ENGR 110.001 – Introduction to Engineering & Technology - 81327

COURSE SYLLABUS: Spring 2020

INSTRUCTOR INFORMATION

Instructor: Gerald Patrick Carter
Distinguished Lecturer
Department of Engineering and Technology

Office Location: AG/ET 215
Office Hours: Tuesday (12:45pm – 3:15pm)
Thursday (12:45pm – 3:15pm)
Office Phone: 903-886-5706
Office Fax: 903-886-5960 (Inform instructor when fax is sent)
University Email Address: Patrick.Carter@tamuc.edu

Preferred Form of Communication: e-mail
Communication Response Time: within 48 hours (weekdays) to email

COURSE INFORMATION

Class Meeting Schedule: Meets 1/13/2020 through 5/8/2020
Class Meeting Dates: TR 9:30am – 10:45am
Classroom: AG/ET 125

Materials – Textbooks, Readings, Supplementary Readings

Textbook(s) Required: None
Software Required: Microsoft Office - MS Word, Excel, PowerPoint https://products.office.com/en-US/
Optional Texts and/or Materials: Engineering Fundamentals – An Introduction to Engineering, Saeed Moaveni, 5th Edition

Course Description

This course provides a solid foundation in fundamental skills needed for freshmen and transfer students to academically succeed and professionally prepare them for challenges within the disciplines of Engineering and Technology Management. The project-based assignments will provide students with opportunities to apply mathematics to solve engineering problems, acquire team working skills, practice written and verbal communication skills, and enhance problem solving and design skills. Early understanding of these skills will assist students throughout their undergraduate experience.

Prerequisites: MATH 142, or concurrent enrollment.

Student Learning Outcomes

Upon successful completion of this course, students will achieve the following learning outcomes:

Knowledge

- Describe the fundamental principles of engineering profession and the engineering design process.
- Recognize engineering disciplines, and professional & ethical responsibilities.
- Acquire knowledge on mathematical, chemical, and physical laws and related principles that students will practice during the coming years.
- Explain basic quantities such as length, time, mass, force, temperature, mole, and electric current and their related variables.
- Acquire knowledge on engineering computational tools to record, organize, analyze data.
- Describe the basic characteristics of materials such as metals, plastics, glass, and concrete.
- Apply mathematics to model and investigate engineering practices.
- Usage of 3D printers to realize rapid prototyping of engineering problem solutions.

Cognitive Skills

- Diagram, analyze and interpret engineering problems.
- Justify appropriate engineering techniques and necessary tools for problems solving.
- Verify and validate engineering designs or products via technical and software tools.
- Practice the fundamentals of teamwork, and effective communication skills.

Interpersonal Skills & Responsibility

- Demonstrate the capacity to function in multi-disciplinary teams:
- Teamwork to solve assignments.
- Team interaction on engineering project.

Communication, Information Technology, Numerical

- Demonstrate effective oral and written communication skills through:
- Team discussions.
- Class participation.
- Effective communication among team's members.
- Solving exam problems.
- Operate modern IT tools, including software and numerical techniques, to enhance team work and communication skills:
- Use IT tools and numerical techniques to solve assignments.
- Use IT tools and software to work on projects.
- Practice numerical techniques to answer exam questions.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Prerequisites: MATH 142, or concurrent enrollment

Students must be able to access the Internet, use the D2L learning management system, and use Microsoft Office tools (Word, Excel, PowerPoint).

Students should have working knowledge of use of a scientific calculator.

Instructional Methods

This course is an enhanced course. This means course materials and lecture notes will be provided via a course website. All announcements will be posted on the course website as well. Assignments will be asked to be submitted in class or on the course website. Students' grades for assignments and exams will be indicated on the submitted papers if available and on the course website.

The teaching methods in this course include lectures, class discussion, teamwork, projects, technical report writing, presentations, assignments, problem solving, case study, and simulations using software.

- **Exams:** The two exams will be closed book & closed notes. Relevant scientific formulas will be provided if needed in supplementary sheet. The use of personal phone is strictly prohibited during exams. **Student will need to bring a scientific calculator for quizzes and exams.** Makeup exam may be offered but an official permit for absence that fulfills University procedures must be provided to the instructor in timely manner.

- **Teamwork:** Assignments and projects will be worked in groups (teams) and the corresponding results of a team's effort will be submitted in single file for evaluation. Teams will be formed during

the first week of the semester and they will remain constant for the entire semester.

- **Assignments:** Solutions/Homework/Assignments should be submitted at the beginning of the class. Students in each team can freely communicate together, but independently of their colleagues in other teams. Each team will need to submit one solutions report per assignment. Unless otherwise instructed, solutions of an assignment will be due one week from the day it assigned. Unless prior arrangements are made with the instructor, no late submission of assignment solutions will be permitted.

- **Group Projects:** There will be 2 group projects prior to the Final Project. For each project, each team will be provided with a technical problem. The team will need to apply the 8-step engineering process to properly assess, design and manufacture an engineering solution for the problem. Students in each team can freely work together but be independent of other teams. Each team will have to submit a report that describes and analyzes the project and the main findings. Each team will also prepare a Powerpoint presentation documenting the solution and will present the presentation in class.

- **Final Project:** Each team will need to identify appropriate topic for practical engineering project (e.g., research, prototype, product or design) within the disciplines of Engineering & Technology Dept, subject to an endorsement by the instructor. Students in each team can freely work together but be independent of other teams. Each team will have to submit a report that describes and analyzes the project and the main findings and present the work in class (during week 15). The report should not exceed 10 pages double-space 12 font-size with 1-inch margins. Each team will also create a PowerPoint presentation that presents the project/findings. The presentation should not exceed 25 slides. Students need to practice the acquired knowledge and skills gained from this course in their project's report and presentation.

- **Extra Credit:** Opportunities for extra credit may be offered during the semester in the form of bonus quizzes, competitions, or to honor productive student's contributions. However, student's grade is not entirely covered of extra credit. You must do compulsory work to pass this course.

Student Responsibilities or Tips for Success in the Course

Attendance:

Attendance is a requirement for this course. The instructor will take attendance at each class. Class Attendance Requirement (one lateness = 1/2 absence)

# of Absences	0 – 3	4	5	6	7	>7
Points Deduction	0	-5	-10	-20	40	F

Late work is not accepted, unless student has an acceptable excuse proven by a doctor's note or any legal documentation.

Unless directed and/or approved by the instructor, only MS Office-compatible formats (.doc, .docx, .rtf, .xls, .xlsx, .ppt and .pptx) will be accepted for assignments and submissions. NO OTHER DOCUMENT OR FILE FORMATS WILL BE ACCEPTED.

Failure to comply with required document formats will result in late or rejected assignments (zero credit). Other specific formats may be dictated based on assignment and will be coordinated with/by the instructor prior to submission to assignment drop boxes.

Microsoft Word, Excel, PowerPoint, or Project files will be placed in the assigned drop boxes on D2L in the accepted formats only (identified above).

Note: Many students do not fully utilize the power within this document processing software. This can assist the user when they know how to use more of the functions in these standard tools. The use of the spelling and grammar checkers, page and section breaks, and APA templates is highly encouraged PRIOR to submission of assignments.

APA Formatting is required for all reports assigned during this class. Non-adherence to APA formatting will result in points deduction on the assignment.

To be successful in this class, the student must:

- Attend all classes (see Attendance/Lateness Policy below)
- Arrive for class on time (late arrival will count as an absence)
- Actively participate in class work and discussions (see Participation Policy below)
- Regularly log into the D2L course website to monitor grades, assignments, and directions from the Instructor.
- Perform research and homework supporting class learning objectives
- Participate as both an individual and as a team member on projects. Peer reviews will be collected for group projects to support group evaluation of team member performance.
- Prepare and provide presentations for research and/or projects
- Be proficient in the use of a scientific calculator to perform analysis and problem solving in the assignments, quizzes, and exams.
- Grammar and Spell check all assignments PRIOR to submission!

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100% (360-400 points)
B = 80%-89% (320-359 points)
C = 70%-79% (280-319 points)
D = 60%-69% (240-279 points)
F = 59% or Below (below 240 points)

Assessments

Attendance & Participation:	50 points (see Attendance Policy)
Assignments & Quizzes:	150 points
1st Presentation:	50 points
2nd Presentation:	50 points
Final (Team Project):	100 points
Total	400 points

Assignments/Quizzes/Exams/Calendar

See the matrix at the end of this syllabus for details.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:

https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

The syllabus/schedule are subject to change

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.

http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

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Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce
Gee Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services

http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

The syllabus/schedule are subject to change

COURSE OUTLINE / CALENDAR

Week	Week of	Unit/Topic	Notes
1	1/13	Unit 1 – Couse Intro, Intro to TAMU-C E&T Requirements for Degree Plans of E&T Department	HW 1 Assigned HW 2 Assigned
2	1/20	HW1 Presentation Unit 2 – Intro to Engineering Design Project 1 Introduced Makerspace/Safety Instructions	HW 1 Due Project 1 Assigned
3	1/27	Introduction to Solidworks Unit 3 – Engineering Ethics Case Studies Unit 4 – Engineering Communications/Resumes	HW 3 Assigned
4	2/3	Unit 5 – Fundamental Dimensions and Units	HW 2 Due
5	2/10	Project 1 Presentations Project 2 Introduced Unit 6 – Length & Length-Related Variables in Engr	Project 1 Due Project 2 Assigned
6	2/17	Unit 7 – Time & Time-Related Variables in Engr	HW 3 Due
7	2/24	Unit 8 – Mass & Mass-Related Variables in Engr Final Project Introduction	HW 4 Assigned
8	3/2	Quiz 1 (Units 1-8) Project 2 Workday Final Project Assignment	Quiz 1 HW 4 Due
9	3/9	Spring Break!	
9	3/16	Project 2 Presentations Unit 9 – Force & Force Related Variables	
10	3/23	Unit 10 – Temperature & Temp Related Variables	
11	3/30	Unit 11 – Electric Current & Related Variables	
12	4/6	Unit 12 – Math/Computational Engineering Tools	
13	4/13	Unit 13 Engineering Materials Quiz 2 (Units 9-13)	Quiz 2
14	4/20	[In-Class Activity] Final Project Preparation Workday	
15	4/27	[In-Class Activity] Final Project Preparation Workday	
16	5/4	Finals Week – Final Project Presentation Thursday 7 May 2020, 8-10AM, AG/ET 125	

Homework

1) **HW 1: Introduce yourself to the class (Individual HW)**
   a) Prepare a 5-minute “elevator speech” to introduce yourself to the class
      i) Name
      ii) Hometown
      iii) Engineering-field interest (IE, ConE, EE, Tech Mgmt, etc.)
      iv) Why you want to be an engineer or tech manager

v) Who/What influenced you to go into this field
vi) Something interesting about yourself
vii) Anything else you want to present to the group

b) Provide a written version in HW1 Dropbox on D2L by the due date/time
c) Present yourself to the class using notecard/notes from your elevator speech.

2) **HW 2: Meet your Faculty Advisor and review your program curricula flowchart/checklist with your FA (Individual HW)**
   a) Print a copy of your selected curricula flowchart and checklist
   b) Review both documents and prepare any potential questions for your Faculty Advisor
   c) Email/call your Faculty Advisor and set up an appointment to review your flowchart/checklist with our FA.
   d) Have your FA sign your flowchart/checklist
   e) Return a copy of the signed flowchart/checklist to your instructor by the due date/time

3) **HW 3: Resume (Individual HW)**
   a) Generate a resume for your target job
   b) Submit a copy in the HW3 Dropbox on D2L by the due date/time

4) **HW 4: Submit your final project presentation topic. (Group Project**)
   a) Generate a proposal for your final project as a group
   b) Submit to HW4 Dropbox on D2L by the due date/time

Quizzes

1) **Quiz 1:** Week 8 (Covers Units 1-8)
2) **Quiz 2:** Week 13 (Covers Units 9-13)