

COURSE SYLLABUS

70627 ENGR M01 – Introduction to Engineering, 2.0 Units

Class Time: Lecture M 1:00-1:50 PM; PS-207 (or PS-208)
 Lab M 2:00-4:50 PM; PS-207 (or PS-208)

INSTRUCTOR & DEPARTMENT INFORMATION

Instructor & Dept. Chair: Scarlet Relle, Ph.D.
Office Hours in PS-235: **M** 11 – 1 pm; **T** 10 – 11; **W** 10 – 11 am; **Th** 10 – 11 am
 AND by appointment which could be scheduled in person or on Zoom
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Dean: Robert Cabral
E-mail: rcabral@vcccd.edu
Phone: (805) 378-4721

IMPORTANT NOTES ABOUT COVID-19 PROTOCOLS:

In order for all of us to have a Safe Return to campus and be able to continue with our on-ground classes, we must all follow the following rules set forth by our College District:

- All faculty, staff, administrators, and students must be fully vaccinated and have their vaccination verification uploaded to the MyVCCCD mobile app by October 15th. This is a mandate and not a choice. There are medical and religious exemptions but you must contact the Student Health Center immediately for further details on these exemptions.
- If you have not been vaccinated yet, in order to obtain the required vaccination verification by October 15th, you must arrange to receive the first shot of the 2 dose vaccine series no later than September 1st.
- Every time you come to campus you must complete a self-assessment health questionnaire using the MyVCCCD mobile app prior to coming to campus. Please see the [Healthy Return to Campus](#) webpage for details.
- Once you complete the questionnaire, you must stop at a check-in location to get a wristband for that day.
- Once you enter a building and/or a classroom, you must scan the QR code of that building for contact tracing notifications.
- Please see the campus map uploaded to Canvas and also on our college website to become familiar with check-in locations around the parking lots.
<https://www.vcccd.edu/alerts/healthy-return-to-campus>
- Parking during the Fall semester is Free. You do not need to purchase any parking permits.
- Since check-in may take some time, do allow yourself extra time to get to class and complete the self-assessment health questionnaire on the MyVCCCD mobile app prior to coming to campus.

ABOUT THIS CLASS

- The class will be on-campus, in-person. You are expected to attend class, take notes, and participate in all class activities.
- This is a lecture/lab combination course, once a week for about 4 hours. We do a lot of work during our class time. So please make every effort to be present every Monday unless you are ill or there is an emergency. Again, try hard to not be absent, otherwise, you'll miss a lot and it will be difficult to catch up.
- Most course materials will be posted on Canvas in the course shell, this includes lecture notes, solutions to assigned problems, some assignments, labs, projects, some quizzes, study guides, etc.
- Graded assignments will be collected on Canvas on Mondays, Wednesdays, and/or Saturdays (unless otherwise stated) and the grades will be posted on Canvas under Grades. Some assignments may be collected on paper.

- Some Quizzes and All Exams will be administered in class, in person, on paper. The time for quizzes will be between 20 to 30 minutes, depending on the complexity of the quiz, and the time for the exams will be 60 to 75 minutes, again depending on the complexity of the exam questions. But the final exam will be 2 hours.
- Projects and labs will be conducted in groups of 2-4. There will be one grade per group so every group member must participate and contribute effectively and professionally to the assignment.

COURSE OVERVIEW

Introduction to Engineering explores the branches of engineering, the engineering profession, the interface of the engineer with society, and engineering ethics. Explains the engineering education process and explores effective strategies for students to reach their full academic potential. Introduces the methods of engineering analysis, engineering design and problem solving. Develops written, computer and oral communication skills in analyzing and presenting data as it relates to engineering design and problem solving.

COURSE OBJECTIVES

Upon completion of the course student should be able to do the following:

1. Classify the different engineering branches; describe the role of engineers in society, the functions of engineers, and the industries in which they work.
2. Identify and describe academic pathways to four-year degrees.
3. Develop and apply effective strategies to reach full academic potential.
4. Explain the role of professional engineers, and apply the principles of engineering ethics and standards.
5. Demonstrate knowledge of effective practices for research, gathering of data, writing technical engineering reports, and making oral presentations.
6. Analyze engineering problems using the engineering design process.
7. Demonstrate basic computational, data manipulation, engineering drawing skills.
8. Demonstrate teamwork skills necessary for successful completion of engineering design projects.

Please Note: Periodically speakers from the industry or the academics will be invited to give lectures and presentations.

COURSE LEARNING OUTCOMES (CLOs)

Upon completion of the course student should be able to do the following:

1. Describe the role of engineers in society and classify the different engineering branches, the functions of an engineer, and industries in which they work.
2. Demonstrate knowledge of certain basic fundamental laws of physics, engineering concepts, and mathematics in problem solving.
3. Analyze, and synthesize a solution to an engineering problem using the engineering design process.
4. Develop skills suitable for working in a team, and demonstrate knowledge of effective practices for writing technical reports, making oral presentations, and producing engineering drawings.

INSTRUCTIONAL MATERIALS

Optional Textbook: Saeed Moaveni, Engineering Fundamentals; An Introduction to Engineering, 4th ed. Cengage Learning.

Handouts: Handouts, lecture notes, and other reference material will be provided to aid your understanding of the subject matter and these will be posted on Canvas, unless otherwise stated.

Materials that you need to have: Scientific calculator, reliable computer with a camera (just in case we might need it), reliable Internet access, ability to take pictures of your work and upload them to Canvas as PDF, JPG or JPEG, a ruler, papers, pencils, pens, and eraser.

EVALUATION & GRADING POLICY

The following rubric will be used in determining your final grade in this course:

Homework/Discussion/Quiz	(20%)
Instructor Led Hands-On Activities	(20%)
Design Projects	(25%)
Exams	(20%)
Final: Exam & Design Project	(15%)

A: (90.0-100%)	B: (80.0-89.9%)	C: (70.0-79.9%)
D: (60.0 – 69.9%)	F: (below 60.0%)	

Please note that grades are rounded to one digit to the right of the decimal and grades are absolutely not negotiable.

RECEPIE FOR SUCCESS IN THIS COURSE

For students to be successful in this online course, the following actions and student engagement activities are strongly recommended and encouraged:

1. Attend class, take notes, and participate in class activities. Complete all your assignments, and do your best.
2. Read and study the lecture notes, slides, and the relevant handouts.
3. Do not hesitate to ask questions.
4. Turn on your Canvas Notifications so that when I post an Announcement about the course you get notified immediately as Announcements are going to be one of my primary means of communication with you.
5. Use the Study Guides provided to study for each exam.
6. Late work generally will not be accepted, however, in the event of an emergency contact me immediately so that we can have a discussion and find a path forward.
7. Be sure to find classmates that you can study with and collaborate with on certain assignments and projects.

HOMEWORK/DISCUSSION/ASSIGNMENTS

You will either directly type onto the Canvas page or you will need to take pictures of your work and upload them to Canvas, as instructed. Late work: Refer to #6 above.

INSTRUCTOR LED HANDS-ON ACTIVITIES

In order to increase your understanding of certain topics and concepts that are covered in the course, you will participate in and complete several hands-on activities as directed by the professor. You will be provided a handout and a demonstration for each activity. These activities may be completed in groups, in which case, all group members will receive the same grade on the assignment, so please help each other and work together in a professional manner.

QUIZZES

Quizzes will cover material from the assigned homework problems and lecture notes. The time for quizzes will be between 20 to 30 minutes, depending on the complexity of the quiz. Quizzes may be in person, in class, or they may be online on Canvas. If the quizzes are online, then you will need to take pictures of your work and upload them to Canvas. If quizzes are online, they will be available for 12 hours, but as soon as you start the quiz, the timer will begin.

EXAMS

Exams will cover materials from the lecture notes, hands-on activities, and any handouts that are posted on Canvas or given in class. You will have 60 to 75 minutes to complete each exam. The final exam will cover selected topics from the entire course, and you will have 2 hours to complete the final exam. Exams may consist of short answers, problem solving, multiple-choice & fill in the blank questions. Exams will be administered in class and in person.

DESIGN PROJECTS

Since engineers often work in groups, it is essential for you to practice teamwork. As such, in groups of two to four you will complete three or four design projects during this semester. Each design project will focus on one engineering discipline or subdiscipline. For each project, your team will do a combination of physical construction of the design and/or produce a technical report and/or a power-point presentation, and/or an engineering drawing of the design. All group members will receive the same grade for the project, so please help each other and work together in a professional manner.

ADDITIONAL POLICIES

PARTICIPATION

Participation in my class is mandatory. I expect you to attend class prepared, ready to learn and to participate. Be sure you have a notebook to take notes during class discussions and activities, a scientific calculator, and a binder or folder to keep all your papers organized. Occasionally, I may ask you to upload to Canvas notes that you have taken in class, or assignments that we completed in class for class participation points.

STUDENT RESPONSIBILITY

You, as the student, are responsible for **all** material presented in class and in assignments. Make-up exams will be given **only** in case of verified illness or exceptional circumstances. You must contact me in a timely manner to schedule a make-up exam.

DISABILITIES ACCOMODATION

Appropriate accommodations will be made for students with disability related needs. Students with a disability, whether physical, learning, or psychological, who believe they will need accommodations in this class, are encouraged to contact ACCESS as soon as possible so accommodations can be set up in a timely fashion. Accommodations are based on eligibility and can only be provided if you have submitted verification from ACCESS in the form of a Confidential Memo. The ACCESS office can be reached at (805) 378-1461.

<https://www.moorparkcollege.edu/departments/student-services/access>

USE OF LISTENING, VIDEO, OR OTHER RECORDING DEVICES

I do not permit the use of any electronic listening or recording devices by anyone in my classroom. If you need to use a recording device as an authorized disability accommodation, then you must provide me with verification from ACCESS prior to the use of the device.

USE OF LAPTOP COMPUTERS

You may use laptop computers in the classroom only for classroom purposes. You may not surf the web, play games, or engage in any activity which I would consider disruptive to your learning process.

USE OF CELLPHONES

You may not use your cell phone during class, it must be turned off. Also, you may not use your cell phone in lieu of a scientific calculator.

ACADEMIC INTEGRITY

Academic integrity and honesty is of utmost importance. Cheating of any kind will not be tolerated in this course. Cheating includes turning in someone else's work as your own, using notes, using class resources, getting unauthorized help, and utilizing the Internet during exams and quizzes. Cheating will result in zero points for that particular assignment/quiz/test, and any previous assignments will be called into question. In addition, a report will be made to the Behavior Intervention Team (BIT).

TITLE IX / SEXUAL MISCONDUCT

Incidents of sexual misconduct can involve students and employees and include: sexual harassment, gender/sexual orientation based slurs, social media harassment related to sex/gender/sexual orientation/gender identity, sexual assault of any type, stalking (including text/digital stalking), dating/domestic violence, gender/sex-based hate crimes, etc. If you or another student has experienced any of these types of events, regardless of where they occurred or who the perpetrator may have been, please immediately contact your instructor, Dean or the Title IX Coordinator: Priscilla Mora (pmora@vcccd.edu). It is the responsibility of the College to investigate the matter and provide support and appropriate assistance to the student who may have been affected. Questions? Visit our website on TIX/Sexual Misconduct: [MC Title IX / Sexual Misconduct website](#) .

HEALTH, SAFETY, BEHAVIOR

Your health, safety, and behavior in our online classroom and when you are on campus are of utmost importance. If I see, recognize, or find out about a concerning behavior or a health and safety issue, I will both approach you first and then make a report to the BIT team, or I may just directly make a report to the BIT team. The BIT team is committed to helping protect everyone's safety and well-being, in addition to helping to maintain the integrity of our academic environment.

IMPORTANT DATES

August 27th: Last day to add and drop with full refund or credit (All students/Fall semester only)

September 3rd: Last day to drop a semester-length class without a "W"

November 19th: Last day to drop a semester-length class with a "W"

Follow this link to double check the more up-to-date information regarding add/drop dates and other important dates: <https://www.moorparkcollege.edu/apply-and-enroll/academic-calendar/fall-2021>

CLASS SCHEDULE

DATE	RESOURCES POWERPOINT SLIDES	LECTURE TOPICS	ACTIVITIES AND HANDOUTS	EXAMS
8/16	Syllabus Chapter 1 Intro. to Engr.	Introduction to class; Intro. to engr. profession & Engr. Disciplines	Engr. Discipline Assignment	
8/23	Ch. 7 & Ch. 9 partial	Systematic and random errors in measurements Averages and Standard Deviation	Activity #1 - Making Measurements of Length; Calculations of volume, and density; Averages and standard deviations	
8/30	Ch. 6 Units	Units of measurements; Unit Conversions; Significant figures; Unit Analysis	Units/Sig. Fig. Conversions/Analysis Assignment Prepare for a quiz	
9/6	Labor Day Holiday – No Instruction			

9/13	Chapter 3 Introduction to Engineering Design Chapter 7 Length Parameters	Engineering design process; sustainability in design; material selection; team work; conflict resolution Second moment of area	Activity #2 – Calculating the second moment of area of the pastas Activity #3 – Follow the NASA Engr. Design Process for the design of the project Design Project I Building a Pasta Tower	
9/20	Chapter 4 Engineering Communication Skills	Presentation of engineering work; Solution of engineering problems; Technical report writing; Oral communication and presentation; Graphical presentation	Continue working on the tower project	
9/27	Chapter 16 Engineering Drawings	Importance of engineering drawings; orthographic, sectional, isometric; dimensioning and tolerancing; why do we need symbols	Continue working on the tower project & Engr. Dwg. Assignment Prepare for a quiz	
10/4	Chapter 7 Length Parameters	Length, Area, Pressure	Due Project #1 – Project Completed, presentation, technical report Exam Study Guide	
10/11	Chapter 5 Engineering Ethics Keys to Success in Engineering	Code of ethics; Engineering marvels and disasters	Activity #4 – Measure the height of a building using mathematical analysis (Triangulation) and scale drawings Code of Ethics Assignment	Exam I All material covered in class thus far
10/18	Ch. 14 Spreadsheets	Formulas; Plotting; Curve Fitting	Activity #5 - Using Microsoft Excel spreadsheet and graphs Training	
10/25	Chapter 10 Force	Force; Newton's Laws; Pressure; Work	Design Project II Building a Catapult	
11/1	Continue with Chapter 10		Continue working on the project Prepare for a quiz	

11/8	Chapter 12 Electric Current	Electric current; voltage; Power; Circuits; Resistors in Series and Parallel	Due – Catapult (prediction graph and equation; engineering disciplines presentation) Assignment on Ch. 12	
11/15	Chapter 13 Energy and Power	Work; Kinetic and Potential Energy; Power	Activity #6 – Solar Car Experiment Activity Prepare for a quiz Exam Study Guide	
11/22			Activity #7 – Elasticity Experiment	Exam II All material covered since exam I
11/29	Chapter 2 Preparing for an Engineering Career	Transition to college; budgeting time; study habits; getting involved in professional organizations	Activity #8 - Energy Conservation = k Effective Experiment Assign Design Project III Final Build a Car	
12/6	Review		Due – Final Project (oral presentation, drawing, list of materials)	
12/13 M	FINAL EXAM -- Selected topics from the <u>entire course</u> 2:45 – 4:45 PM			

The instructor reserves the right to change class policies and class schedule if necessary.
The instructor reserves the right to drop any student who misses more than 2 class meetings.