



Department of Physics and Engineering

EGR4082/PHY4082 -Senior Project II

2 Units

M, F 12:15-1:10; MakerSpace

Spring 2021 | March 1 - June 11

Instructor: Dr. Paul D. Schmelzenbach

Phone: 619.849.2933

Email: paulschmelzenbach@pointloma.edu

Office hours: MWF 2-3 and by appointment as needed.

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

This course provides students (teams with) the opportunity to hone and finish building the project design initiated in EGR 4072. The students will give an oral presentation of their project in a design review setting. This course will normally be completed in a student's senior year.

COURSE LEARNING OUTCOMES

1. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
2. Communicate effectively with a range of audiences
3. Explore ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and social contexts.
4. develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

1. Access to MATLAB and LaTeX

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 unit class delivered over 15 weeks. Specific details about how the class meets the credit hour requirement can be provided upon request. (Based on 37.5 hours of student engagement per credit hour.)

Distribution of Student Learning Hours

Category	Time Expectation in Hours
Project development	50
Discussions	10
Other Assignments & Learning Activities	13
Quizzes, Surveys	2
Total Hours	75

ASSESSMENT AND GRADING

Graded Components

Assignments are weighted by group:

Group	Weight
Engineering Notebook	10%

Group	Weight
Mini-projects	25%
Final Project	65%
Total	100%

The heart of the class is your project. Your grade is earned through various assignments directly associated with your project including:

- Draft of Poster (Week 12) 5%
- Revisions (Week 13) 5%
- Poster (Week 14) 25%
- Talk (Week 15) 20%
- Product (Week 15) 10%

Documentation of your process through your notebook will also comprise 10% of your grade.

Deadlines in this course are important and late work will not generally be not be accepted. The exception is up to a maximum of one weekly task will be accepted up to 3 days late provided that consent is received from the professor before it is due. Homework assignments that are submitted late without prior consent will be recorded with a score of zero.

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.

Grading Scale

Approximate minimal percentages required to obtain a given grade are:

Standard Grade Scale Based on Percentages					
	A	B	C	D	F
+		87.5- 90	77.5-80	67.5-70	

Standard Grade Scale Based on Percentages					
	A	B	C	D	F
	92.5 -100	82.5-87.5	72.5-77.5	62.5 -67.5	0-60
-	90-92.5	80-82.5	70-72.5	60-62.5	

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 will 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 PoliciesLinks 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
Mon Aug 17, 2020	Page Week 1: Course Orientation
	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
	Page Front Page
	Page Meet Your Instructor
Page Syllabus	
Fri Aug 21, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Aug 24, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Aug 28, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Aug 31, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Sep 4, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Sep 7, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Sep 11, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Sep 14, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Sep 18, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Sep 21, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)

Date	Details
Fri Sep 25, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Sep 28, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Oct 2, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Oct 5, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Oct 9, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Oct 12, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Oct 16, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Oct 19, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Oct 23, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Oct 26, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Oct 30, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Nov 2, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Nov 6, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Nov 9, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Fri Nov 13, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Nov 16, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)

Date	Details
Fri Nov 20, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Nov 23, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I (12:15)
Mon Nov 30, 2020	Calendar Event EGR4072-1 FA20 - Senior Project I
Mon Mar 1, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting
Mon Mar 8, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting Assignment Check 1
Fri Mar 12, 2021	Assignment Scope and Goals
Mon Mar 15, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting
Fri Mar 19, 2021	Assignment Schedule
Mon Mar 22, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting
Mon Mar 29, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting Assignment Check 2
Fri Apr 2, 2021	Assignment Vocational Thoughts
Mon Apr 5, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting
Mon Apr 12, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting
Mon Apr 19, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting

Date	Details
	Assignment Check 3
Fri Apr 23, 2021	Assignment Resume
Mon Apr 26, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting Assignment Mock Technical Interview
Mon May 3, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting
Fri May 7, 2021	Assignment Ethical Considerations
Mon May 10, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting Assignment Check 4
Fri May 14, 2021	Assignment Makerspace
Mon May 17, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting
Fri May 21, 2021	Assignment Draft of Poster
Mon May 24, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting
Fri May 28, 2021	Assignment Revision
Mon May 31, 2021	Calendar Event EGR4082-1 SP21 - 12:15 Monday Meeting Assignment Check 5
Fri Jun 4, 2021	Assignment Final Poster

Date

Details

Mon Jun 7, 2021

Assignment [Final Product](#)

Assignment [Talk](#)
