

# The University of Texas at El Paso

## UNIV 1301

### Foundations of Engineering

CRN: 18891

TR: 3:00pm – 4:20pm

LART 306

***Professor and Program Advisor:***

Patricia A. Mendoza

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Office Hours:

Tuesday and Thursday from 1:30pm-2:45pm,

Friday 8:30am-10:00am,

Or by appointment

***Peer Leader:***

Jose Garcia

Office: UGLC 212

E-mail: [jdgarcia vazquez@miners.utep.edu](mailto:jdgarcia vazquez@miners.utep.edu)

Office Hours: TR 2:00 pm – 3:00pm

***Librarian:***

Debjani Mukhopadhyay

Office: UTEP Library – Reference, Room 215

E-mail: [dmukhopadhyay@utep.edu](mailto:dmukhopadhyay@utep.edu)

***Textbook:***

*Studying Engineering: A Road Map to a Rewarding Career*

4<sup>th</sup> Edition

By

Raymond B. Landis, Dean Emeritus

Published by: Discovery Press, Los Angeles, CA.

***Other materials needed:***

3-ring binder or notebook for class notes and assignments

Basic Calculator.

## ***Course Description***

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Foundations of Engineering is a freshman university level course, which is intended to help new engineering students to learn and apply valuable skills that will aid them through their college and future professional life. The objective of UNIV 1301 is to make the transition from high school to the university as comfortable as possible, providing engineering students with all the tools, skills, resources and information needed to be successful, and helping them to consciously decide on their right career profession.

One of the teaching objectives of this course is to help students create a meaningful connection between student life and the real engineering world. Students will explore engineering fields of study and learn about the seven Engineering disciplines offered at UTEP. Moreover, students will develop problem solving, critical thinking, project development and design skills through course materials and activities.

It is also a class objective to familiarize students with learning tools as well as activities and resources available at UTEP. Entering students need to know about all the resources the university offers to be able to successfully handle challenges of student life, complete class assignments, fulfill their degree requirements, and meet their career goals. Students need to be aware of UTEP activities, which will allow them to build strong connections with faculty, staff, and peers.

The plan is to make this class as interactive as possible, helping the students to successfully excel independently and as a part of a team, to improve their communication and presentation skills, and to understand the importance of integrity and ethics, among others. The class material will focus on making real-world connections to engineering by providing hands-on activities along with math-based applications with the objective of increasing student retention, motivation and success in engineering.

By the end of the semester, the students will

- ✓ Develop and apply elements of leadership through effective individual participation and meaningful team collaboration.
- ✓ Examine your roles and responsibilities crucial for your success in college and beyond.
- ✓ Identify, assess, and build on your strengths and experiences to develop academic and transitional strategies necessary for success in your academic, career, and life goals.
- ✓ Engage in research and critical thinking activities that demonstrate your ability to effectively integrate your learning within, across, and beyond academic settings.
- ✓ Engage in campus and community activities to increase your sense of academic and social belonging.

## ***Course Goals***

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***Goal 1. Develop and apply elements of leadership through effective individual participation and meaningful team collaboration to empower you to be an agent of change.***

Learn more about collaboration, roles, and facilitation skills through faculty instruction and student practice.

- ✓ You will participate in Teamwork exercises where you will be assigned a role, use your skills and abilities to jointly work with your Team Members and achieve the exercise successfully.
- ✓ You will learn to trust, clarify roles, communicate openly and effectively, appreciate diversity of ideas, and balance the Team's Focus.

***Goal 2. Examine the roles and responsibilities crucial for your success in college and beyond.***

Develop a plan of study by participating in appropriate academic advising.

- ✓ Familiarize yourself with CAP (in Goldmine) and match your classes with career objectives.
- ✓ You will turn in a copy of planned registration schedule (including list of prerequisites), degree plan, and unofficial transcript.

**Goal 3.** *Identify, assess, and build on their strengths and experiences to develop academic and transitional strategies necessary for success in their academic, career, and life goals.*

You will reflect on your responsibility for and contribution to your own learning.

- ✓ Prepare an essay on why do you wish to become an engineer.

**Goal 4.** *Engage in research and critical thinking activities that demonstrate your ability to effectively integrate your learning within, across, and beyond academic settings.*

You will reflect on how the research process applies to their learning within, across, and beyond academic settings.

Students will:

- ✓ Work on MATH assignments in and out of class.
- ✓ Be given quizzes and test requiring use their critical thinking and solving skills.
- ✓ Attend the library orientation that will include how to find accurate sources and the ethical way to use them.
- ✓ Have a research project that will require them to use the library including finding and using books and newspapers in their research.
- ✓ Be required to explore databases to find an abstract from a research article related to their research project. They will need to review the research article to understand how it is different from “popular” articles.
- ✓ Conduct research for their final project. The project will include a written paper, a PowerPoint presentation, and/or a website, video and 3D printing. The instructor monitors their progress by asking students to submit drafts of project paper, timeline and other work that indicates their progress. The final project paper will include an annotated bibliography.
- ✓ Complete an end of the semester reflection essay about their overall experience in the course and their project/team assignments.
- ✓ Be introduced to the ethical definition with a workshop from the Office of Student Conduct and Conflict Resolutions (OSCCR).
- ✓ Learn about ethics through lectures and/or case studies which will include professional ethics and student ethical behavior as well.

**Goal 5.** *You will engage in campus and community activities to increase their sense of academic and social belonging.*

You will become familiar with the university’s student organizations.

Students will:

- ✓ Have presentations from various departments (including engineering) and offices in the university. These will be coordinated by your instructor or peer leader.
- ✓ Attend at least 2 social, cultural or intellectual events and be asked to turn in a short description of the event.
- ✓ Be required to take your written assignment to the Writing Center, have it corrected, and then turn in both the draft with comments and the corrected version together.
- ✓ Attend a one-on-one conference at least once with Instructor and at least once with Peer Leader (this will count as an assignment for credit/grade).
- ✓ Communicate with your Instructor and Peer Leader throughout the semester via email and/or Blackboard.
- ✓ Visit the Library to become familiar with databases, and where resources are located in the library. This orientation will be conducted by the assigned Librarian. This activity will be coordinated by your Instructor or Peer Leader.

- ✓ Attend the compliance presentation and meet with appropriate Academic or Departmental Advisor.
- ✓ Have the Peer Leader as a resource. The Peer Leader will also start each class session with announcements on campus events and opportunities for student involvement.
- ✓ Attend at least one Engineering related event such as Gold Rush, TCM, Student Organization meetings and/or activities.

### ***Resources and Support***

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Student will receive considerable support during the course. UNIV 1301 will be taught by an instructional team consisting of an instructor who is also a Pre-Engineering Program Advisor, a student Peer Leader, and a university librarian.

UTEP resources such as the Library, Writing Center, Math Resource Center, computer labs, Career Services, Counseling Center, and Tutoring Center will be recommended and incorporated for class activities and assignments.

### ***Grading***

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Attendance – 20%

Exams – 15%

Projects, Presentations, Research and Reports – 35 %

Homework, Quizzes, class participation, in-class and outside activities, Final Survey – 20%

Mentoring (both Professor and Peer Leader) - 10%

### ***Grading Scale***

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A = 100% - 90%

B = 89% - 80%

C = 79% - 70%

D = 69% - 60%

F = 59% or below.

UNIV 1301 is part of the UTEP Core Curriculum and requires a “C” grade or better in order to fulfill the Core requirement and successfully complete the course.

### ***Project***

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Student will have to work on two projects through the semester, one in-class and one out-of-class, and both will be based on engineering design and team development. There will be no make ups for projects.

### ***Presentation***

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Student will have two presentations during the semester, one of those based on research and the other based on a final Project. These presentations will be team based, and there will be no make ups for those.

## ***Research***

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There will be one research activity included for the class, and this will require the use of the UTEP library and the help of a librarian. One of these will be presented during class as a team assignment.

## ***Homework***

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Students will have one homework assignment as a minimum per week, and this will be based on class lectures and activities. Homework can be turned in at the beginning of the class time or by email as well.

Homework will have to be turned in at the beginning of the class, no more than ten minutes after the class start time. This rule also applies for homework sent through email. Ten points will be deducted from the grade for each day a homework assignment is late. An assignment may not be more than 4 days late; weekends and days when there is no class are counted.

Turning in homework after class time (3:10 pm during class day) will be taken as late homework, and the first 10 points will be reduced out of the maximum grade to be received. If for any reason the student cannot make it to the class, homework can be emailed to the Professor and Peer Leader before the class time when this homework is due. Homework will be received as late if homework is emailed after the 10 minutes tolerance period provided in class (Tuesday or Thursdays after 3:10 pm).

## ***Quizzes***

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Quizzes will be counted as in-class activities, and most of these will not be previously announced. There will be no make ups for quizzes they will count towards attendance as well.

## ***Exams***

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There will be two exams during the semester, which will include lecture material and assignments mostly. No make up for exams will be allowed.

## ***Final Exam***

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There will be **no** final exam for this class, but the final exam period time will be used for final project presentations. Attendance to final project presentation is mandatory; there will be no possible make up for these presentations after this time.

## ***Class Attendance and Participation***

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Class is intended to be interactive and student participation is extremely important. Consider that by only attending class you might already have 20% of your final grade. Moreover, during class time you will be able to participate in class assignments and activities, which are also part of another 20% of the grading. Unsatisfactory attendance consists of absences, tardiness, leaving classroom early, or coming to class unprepared to participate.

Students must come to class on time, and they must be prepared for class material since this is part of your daily homework. Material to be covered on the following class day will be announced. A good understanding of class material and class activities will also help with a student's participation.

If a student needs to be absent from a class, he or she needs to notify the Professor and/or Peer Leader by email or phone (no voicemail) prior to class time. It is the student's responsibility to get in

contact with the Professor, Peer Leader or classmates for missed lecture material, assignments, handouts or any pending homework.

Documented absences for school related activities, such as traveling with a team for school purposes, will be excused.

Non-emergency medical and dental care, legal matters, court appearances, work hours and interviews are not excused absences, and should be scheduled outside of class time.

*The student might be dropped after 6 unexcused absences.*

If the instructor is more than ten minutes late for class without previous notice or arrangements, class will be dismissed, and this will not count toward absences for the student. If a student arrives more than ten minutes late to the class, this will count as an absence, and by doing this frequently, the instructor will have the right to deny the student access to that class.

### ***Withdrawal and Dropping the class***

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Not attending classes does not constitute official withdrawal, and the professor might still not drop you from the class if this is not requested by the student. Make sure to talk to the professor if you stopped attending classes and need to be dropped from the course. If a student stops attending the course, this will be taken as absence and the student will receive a grade based on work completed and attendance. *The student might be dropped after 6 unexcused absences.* Students may drop the class and receive a WC before November 3<sup>rd</sup>. After this day, the professor might still be able to drop the student in cases of medical or family emergencies, but the student will need to contact professor and Peer Leader to make this request and must provide documentation.

### ***Activities***

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There will be in-class and out-of-class activities, which might be individual or group activities. In order to have the complete grade for these, students must participate in all the activities. Moreover, students will be required to attend a couple of UTEP events, which will be announced during the semester. There will be no make up for class activities because some of these activities may be based on UTEP events that occur only once a year.

### ***Reports and Format of Written Work***

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There will be a couple of formal reports required as part of research and project activities. These reports and all written assignments done outside of class must be typed using black or dark blue ink, 12 point Times New Roman or Calibri font, 1.5 spaced, on white paper. The heading of the paper must appear on the top right-hand side (first page only) and must include below information:

- Full Name:
- Date:
- Class Title:
- Assignment Title:

Make sure to staple or add a clip to your report if this includes more than one sheet of paper. Moreover, add the page number and total of pages to the bottom of each page, only if this report is more than one page (ex. Page 2 of 10).

Notes and in-class work that is required to be turned in must be legible and must include your information on the right top side of the paper as well.

The maximum or minimum length of the document will be specified as well.

### ***Final Survey***

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You will be receiving an invitation in your UTEP email to complete the ESP Student Feedback Survey online during the last few weeks of the semester. This is a required assignment and will count towards your final grade; make sure to complete it. IT will notify me when you have completed the survey, but will not show me your responses.

### ***UTEP E-mail Account***

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Student will need to have his/her UTEP email account ready at the beginning of the semester. Additional class and assignment information might be occasionally provided by email, and it is the student's responsibility to check his/her UTEP email account at least twice during the day. No emails from personal email accounts will be accepted either, and all emails for this class will require "UNIV 1301 Fall 2017" on the subject field.

### ***Cell Phone and Electronic Devices***

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Use of cell phones, smart watch or any electronic devices will be prohibited during class. Cell phones should be in silence mode or turned off before the class start. Use of cell phones or smart watches during class is disrespectful to the professor and classmates, and might distract them from lecture and activities. If a student is found using his or her cell phone or smart watch, or if cell phone is ringing during class, the student might be asked to leave the class and will not be allowed to come back until next class. Moreover, this will be considered an absence.

Use of web browser features during class time either on cell phones, smart watch, tablets or laptops will **not** be allowed in class unless the professor requires it and such use is related to class material.

Hand-writing notes are encouraged during class as part of the class objectives.

### ***Students with disabilities***

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Center for Accommodations and Support Services Policy: If you have or suspect a disability and need an accommodation, you should contact the Center for Accommodations and Support Services (CASS) at 747-5148, or at [cass@utep.edu](mailto:cass@utep.edu), or go to Room 106 Union East Building.

### ***Copyright Statement***

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Some of the materials in this course are copyrighted. Violation of US copyright law can result in civil damages up to \$100,000 for each work copied. Copying of textbooks is not "fair use" under the Copyright Act. The "fair use doctrine" only permits non-commercial copying of part (in general, not more than 10%) of a copyrighted work. Do not bring a copied textbook to this class. Your cooperation is expected

### ***Student Conduct***

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Academic dishonesty and discourteous behavior will not be tolerated.

Students must submit their own work. If a student is found to be cheating or plagiarizing, he or she will be subject to a disciplinary action, per the UTEP catalog policy:

(<http://catalog.utep.edu/undergrad/academic-regulations/student-life-policies-and-procedures/>).

Students are also expected to have a courteous behavior during class; they need to be tolerant, to listen and to respect other's opinions.

Harassment is unacceptable in the classroom. Moreover, racist comments or comments of a sexual nature will not be accepted or tolerated. In any of these cases, student will be sent to the Dean of Students for disciplinary action.

### ***Syllabus Change Policy***

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Except for changes that substantially affect the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.

### ***Important Fall 2017 Dates***

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- **September 4<sup>th</sup>**, Labor Day – No Classes
- **September 13<sup>th</sup>**, Census Day
- **October 1<sup>st</sup> to 7<sup>th</sup>**, Homecoming Week
- **October 30<sup>th</sup>**, Freshman Mid-Terms Grades Available
- **November 3<sup>rd</sup>**, **Couse Drop Deadline**
- **November 23<sup>rd</sup> and 24<sup>rd</sup>**, Thanksgiving – No Classes
- **December 8<sup>th</sup>**, Dead Day

### ***Other Important UTEP College of Engineering Dates in Fall 2017 and Spring 2018***

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- **August 30**, ACES Ballon Bambucha (Open House)
- **September 6<sup>th</sup>**, Gold Rush
- **September 21<sup>st</sup> and 22<sup>nd</sup>**, Career Expo
- **November 16<sup>th</sup>**, ACES Bike Rally (Get Ready for Finals)
- **December 16<sup>th</sup>**, Order of the Engineer and Hooding Ceremony
- **February 2<sup>nd</sup>**, Engineering and Science Expo
- **February 19<sup>th</sup> to 22<sup>nd</sup>**, Nationals Engineers Week
- **March 23<sup>rd</sup>**, TCM Celebration
- **May 12<sup>th</sup>**, Order of the Engineer and Hooding Ceremony



## Course Calendar

The following calendar is a general guide and might be *subject to change* during the semester.

<b>Week 1:</b>		
	Aug 29	<i>First day of classes. "Meet and Greet" in-class project activity. "Intro to engineering" project.</i>
	Aug 31	<i>Syllabus and getting to know your class. Questionnaire for students.</i>
<b>Week 2:</b>		
	Sept 5	<i>The Engineering Profession. Intro to the Engineering Disciplines.</i>
	Sept 7	<i>Career Services Presentation. Resume development.</i>
<b>Week 3:</b>		
	Sept 12	<i>Continuation for Intro to the Engineering Disciplines. Innovation and Engineering Design. Reflect in "Why do I want to become an Engineer?"</i>
	Sept 14	<i>Study Skills and Organization. Improving skills for academic survival: Listening Skills, Note-taking, annotation, reading. Resume due.</i>
<b>Week 4:</b>		
	Sept 19	<i>UTEP Edge – Talk about High Impact Practices.</i>
	Sept 21	<i>Units and Conversions. Significant Digits.</i>
<b>Week 5:</b>		
	Sept 26	<i>Student Conduct and Conflict Resolution Presentation.</i>
	Sept 28	<i>Basic Trigonometry</i>
<b>Week 6:</b>		
	Oct 3	<i>Compliance. Advising. Degrees. Catalog. Policies. GPA Calculation.</i>
	Oct 5	<i>Tinkercad &amp; 3DPrinterOS Presentation.</i>
<b>Week 7:</b>		
	Oct 10	<i>Linear Equations.</i>
	Oct 12	<i>Leadership Development. Team work. Advising and CAP training.</i>
<b>Week 8:</b>		
	Oct 17	<i>Exam Review.</i>
	Oct 19	<b><i>Exam 1.</i></b>
<b>Week 9:</b>		
	Oct 24	<i>Mentoring Students.</i>
	Oct 26	<i>Library Orientation. Research Project Assignment.</i>
<b>Week 10:</b>		
	Oct 31	<i>Ethics: Personal, Professional and Engineering. Test taking. Stress. Electronic Communication Etiquette.</i>
	Nov 2	<i>Quadratic Equations.</i>
<b>Week 11:</b>		
	Nov 7	<i>Wix WorkShop Presentation.</i>
	Nov 9	<i>Short Presentations for Research Project. Final Research Report Due.</i>

<b>Week 12:</b>	Nov 14	<i>Study Abroad Presentation.</i>
	Nov 16	<i>2D Vectors. 3D Printing project Due.</i>
<b>Week 13:</b>	Nov 21	<i>Math Resource Center. Writing Center. Tutoring services. IMovie Presentation.</i>
	Nov 23	<i>Thanksgiving. No classes.</i>
<b>Week 14:</b>	Nov 28	<i>Probability and Statistics.</i>
	Nov 30	<i>Counseling Center Presentation. Visit Library Writing Center for Final Report Review.</i>
<b>Week 15:</b>	Dec 5	<i>Final Class Review. Final Project Report Due.</i>
	Dec 7	<b><i>Exam 2.</i></b>
<b>Week 16:</b>	<b>Dec 14</b>	<b><i>Final Project Presentations: 4:00pm – 6:45pm.</i></b>