniProjects	40
Homework/Assignments	30
Team Project	30
Total	100

Grading Scale

Grades are based on the number of points accumulated throughout the course with the following exception. Approximate minimal percentages required to obtain a given grade are:

Standard Grade Scale Based on Percentages					
	A	**B**	**C**	**D**	**F**
+		87- 89	77-79	67-69	
	93 -100	83-86	73-76	63-66	0-59
_	90-92	80-82	70-72	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.

LATE ASSIGNMENTS

All assignments are to be submitted by the due dates. Assignments will be considered late if posted after the due date and time using Pacific Standard Time. Late assignments will receive a grade of 0.

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 ADC Academic and General PoliciesLinks to an external site. for definitions of kinds of academic dishonesty and for further policy information.

PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center (EAC@pointloma.edu or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course and/or if they do not wish to utilize some or all of the elements of their AP in that course.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC.

PLNU 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.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Attendance is expected at each class session. In the event of an absence, you are responsible for the material covered in class and the assignments given that day. Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions, 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.

PLNU USE OF TECHNOLOGY

In order to be successful in the online environment, students need to meet the minimum technology and system requirements; please refer to the Technology and System Requirements Links to an external site.information. If a student is in need of technological resources please contact student-tech-request@pointloma.edu

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

Schedule (Subject to Updates)

Date	In Class	Items Due	Project
Week 01 1/11 – 1/14	Introductions (Zoom)		
Week 02 1/17 – 1/21	What is Design Process?	Initial Ideas on Engineering (Ind)	
Week 03 1/24 – 1/28	Intro SOLIDWORKS	Basic SOLIDWORKS Design	SOLIDWORKS
Week 04 1/31 – 2/4	Research and Plan/Create	Approved Plan	SOLIDWORKS
Week 05 2/7 – 2/11	Create and Test	Final Design	SOLIDWORKS
Week 06 2/14 – 2/18	Intro 3D Printer	SOLIDWORKS Report (Ind)	3D Printer
Week 07 2/21 – 2/25	Research and Plan/Create	Approved Plan	3D Printer
Week 08 2/28 – 3/4	Create and Test	Printed Object	3D Printer
Week 09 3/14 – 3/18	Intro Laser Cutter	3D Printer Report (Ind)	Laser Cutter
Week 10 3/21 – 3/25	Research and Plan	Approved Plan	Laser Cutter
Week 11 3/28 – 4/1	Create and Test	Printed Cut	Laser Cutter
Week 12 4/4 – 4/8	Revisit MATLAB Team Project Initial Ideas	Laser Cutter Report (Ind) Team Project Plan Approved	MATLAB
Week 13 4/11 – 4/13	Create and Test	MATLAB Code	MATLAB
Week 14 4/19 – 4/22	Work on Project	MATLAB Report (Ind) & Project Plan Approved	Team Project
Week 15 4/25 – 4/29	Work on Project		Team Project
Finals Week 5/2 – 5/6	Final Presentations Tue May 3	Final Report	

(Ind) – Individual assignments to be submitted by each student.