Texas A&M University – Texarkana
Introduction to Engineering Course Syllabus

Effective Date: Fall 2013

I. Course Number: ENGR 1201

II. Course Title: Introduction to Engineering

III. Semester Credit Hours: 2 credit hr (2 contact hrs)

Instructor: Kenny Irizarry, PE, REM
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IV. Course Description: This course provides an introduction to the engineering profession. Information on the different disciplines of engineering will be presented. Professional and ethical aspects of engineering are covered. An introduction to problem solving and the engineering design process with the utilization of various computer applications are covered. Various forms of technical communication are emphasized. Co-requisite: MATH 1314 or higher.

Goals: The main goals of this course are:

- to prepare students for the rigor of future engineering classes
- to provide students with a solid foundation of basic engineering skills
- to introduce students to the different engineering majors and career options

V. Course Delivery Method: Face to face.

VI. Required Textbooks/Resources: Thinking like an Engineer: An Active Learning Approach by E. A. Stephan, D. R. Bowman, W. J. Park, B. L. Sill, and M. W. Ohland (Prentice Hall, 2011 / ISBN-13: 978-0-13-606442-8

A scientific calculator will be needed for this course. (The library will have some calculators available for use on a first-come, first-served basis.)

VII. Student Learning Outcomes: Upon completion of this course, the student will be able to:

Course Objectives	ABET	Assessment
Communicate technical information effectively by correctly applying graphing conventions and composing clear and concise descriptions of experiments and projects.	g	Team Projects, Engineering Paper
Formulate and justify a solution to an engineering problem within a team structure. Develop an understanding of professional, ethical and societal issues appropriate to engineering.	d e f	Team Projects

Identify basic and derived dimensions and units; Express observations in appropriate units and perform conversions when necessary; Apply basic principles from mathematical and physical sciences to solve engineering problems.	a e	Quizzes, Exams, Team Projects, Final Exam
Use graphical techniques to create plots, sketch functions, and determine graphical solutions to problems.	e	Quizzes, Exams, Team Projects, Final Exam
Use software to enhance problem solution techniques, including entering, sorting and formatting data in a worksheet; applying functions, including mathematical, statistical, and trigonometric; create and format data into graphs.	k	Quizzes, Exams, Team Projects, Final Exam
Demonstrate problem solving techniques with spreadsheets, dimensions and units; use modeling techniques and interpret validity of experimental results.	b e k	Quizzes, Exams, Team Projects, Final Exam

This course is designed to satisfy the ABET Engineering Competencies specified in the table above. Engineering programs must demonstrate that their graduates have:

a. an ability to apply knowledge of mathematics, science, and engineering
b. an ability to design and conduct experiments, as well as to analyze and interpret data
c. an ability to design a system, component, or process to meet desired needs
d. an ability to function on multi-disciplinary teams
e. an ability to identify, formulate, and solve engineering problems
f. an understanding of professional and ethical responsibility
g. an ability to communicate effectively
h. the broad education necessary to understand impact of engineering solutions in global and societal context
i. a recognition of the need for, and an ability to engage in life-long learning
j. a knowledge of contemporary issues
k. an ability to use techniques, skills, and modern engineering tools necessary for engineering practice

Course Outline:

Chap.	Title	*Week*	*Key Dates**
1	Course Introduction/Everyday Engineering	*1*	
	Work on Engineering Paper	*2*	
1/2	Everyday Engineering/Ethics	*3*	
3	Design and Teamwork	*4*	
3/4	Design and Teamwork/Engineering Communication	*5*	
4	Engineering Communication/Review for Exam 1	*6*	
	Exam 1/Engineering Paper Presentations	***7***	***TBD***
5	SOLVEM (*Assign Team Project*)	*8*	
6	Fundamental Dimensions and Base Units/Universal Units	*9*	
7	Excel Workbooks/Excel Graphs	*10*	
8	Graphical Solutions/Review for Exam 2	*11*	
	Exam 2/SIMIO	***12***	***TBD***
	SIMIO	*8*	*8*
9	Programs and Functions	*13*	
10	MATLAB (*Team Project due following week*)	*14*	
	Team Project Presentations/Review for Final Exam	*15*	
	Final Exam	***16***	***TBD2***

**This calendar will be adjusted to the needs of the course. Changes will be based on the course progress. The in-class exam dates could be moved one or two days up or down. The Final Exam date is fixed and will not change.*

VIII. Methods of Evaluation:

Exams (2 @ 15%)	30%	300 pts
Final Exam	30%	300 pts
Quizzes/Homework (11, drop 1 @ 1%)	10%	100 pts
Engineering Paper	10%	100 pts
Engineering Paper Presentation	5%	50 pts
Team Project	15%	150 pts
Total	100%	1000 pts possible

X. Grading Scale:

A = 90-100%, B = 80-89%, C = 70-79%, D = 60-69%, F = 0-59%

Grading Rubric for Reports/Presentations					
	1	**2**	**3**	**4**	**Total**
Organization	Random or weak organization	Lapses in focus and/or coherence	Logical organization	Careful and/or suitable organization	
Development of Ideas	Minimal idea development, limited and/or unrelated details	Unelaborated idea development; unelaborated and/or repetitious details	Depth of idea development supported by elaborated, relevant details	Depth and complexity of ideas supported by rich, engaging and/or pertinent details; evidence of analysis, reflection and insight	
Graphics: Tables, Graphs, Drawings and Pictures	Student uses superfluous graphics or no graphics	Student occasionally uses graphics that rarely support text	Student's graphics relate to text	Student's graphics explain and reinforce text and presentation of ideas	
Mechanics	Student's presentation has four or more spelling errors and/or	Presentation has three misspellings and/or grammatical errors	Presentation has no more than two misspellings and/or grammatical	Presentation has no misspellings or grammatical errors.	
References	Few references.	Some references.	Use of references indicate ample research	Use of references indicated substantial research	
			Final Grade = (Points Awarded / Total Points) x Points Possible		

XI. Library/Media Resources Assessment:

A. Books/Periodicals/Electronic Data Bases/Software/Programs:

Resource	Available?		If "No," Est.Cost	Signature, Library Director	Comments (including availability of funds to acquire unavailable resource(s) and commitment to do so)
	Yes	No			
Engineering : an endless frontier / Sunny Y. Auyang. Cambridge, MA : Harvard University Press, 2004	X				
Engineering and related occupations [videorecording] Boulder, Co. : Delphi Productions, Ltd., c1997	X				
Engineering and scientific computations using MATLAB / Sergey E. Lyshevski. Hoboken : Wiley-Interscience, c2003	X				

B. Computing/Multimedia/Online Media Resources:

Resource	Available?		If "No," Est.Cost	Signature, Assoc. VP, IT	Comments (including availability of funds to acquire unavailable resource(s) and commitment to do so)
	Yes	No			
McGraw-Hill dictionary of engineering [electronic resource] New York : McGraw-Hill, c2003	X				

XII. Student Participation:

a. **Participation Policy:** You are expected to attend all lecture classes. Class attendance is very important since many of the exam questions will be drawn from the class lectures, demonstrations, and discussions. Taking good class notes is essential. Reading the chapter prior to coming to class is also recommended. You are expected to participate in all team project exercises.

b. **Course Etiquette:** You are expected to be courteous towards the instructor and your classmates. You are expected to be on time for lecture. Cell phones should be turned off during lecture. You should not talk to your classmates while I am talking or while one of your classmates is asking a question. If you have a question about the course material, ask me and I will be more than happy to answer your question.

c. **Discussion Board Standards:** Not applicable to this course.

XIII. Disability Accommodations: Students with disabilities may request reasonable accommodations through the A&M-Texarkana Disability Services Office by calling 903-223-3062.

XIV. Academic Integrity: Academic honesty is expected of students enrolled in this course. Cheating on examinations, unauthorized collaboration, falsification of research data, plagiarism, and undocumented use of materials from any source constitute academic dishonesty and may be grounds for a grade of 'F' in the course and/or disciplinary actions. For additional information, see the university catalog.

XV. A&M-Texarkana Email Address: Upon application to Texas A&M University-Texarkana an individual will be assigned an A&M-Texarkana email account. This email account will be used to deliver official university correspondence. Each individual is responsible for information sent and received via the university email account and is expected to check the official A&M-Texarkana email account on a frequent and consistent basis. Faculty and students are required to utilize the university email account when communicating about coursework.

XVI. Drop Policy To drop this course after the census date (see semester calendar), a student must complete the Drop/Withdrawal Request Form, located on the University website http://tamut.edu/Registrar/droppingwithdrawing-from-classes.html) or obtained in the Registrar's Office. The student must submit the signed and completed form to the instructor of each course indicated on the form to be dropped for his/her signature. The signature is not an "approval" to drop, but rather confirmation that the student has discussed the drop/withdrawal with the faculty

member. The form must be submitted to the Registrar's office for processing in person, email Registrar@tamut.edu, mail (7101 University Ave., Texarkana, TX 75503) or fax (903-223-3140). Drop/withdraw forms missing any of the required information will not be accepted by the Registrar's Office for processing. It is the student's responsibility to ensure that the form is completed properly before submission. If a student stops participating in class (attending and submitting assignments) but does not complete and submit the drop/withdrawal form, a final grade based on work completed as outlined in the syllabus will be assigned.

XVII. Student Technical Assistance:

- Solutions to common problems and FAQ's for your web-enhanced and online courses are found at this link: http://www.tamut.edu/webcourses/index.php?pageid=37
- If you cannot find your resolution there, you can send in a support request detailing your specific problem here: http://www.tamut.edu/webcourses/gethelp2.php
- Blackboard Helpdesk contacts:

Office hours are: Monday - Friday, 8:00a to 5:00p

Julia Allen (main contact) 903-223-3154 julia.allen@tamut.edu

Frank Miller (alternate) 903-223-3156 frank.miller@tamut.edu

Nikki Thomson (alternate) 903-223-3083 nikki.thomson@tamut.edu

XVIII. Additional Notes: The instructor reserves the right to modify this syllabus at any time as deemed necessary. Any modifications will be announced as soon as possible. The faculty of the College of Science, Technology, Engineering, and Mathematics is committed to the continuous improvement in the quality of instruction. Student input is important and will be obtained at the end of the course.