UNIV 1301 Foundations of Engineering
Course Syllabus Fall 2017

UNIV 1301 Seminar/Critical Inquiry - Foundations of Engineering

Classroom: Liberal Arts Building, Rm 103
CRN: 18887
Instructor: Bill Key
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Office Hours: 1:00 to 3:00 MW

Class Time: 3:00 - 4:30 PM MW
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Peer Leader: Yazmin Gomez Martinez
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Course Description
Engineers are problem solvers! In this course the student will learn to use the basic tools of engineering problem solving, no matter what kind of engineer he/she intends to be! We will explore engineering innovation, creative and critical thinking, and hand-on applications, making real-world connections to the magic of engineering and mathematics. Fundamental engineering competencies, technical and professional, will be introduced, developed, and practiced. This will include working in teams, generating ideas, communication, and trouble-shooting. The outcome for this course is to apply these competencies to solving engineering problems and to see how these same skills apply to solving problems throughout one’s academic and professional career.

Methods of Addressing Goals:
Foundations of Engineering for Fall 2017 consists of 4 base concepts with 20 learning modules cross connected to include the five Entering Student Program (ESP) Goals (See below for how we will be addressing each specific ESP goal). Each module addresses a learning purpose with outcomes, performance objectives, delivery methods, resources, and references.

Goal 1: Students will develop and apply elements of leadership through effective individual participation and meaningful team collaboration to empower them to be agents of change.

1.1 Student will assess and reflect on their strengths and leadership skill development.
1.2 Students will engage in active learning through individual, team, and class activities that develop their leadership skills.
1.3 Students will learn more about collaboration, roles, and facilitation skills through faculty instruction and student practice.
1.4 Students will develop effective interpersonal communication skills to include listening, sharing diverse perspectives, and soliciting others’ viewpoints.
1.5 Students will improve their interpersonal conflict management strategies.

**Students will:**

- Have at least 2 assignments. The first will be their own definition of leadership and examples of positive and negative experiences with leadership. The second one will an inventory their leadership skills.
- Participate in groups throughout the semester and be given rotating leadership roles (i.e., they may be leader in one group and a recorder in another).
- Self-assess their roles in the group 2-3 times during the semester.
- Be required to work within a team project and develop a project execution plan.
- Do an individual mid-project team evaluation for each of their teammates.
- At the end of the project, students will write about:
  
  1) What they learned from the project and how it applies to their career
  2) Their individual contributions
  3) What they would change

- Watch a video on conflict resolution and write a reflective journal entry.

**Goal 2:** Students will examine the roles and responsibilities crucial for their success in college and beyond.

2.1 Student will examine personal and social transition issues affecting college success.

2.2 Students will become familiar with importance of participating in high impact practices identified in the UTEP Edge.
2.3 Students will engage in at least one academic and one professional goal setting exercise or activity.
2.4 Students will demonstrate knowledge of the rules of academic integrity and will practice acceptable academic behavior.
2.5 Students will develop a plan of study by participating in appropriate academic advising.
2.6 Students will become familiar with major UTEP academic policies and requirements in order to remain in good academic standing and graduate in a timely manner.
2.7 Students will demonstrate regular use of university communication systems, such as email, bulletin broadcasts, websites, and Mobile campus.

**Students will:**
- Become familiar with high-impact practices through guest speaker and instructor PPT on high impact practices.
- Write journal entries and/or participate in small group activities and discussions about their personal and social transition affecting their college success.
- Attend at least an activity which is part of UTEP Edge, such as Gold Rush, Student Organization meetings, etc. and write a summary on it.
- Attend job fair on campus and discuss/have an assignment afterwards.
- Have a career-related presenter or a guest speaker presentation.
- Have a presentation on various topics by an Academic Advisor.
- Participate in class or group discussion that covers what constitutes academic integrity and the penalties for breaking UTEP rules regarding the same.
- Communicate with their instructor at least once during the semester using their UTEP email.
- Be given assignments via email, Blackboard, etc. and will be required to submit assignments electronically also.

**Goal 3:** Students will identify, assess, and build on their strengths and experience to develop academic and transitional strategies necessary for success in their academic, career, and life goals.

3.1 Student reflect on their responsibility for and contribution to their own learning.

3.2 Students will work to improve their academic success strategies such as note-taking, annotation, active reading, test taking, time management, and stress management.

3.3 Students will work to improve their oral, written, and electronic communication skills.

3.4 Students will become familiar with learning management systems such as Blackboard.

3.5 Students will examine their academic career, and life goals by participating in at least one self-assessment activity about their interests, abilities, and values.

3.6 Students will participate in at least one activity, exercise, or information session to become familiar with the steps, including post graduate education, required to prepare

**Students will:**
- Write journal entries reflecting their own learning.
- Write at least one essay about why they want to be the type of engineer they have chosen.
• Write a final project report about their project with a section on what they contributed to their team and overall work experience.
• Have access to Blackboard and will be required to complete assignments via Blackboard.
• Have a presentation on study skills and will complete activities on them. Some activities will require students to make small presentations and/or participate on in class discussions.
• Be required to take quizzes and/or participate in assigned work via Blackboard.
• Be given assignments via email, Blackboard, etc., and will be required to submit the assignments electronically also.
• Submit their resume to their instructor for feedback after it has been reviewed and stamped by Career Services.
• Complete a journal entry or short paper which defining their long-term and short-term personal and academic goals.

Goal 4: Students will engage in research and critical thinking activities that demonstrate their ability to effectively integrate their learning within, across, and beyond academic settings.

4.1 Students will engage in critical thinking and problem-solving through an individual, team and class activities.
4.2 Students will demonstrate the ability to develop an effective research strategy based on the specifications of the research assignment.
4.3 Students will engage in library and research database.
4.4 Students will locate and critically evaluate the reliability, validity, and accuracy of sources.
4.5 Students will develop a project that involves critical evaluation and effective integration of sources.
4.6 Students will demonstrate the ethical use of sources such as accurate paraphrasing, quotations, and citations.
4.7 Students 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 in class exercises, quizzes (15 to 20 minutes long) and hour and half exams requiring use of their critical thinking and problem 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 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 PPT presentation, and a physical model. The instructor will monitor their progress by asking the students to submit drafts of paper, timeline and other work that indicates their progress. The final paper will include and annotated bibliography.

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

5.1 Students will begin to build networks of faculty, staff, and peers to create a supportive and positive learning environment.
5.2 Students will attend/participate in a minimum of two social, cultural, and intellectual events at UTEP.
5.3 Students will become aware of and use selected academic and student resources.
5.4 Students will meet one-on-one in person or virtually at least twice with instructional team to discuss and receive feedback about their academic progress and transition to UTEP.
5.5 Students will meet in person or virtually with at least two other faculty or staff members important to their academic progress such as their academic advisor, their other professors, teaching assistants and/or tutors.
5.6 Students will become familiar with the University’s student organizations.

Students will:
• Have presentations from various departments (including engineering) and offices in the University.
• 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 their written assignment to the Writing Center, have it corrected, and then turn in both the draft with comments and corrected version together.
• Attend a conference at least once with instructor and at least once with peer leader (this will count as an assignment for credit/grade).
• Communicate with the 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.
• Be required to attend compliance 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.
• Be required to attend at least one engineering related event such as Gold Rush, TCM, Student Organization meetings and/or activities.
At the end of the semester you will:

- Better understand your role, opportunities and responsibilities that impact your success within the context of the university.
- Have learned about and practiced essential academic skills necessary for the engineering curriculum.
- Have established the beginning of a network of faculty, staff, and peers in order to create a supportive and positive learning experience/environment.
- Begin to assess and better understand your own interests, abilities and values in order to more efficiently pursue your academic, career, and life goals.
- Become more knowledgeable about the services and resources available from UTEP for your use
- Have become a better writer and communicator, knowing more of the importance of writing and communication as it applies to the engineering field
- Gained experience in working in groups as a team member
- Have a better understanding of the various disciplines of engineering
- Have become involved in UTEP activities and campus resources.

**Required Course Texts and Materials**


2. Hand-held calculator for use on tests and in class exercises which will be turned in. Personal Digital Assistant (hand-held computer) is not permitted.

3. Sign up for a UTEP e-mail account at https://newaccount.utep.edu or call the Information Technology Help Desk (off campus: 747-5257; on campus, dial HELP or 4357).

4. Computer or access to a computer through the various locations at UTEP. These locations will be identified for you on the first day of class.

5. Flash Drive for Power Point Presentations.


**Learning Environment**

Team learning will be used in the classroom whenever it is appropriate. In order for team learning to be successful, each student must come to class prepared to participate. This means that you must complete reading assignments, library or Internet research, writing assignments, surveys, self-assessments, homework, and other assignments **BEFORE** you arrive for class.
**Calculator:** You will need an inexpensive scientific calculator for this class. Only models of calculators approved for the FE Exam are permitted for use in this class. These include any fx-115 Casio model calculator, all HP 33s and HP 35s models (Hewlett Packard) and all TI-30X or TI-36 models (Texas Instruments).

**Homework:** Homework is due at the beginning of the class period and is to be turned in to the peer leader. The peer leader will record only that you were homework was submitted on time. Homework is to be turned in before class begins.

It should be stapled and flat (do not fold). Late homework will only be accepted in the case of illness or an emergency; you are responsible for notifying your peer leader or me as soon as possible (before class) of the situation (illness or emergency) necessitating late submission of homework. **All writing assignments must be typed.**

Assignments (math) are to be done in pencil. Engineering computation paper is preferred. Blackboard submission of assignments are noted on the syllabus schedule.

**Attendance:** Attendance is mandatory; it is the key to your academic success. **After four unexcused absences you will be dropped.**

The grade that you receive will be a W until November 3, 2017, course drop deadline. After this date, the grade you receive will be a F.

Absences for University-recognized activities (such as athletics, band/orchestra, cheerleading, conferences or field trips), religious holy days, or military leave, will be excused only if I am notified before the absence occurs. You are responsible for obtaining notes, handouts, and assignments and for meeting the same deadlines as the rest of the class.

Refer to UTEP’s 2017-2018 Undergraduate Catalogue, Academic Regulations, Curriculum and Classroom Policies, Course Information, Class Attendance, for required excuse action.

There is no make-up for class work that you miss due to an absence unless it was caused by carrying out University business, observing a religious holy day, military leave, or was a professionally documented medical or legal emergency.

**Classroom Etiquette:** Part of being a professional is being on time and being prepared to do your job. This applies to your career as a student as much as it does to your future career as an engineer. Coming to class late is unprofessional and is very disruptive to the class. You are expected to be in the class and prepared to participate at the scheduled start time. If you are late to class, you are to come in quietly and take your
seat. **DO NOT** attempt to turn in assignments; nor pick up handouts, do this when class is over.

Mobile Phones are to be kept in your briefcase, **not on the desk.**

**Ear Buds are to be removed from ears at all times.**

**The Center for Accommodations and Support Services (CASS):** Students with special needs that are registered with CASS are to contact me immediately so that we can work out accommodations for your needs. CASS may be contacted at 747-5148, cass@utep.edu or go to Room 106 Union East Building.

**Grading:**

The grading scale is:

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<th>90 – 100</th>
<th>80 – 89</th>
<th>70 – 79</th>
<th>60 – 69</th>
<th>&lt; 60</th>
<th>F</th>
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<td>B</td>
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Your grade will computed based on the following percentages:

- **Class Participation and end-of-semester survey**  
  (See note below regarding end-of-semester-survey) **5%**

- **Homework:** Mathematical/Critical Thinking  
  Problems/Textbook\(^1\) **15%**  

- **Library Research Projects (2 total)** **5%**

- **Career Expo Report** **5%**

- **One on One meeting with Instructor and Peer Leader** **5%**

- **Presentations** **5%**

- **Resume** **5%**

- **Project** **25%**

- **Exams** **20%**

- **Final** **10%**

**End-Of-Semester-OnLine Survey:** There will be an end-of-semester-survey assessment. This survey will be completed on-line by every student. **Student is to note that a percentage of his/her grade depends upon completion of this survey.**
**Homework via Email:** Some Homework assignments will be given via email. There will be no other announcement, only email. Students are responsible for continuously monitoring their UTEP email account and keeping it active and working at all times.

**Teamwork/Class Work:** In this class there will be numerous occasions where students work within a small group. You participation will be observed and noted. A portion of the 5% of the in class presentations component will be based on your interaction.

**Exams:** There will be two 1-1/2 hour exams and a final exam.

**Scholastic Integrity/Academic Honesty** - In accordance with University regulations, scholastic dishonesty on a given assignment will be referred to the Dean of Students and may result in a zero on the assignment, an "F" in the course, or even suspension from the university. If you need assistance with your assignments, please consult authorized sources of help. “Plagiarism” is the unattributed use of someone else's work -- a classmate's, a website’s, even a teacher's from another course. For more information on Scholastic Dishonesty and/or Plagiarism, consult the Handbook of Operating Procedures: Student Affairs, which is available in the Office of Student Life.

**Syllabus Change Policy** - Except for changes that substantially affect the grading percentages this syllabus is a guide for the course and is subject to change without advance notice.

When changes to the Syllabus occur you will be sent an email notification and syllabus revision will be posted on Blackboard.

It is your responsibility to be aware of all policies and information herein. If there is anything you do not understand ask the instructor.

**Drop Date** - Last Day student can drop the class without receiving a grade is November 3, 2017.

**Meeting with Instructional Team:** Student is required to meet with peer leader and instructor as part of the overall grade. The peer leader will schedule an initial meeting with the student and then schedule the meeting with instructor. Meeting between instructor and student will be approximate 30 minutes in length. Student is to be available for this length of time.

**Journal** - Activities noted below followed by the letters (JE) require the student to write a Journal Entry which reflects on this activity or assignment. This reflection is to include as a minimum, how you benefitted from it, what you thought of it, and how it could be improved upon. Journal entries are to be prepared by the student and are due the next class period. However, Instructor may or may not ask for them. All Journal Entries are to be turned in a bound folder in sequential order on the day of the final.
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| 8/28 M| What UNIV 1301 is about and how it will benefit the student | Brief review of must know items of Syllabus and Brief review of the different activities the students will undertake in this class  
Brief Presentation by Peer Leader on how to access and use Blackboard  
Watch 2 short videos on leadership  
Brief Power Point Presentation on Leadership  
Break into groups (selected by instructor) to discuss the leadership characteristics portrayed on the videos (JE)  
Homework Assignment No. 1, due 8/30:  
- Purchase textbook and flash drive  
- Write a one-page essay on leadership characteristics that matter to you.  
- Read the UTEP Edge as posted on Blackboard.  
- Watch Pieper Alpha Explosion as posted on Blackboard. Be prepared to discuss in class.  
- Attend “ACES Balloon Bambucha (Open House)” be prepared to discuss in Class. |
| 8/30 W| Brief Class Exercise on Critical Thinking Chapter 1 | Class will divide into groups and discuss YouTube video of Pieper Alpha catastrophe. This will be an exercise in Critical thinking. Each group will present their conclusion as to which Engineering Discipline was responsible for the disaster.  
Instructor will present the UTEP Edge to students. Students will discuss in groups (same groups as above) then write a brief summary of what the UTEP Edge means to them. (JE)  
Homework Assignment No. 2, due 9/11: Read Chapter 1 of Textbook. Problems 1, 2 & 8. For Problem 8, read an abbreviated type biography of one of the people on the attached list. Write a one-page report on what you found interesting or inspiring. Biography will be due on 9/11, a Power Point presentation will be due on 9/25. Next class session will be at Library. Do not come to classroom. Meet in library lobby (next to Starbucks) look for classmates and me. There will be a homework assignment associated with library visit. Bring a hard copy of Library Research Assignment 1 (attached to this document) with you. |
<p>| 9/4 M | Labor Day | No class. Student is attend Gold Rush on 9/6 and be prepared to discuss his thoughts about this social activity in class. |</p>
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<tr>
<td>9/6 W</td>
<td>Library Visit</td>
<td>Meet in library lobby (next to Starbucks) look for classmates and me. Homework Assignment <strong>No. 3, due 9/11</strong>: Complete Library Research Assignment 1, submit electronically to Peer Leader.</td>
</tr>
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| 9/11 M| Career Counseling Presentation by Claudia Dominguez Group | Students will begin preparing their resume for submission. See note 1 at the end of this table for details concerning Resume preparation and Submission.  
Career Expo Assignment See note 2 at the end of this table  
Next class session will be at UGLC Computer Laboratory. Do not come to classroom. Meet in Room 202 of UGLC. |
| 9/13 W| UGLC Computer Lab                                | Do not come to classroom. Meet in Room 202 of UGLC.  
Tasks that are necessary for all engineers at all levels need to be able to do are: (1) tabulated calculations, (2) plots of rows/columns of engineering data, and (3) Excel solver.  
Homework Assignment **No. 4, due 9/18**: From beginning of boiler operation until 1950 plot number of people killed (y-axis) vs year. Be able to explain why the curve falls off dramatically. |
| 9/18 M| Linear Equations                                 | Discussion on Applications of Linear Equations what they are and how they are used.  
Homework Assignment **No. 5, due as noted**:  
(1) Homework Problems 101 thru 103 posted on Blackboard. **Due 9/20**  
(2) Library Research Assignment No.2. This problem will be worked in teams of 2. Instructor will assign teams. See Blackboard for details of assignment. **Due 9/27. (JE)** |
| 9/20 W| Linear Equations (con't),                        | Homework Assignment **No. 6, due 9/25**:  
(1) From beginning of boiler operation until 1950 plot in the form of year (no of people killed) vs. year. Be able to explain why the curve falls off.  
(2) Homework Problems 104 thru 105 posted on Blackboard.  
(3) Read Chapter 2, problems 2 & 5. **Be prepared to discuss your answers in class.** |
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<tr>
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<tr>
<td>9/25 M</td>
<td>Chapter 1/2 &amp; In Class Presentations</td>
<td>Completion of Chapter 1 start of Chapter, PPT concerning biographies of problem 8.</td>
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<tr>
<td>9/27 W</td>
<td>Dr. Misra, Chair of Metallurgy/Material Science Department on Engineering Careers in a Material World &amp; Chapter 2</td>
<td>A Power Point presentation by Dr. Misra, Chairman of the UTEP's Metallurgy and Materials Science Department, highlighting and defining careers and open to them upon completion of a Metallurgy degree. (Availability of Dr. Misra is subject to change but in any case a Professor of Metallurgy will present.) (JE)</td>
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</tbody>
</table>
| 10/2 M    | Class PPT’s & Quadratic Equations                                           | PPT presentations by teams for Library Research Assignment 2.  

Homework Assignment **No. 7, due 10/4:**  
Homework Problems 104 thru 106 posted on Blackboard. |
| 10/4 W    | Quadratic Equations                                                         | Homework Assignment **No. 8, due 10/9:**  

(1) Homework Problems 105 and 106 posted on Blackboard.  
(1) (2) Read Chapter 3, problems 2 and 5. **Be prepared to discuss your answers in class.** |
| 10/9 M    | Chapter 3 & Review for Test                                                 |  

| 10/11 W   | **Test no.1**                                                              | Next class session will be at UGLC Computer Laboratory. Do not come to classroom. Meet in Room 202 of UGLC. (JE) Required for Academic Advising Presentation |
| 10/16 M   | Academic Advising                                                          | **Do not come to classroom. Meet in Room 202 of UGLC.**  

3-D Modelling. There will be an in class problem to be turned in upon completion. It will be treated as a homework problem. (JE) |
| 10/18 W   | UGLC Computer Lab                                                           |  

| 10/23 M   | Project Initiation                                                         | Instructor will present the Project required for this class to the Students.  

Students/Instructor will organize the project Groups. Students will spend the remainder of the class in these groups.  

Groups will work on a “Project Execution Plan” to be turned in at the end of class.  

Homework Assignment **No. 9, due 10/25:**  
Read Chapter Four, problems 3, 6, and 7. **Be prepared to discuss your answers in class.** |
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| 10/25 W| Chapter Four                                    | Chapter Four addresses Time Management and Strategy for taking tests. Guest Speaker will present to Students on these subjects in detail. In class exercise on Active Reading: Turning written text into Schematic, “Rio Grande Leakage, 1950 through 1964.”  
Homework Assignment **No. 10, due 10/30:** Go to any Internet Website and read/study Newton’s 2nd Law. Come prepared to take a quiz on what this law is and how to apply it. |
| 10/30 M| Unit Conversion                                  | Discussion on how Metric and English connected via Newton’s 2nd Law and in class test on Newton’s 2nd Law.  
Homework Assignment **No. 11, due 11/1:** Homework Problems 107 thru 109 posted on Blackboard. Homework to be submitted via Blackboard.                                                                                                                                                     |
| 11/1 W | Unit Conversion                                  | Homework Assignment **No. 12, due 11/6:**  
(1) Homework Problems 110 and 111 posted on Blackboard.  
(2) Read Chapter Five, problems 3, 6, and 7. **Be prepared to discuss your answers in class.**                                                                                                                                                                                                 |
| 11/6 M | Chapter Five                                    | **Homework Assignment, due 11/20.** Library Research Assignment 2. Students to access via Blackboard. Students are to submit the required research via Blackboard.                                                                                                                                                                                                 |
Presentations by Students Sections of ASME, ASCE, and IEEE.  
Homework Assignment **No. 13, due 11/13:** Go to the National Institute of Standards (NIST) Website and read/study. **Be prepared to take a quiz on who they are, what they do, and some of the public software they have that might be useful to Engineering Students.** |
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<tr>
<td>11/13 M</td>
<td>Unit Conversion</td>
<td>Final Review of S.I. to Metric and Metric to S.I and in class exercises. <strong>JE</strong> required concerning Instructor’s presentation of Unit Conversion. National Institute of Standards is the U.S.’ source for all measuring standards.</td>
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<td></td>
<td>And National Institutes Of Standards</td>
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<td></td>
<td>Exercise in Critical Thinking</td>
<td>In Class Exercise on Critical Thinking: “Reading Engineering Drawings”. Each student will be given the flow scheme (diagram) of the West Afton Combined Cycle Gas Turbine Power Plant. Students are to determine a physical parameter change (Temperature, Pressure, and Heat) across a device in the plant. All information is contained on drawing. It only involves reading and thinking. (Many working Engineers struggle with this) <strong>(JE)</strong></td>
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<td>Homework Assignment <strong>No. 14</strong>, due <strong>11/15</strong>: Read Chapter Six, do problems 3, 6, and 7. <strong>Be prepared to discuss your answers in class.</strong></td>
</tr>
<tr>
<td>11/15 W</td>
<td>Chapter 6</td>
<td>Homework Assignment <strong>No. 15</strong>, due <strong>11/20</strong>: Go to any Website on Triangulation read/study. <strong>Be prepared to discuss your in class.</strong></td>
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<tr>
<td>11/20 M</td>
<td>Trigonometry &amp; Triangulation</td>
<td>Homework Assignment <strong>No. 16</strong>, due <strong>11/22</strong>: Homework Problems 112 and 113 posted on Blackboard.</td>
</tr>
<tr>
<td>11/22 W</td>
<td>Trigonometry &amp; Triangulation</td>
<td>Homework Assignment <strong>No. 17</strong>, due <strong>11/27</strong>: Problems 114 and 115 posted on Blackboard.</td>
</tr>
<tr>
<td>11/27 M</td>
<td>Test No.2</td>
<td>Homework Assignment <strong>No. 18</strong>, due <strong>11/29</strong>: Read Chapter Seven, do problems 1 and 9. <strong>Be prepared to discuss answers in class.</strong></td>
</tr>
<tr>
<td>11/29 W</td>
<td>Chapter 7</td>
<td>Homework Assignment <strong>No. 19</strong>, due <strong>12/4</strong>: Read Chapter Eight, do problems 1, 2 and 6. <strong>Be prepared to discuss answers in class.</strong></td>
</tr>
<tr>
<td>12/4 M</td>
<td>Chapter 8 &amp; Exercise in Critical Thinking</td>
<td>In class exercise on computing the Earth’s radius with simple rules of geometry. Done in originally around 100 A.D. by a Greek living in Egypt and he had not had high school geometry.</td>
</tr>
<tr>
<td>12/6 W</td>
<td>Project Presentation</td>
<td>In class presentation of Projects/Review for final See Note 3 for <strong>JE</strong> regarding final project. Homework due day of Final: Journal</td>
</tr>
<tr>
<td>12/11 M</td>
<td>Final Exam</td>
<td>1:00 PM to 3:45 PM</td>
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**Notes:**
1. Student will prepare an initial version of his resume as per the guidelines set forth in the lecture by Career Counseling. Student is take this version to UTEP’s writing center. The
Center's advisors will mark up and correct the resume. This “marked up” version and the corrected version are to be turned in together. Resumes are due by 11/27.

2. Career Expo is September 21st and 22nd, 9:00 AM – 2:00 PM at Don Haskins Center. Students will attend and submit the following as part of their assignment:

- Two business cards from Company Representatives
- Obtain each from representative what is unique/special about their company.
- Write a one page essay including the above and what you got out of this and how you felt about being a freshman in this environment.

3. The Journal Entry for the Student Project has different requirements. These requirements are

1) What you learned from the project and how it applies to your career
2) Your contribution to the group’s effort
3) What you would change
# Famous Engineers and Scientists

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adair, Red</strong></td>
<td>(extinguishes oil well fires, played by John Wayne in 1968 Movie “Hellfighters”)</td>
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<tr>
<td><strong>Archimedes</strong></td>
<td>(Ancient Greek Inventor)</td>
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<tr>
<td><strong>Barden, John</strong></td>
<td>(American Physics College Professor, Invented transistor, only man in history to receive two Nobel prizes in physics)</td>
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<tr>
<td><strong>Bessemer, Henry</strong></td>
<td>(Invented and perfected a commercial steel making process)</td>
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<tr>
<td><strong>Blatch, Nora</strong></td>
<td>(Inventor and woman suffragette)</td>
</tr>
<tr>
<td><strong>Bose, Amar</strong></td>
<td>(Inventor of Bose Speaker)</td>
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<tr>
<td><strong>Bose, Sir J.C.</strong></td>
<td>(Scientist gave first public demonstration of electro transmission of radio waves)</td>
</tr>
<tr>
<td><strong>Bruneleshi, Filippo</strong></td>
<td>(Designer and Construction Manager of Domo in Florence, Italy)</td>
</tr>
<tr>
<td><strong>Bush, Vanevar</strong></td>
<td>(United States Government’s Chief Technical Officer during WWII. All technical issues that could not be resolved between military and scientists ended up on his desk)</td>
</tr>
<tr>
<td><strong>Crowe, Frank</strong></td>
<td>(Site Engineer and Construction Manager of Hoover Dam, known as “hurry up Crowe”, finished project years ahead of schedule due to his innovative thinking)</td>
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<tr>
<td><strong>Damott, William</strong></td>
<td>(Invented safety devices for switching rails, Black Engineer with a real gift for Mechanical Design)</td>
</tr>
<tr>
<td><strong>Diesel, Rudolph</strong></td>
<td>(Inventor of the Diesel Engine which off the shelf achieves same efficiency as modern turbines with years and years or R&amp;D behind them)</td>
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<tr>
<td><strong>Escalante, Jaime</strong></td>
<td>(Mathematics teacher who achieved extraordinary results with impoverished students. Deserves to be on the list with any group of distinguished Engineers and Scientists)</td>
</tr>
<tr>
<td><strong>Fermi, Enrico</strong></td>
<td>(manager of project that established world’s first nuclear chain reaction)</td>
</tr>
<tr>
<td><strong>Francis, James B.</strong></td>
<td>(invented and perfected first turbine used in dams. His turbine style will be used in world’s largest dam on the Yangtze River.)</td>
</tr>
<tr>
<td><strong>Gibbs, J. Willard</strong></td>
<td>(American’s most famous Scientist, worked a couple of years at Yale for free, has a variable, phase rule, and three thermodynamic distributions named after him)</td>
</tr>
<tr>
<td><strong>Groves, Leslie, Major General</strong></td>
<td>(Project Manager of the building of the Atomic Bomb. The largest project ever done. Huge percentage of)</td>
</tr>
</tbody>
</table>
America’s most elite scientist were working on this.

The implementation and fabrication of their efforts was managed by this man.)

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<td><strong>Guillet, Leon</strong></td>
<td>(came up with the alloying elements of Stainless steel)</td>
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<tr>
<td><strong>Hughes, Howard, Jr.</strong></td>
<td>(entrepreneur, industrialist, pilot, played,</td>
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<tr>
<td></td>
<td>Leonard Di Caprio’s in movie “Aviator”)</td>
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<tr>
<td><strong>Imhotep</strong></td>
<td>(Architect and Builder of first pyramid)</td>
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<tr>
<td><strong>Johnson, Kelly</strong></td>
<td>(Designer, Chief Engineer during production of SR-71 Blackbird spy plane and U-2 spy plane)</td>
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<tr>
<td><strong>Kilby, Jack</strong></td>
<td>(Invented integrated circuit, where would we be without this)</td>
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<tr>
<td><strong>Kinley, Myron Macy</strong></td>
<td>(designer and inventor tools used in putting</td>
</tr>
<tr>
<td></td>
<td>out oil well fires)</td>
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<tr>
<td><strong>Kwolek, Stephanie</strong></td>
<td>(Inventor of Kevlar, used in all bullet proof</td>
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<tr>
<td></td>
<td>vests today)</td>
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<tr>
<td><strong>Kranz, Gene</strong></td>
<td>(Man in Charge of bringing back Astronauts of Apollo 13, after the explosion on board capsule. He was played by Ed Harris in the movie)</td>
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<tr>
<td><strong>Marconi, Guglielmo</strong></td>
<td>(Inventor of wireless radio transmission,</td>
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<td></td>
<td>essentially the great great-grandfather of Wifi)</td>
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<tr>
<td><strong>Metcalf, Robert</strong></td>
<td>(Inventor of the Internet as part of Xerox Corporation research team)</td>
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<tr>
<td><strong>Modjeski, Ralph</strong></td>
<td>(Chief Construction Engineer San Francisco Oakland Bay Bridge)</td>
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<tr>
<td><strong>Mulholland, William</strong></td>
<td>(Engineered water supply system of Los</td>
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<tr>
<td></td>
<td>Angeles, this design causing severe water shortage problems in rural California now)</td>
</tr>
<tr>
<td><strong>Nobel, Alfred</strong></td>
<td>(Invented dynamite and commercial production thereof)</td>
</tr>
<tr>
<td><strong>Ochoa, Ellen</strong></td>
<td>(Astronaut)</td>
</tr>
<tr>
<td><strong>Resnick, Judith</strong></td>
<td>(Astronaut, died in Challenger explosion)</td>
</tr>
<tr>
<td><strong>Rickover, Hyman</strong></td>
<td>(Supervised design, building, and operation of United States Navy’s vast fleet of Nuclear Powered Vessels)</td>
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<tr>
<td><strong>Ride, Sally</strong></td>
<td>(first woman Astronaut)</td>
</tr>
<tr>
<td><strong>Rumford, Count</strong></td>
<td>American Born English Scientist who identified the phenomena that heat has a mechanical equivalence.</td>
</tr>
<tr>
<td><strong>Timshenko, Steven</strong></td>
<td>(Famous Civil Engineer, founder of most of the stress theories and analytical techniques used today)</td>
</tr>
<tr>
<td><strong>Trout, Charles Walter</strong> (Designer of Sucker Rod Pump, hundreds of which you see when driving from here to San Antonio or Fort Worth)</td>
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<tr>
<td><strong>Turing, Allan</strong> (invented logic statement as well as computer which could un-ravel German War Codes of WWII, single handily shortened the war by years)</td>
<td></td>
</tr>
<tr>
<td><strong>Wang, An</strong> (founder of Wang Laboratories and inventor of word processing)</td>
<td></td>
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<tr>
<td><strong>Watt, James J.</strong> (Inventor of the steam engine that ushered in the industrial age)</td>
<td></td>
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<tr>
<td><strong>Willcocks, William</strong> (Civil Engineer and hydrologist on the Nile)</td>
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</tbody>
</table>
Library Research Project No.1

UTEP started as a Mining and Metallurgical College in 1914. For this reason the library has an extensive collection of very old (100 years plus) technical journals on the subject of mining and metallurgy.

From one of the Journals below, with a publication date no later than 1930, select an article, or advertisement, or announcement that you find interesting and scan it. Then write a one page essay on why this appealed to you and what relevance it might have today.

- *The Mineral Industry*
- *The Mining and Engineering World*
- *Mining and Scientific Press*
- *The Mining World*
- *Mining and Metallurgy*
- *Metals and Alloys*
- *Arizona Mining Journal*

Your essay with article/advertisement/announcement is to be scanned and attached to your write up. It is to be submitted via email to the Peer leader no later than class time on the day it is due in Adobe Acrobat Format (PDF). **It is important to note that included in the scan must be the cover of the Journal, showing date, Title, and some sort of illustration.**