

Texas A&M University–Corpus Christi
College of Science and Technology
Engineering Technology

ENTC 1303 Introduction to Engineering Technology
Spring 2010

COURSE INFORMATION

Prerequisite: none Credit Hours: 3 (2-1)
Meeting Times: W 1:00-2:50 p.m. (Lecture), F 1:00-3:30 p.m. (Laboratory)
Meeting Places: ST 214 and TBA (Tours)

PROFESSOR INFORMATION

Dr. Ruby Mehrubeoglu (Dr. M.)
Office Address: ST 222B,
Office Phone: (361) 825-3378 FAX Number: (361) 825-5848
Office Hours: W 2:00 – 4:00 pm, F 3:30-4:30 pm, and by appointment
E-mail Address: ruby.mehrubeoglu@tamucc.edu

TEXTBOOKS

1. Introduction to Engineering Technology, Robert J. Pond, 7th Edition, Prentice Hall, 2008
2. Introduction to Engineering Technology and Engineering, V. Hawks and A. Strong, Prentice Hall, 2001, or latest edition

SUGGESTED READING

1. Studying Engineering: A Road Map to a Rewarding Career, Raymond B. Landis, “Discovery Press, 3rd Ed., 2007

COURSE DESCRIPTION

Engineering technology careers; professional and ethical responsibilities; technical laboratories and skills; solving engineering problems; use of software packages; health and safety issues; environmental issues; overviews of industrial equipment; plant tours. Prerequisite: None. Fall, Spring.

STUDENT LEARNING OUTCOMES

At successful completion of this course the student will be able to:

- Describe the roles and responsibilities of engineering technologists, and what are expected of them
- Understand and use experimental and data collection procedures used in the technical laboratory
- Analyze experiments and experimental data
- Identify and apply the basic principles of and scientific method of problem solving and engineering problem solving
- Describe the operations and applications of industrial equipment
- Identify, analyze and describe environmental, health and safety issues
- Define professional and ethical responsibilities in the engineering profession
- Analyze ethical issues in case studies
- Use hardware and software tools to solve basic engineering problems
- Demonstrate an ability to communicate effectively
- Apply unit conversions and statistical metrics to solve problems and analyze data

INSTRUCTIONAL METHODS

Methods and activities for instruction include the following: lectures, invited speakers, group discussions, homework assignments, tours of local industries, laboratory exercises and reports, exams, research, '1-minute engineer/technologist' oral presentation, and final oral presentation.

ASSESSMENT

Assessment is based on two exams, tour reports, homework, pop quizzes, lab reports, oral presentations, and a final exam. The final exam is comprehensive. You may examine the final exam within four weeks after the final grades are assigned. The final grade is computed as follows.

	Points		Total grade	Tentative Grade
Exam 1	15		$90 \leq \text{total}$	A
Exam 2	15		$80 \leq \text{total} < 90$	B
Tour reports	8		$70 \leq \text{total} < 80$	C
Homework + Pop Quizzes	10		$60 \leq \text{total} < 70$	D
Lab Reports	10		$\text{total} < 60$	F
'One-Minute Engineer/Technologist' Presentations	2			
Lego Robot Project	10			
Final Research Project/Presentation	5			
Final Exam	25			
Total	100			

MAKEUP EXAMINATIONS

No makeup examinations will be given except in the case of a documented extreme emergency, or university-accepted excuse. Makeup exams will be different from the regular exams and more challenging.

SUPPORT SERVICES FOR STUDENTS WITH DISABILITY

Refer to the University Catalog.

ATTENDANCE POLICY

You are advised to attend all lectures and participate in all field trips. If you miss a class period, you are responsible for learning the subject matter or announcements covered during your absence. If you miss a field trip, you will be asked to do a detailed research paper.

ACADEMIC HONESTY

Plagiarism and other academic dishonesty are not tolerated. Your attention is called to the University policy in the Student Handbook.

ASSIGNMENTS

Late assignments will only be accepted with penalty. There will be a 20 point deduction per late day from the total score of maximum 100. The instructor reserves the right not to grade, or grade only partially, any of the submitted assignment numbers.

FIELD TRIPS

Course requirements include participation in tours to local and/or regional industries. A major objective of the tours is to become familiar with the responsibilities of technicians, technologists, and engineers working in various technical positions. Another goal is to become familiar with the operations, equipment, and facilities of industrial plants. Tours will be normally scheduled during the laboratory time. There will be 3 to 5 field trips during the semester.

TENTATIVE WEEKLY SCHEDULE*

WEEK	Date	Textbook and other Reading	Lecture Topics*	Laboratory Topics and Exercises*
1	01/13, 01/15	Ch. 1 (Pond) pp. 261-263 (H&S)	Review of Syllabus; Review of Safety and security Procedures; Introduction to ET	Seminar; Using MS Word, MS Excel, and MS PowerPoint
2	01/20, 01/22	Ch. 2 (Pond)	ET Career Choices	ET Labs Tour; Intro to Lego Projects
3	01/27, 01/29	Ch. 3 (Pond) pp. 168-176 (H&S)	Preparing for ETs	PAC Tour*; (Lego Project prelab reports and concept maps due)
4	02/03, 02/05	Ch. 1, 2, 3, 4 (Hawks & Strong)	Library Tour* – Engineering Village; Engineer vs. Technologist, expectations, goals; ethics and professionalism	Lego Robot Projects – design, implementation, programming; Career Center Tour* and Report
5	02/10, 02/12	Ch. 5, 6, 7 (H&S), pp. 184-190	Solving Problems using the Scientific Method; Engineering Problem Solving;	Lego Project Presentations (Final Lego Robot Project Reports Due) Paper-plane Design prelabs and concept maps due
6	02/17, 02/19	Ch. 8, 9, 10 (Hawks & Strong)	Data presentation: Graphs, Charts, Diagrams	Paper-plane Design Problem using the Scientific Method/Engineering Problem Solving; Data representation and analysis with MS Excel;
7	02/24, 02/26	Ch. 4, 5 (Pond)	The Calculator, and Measurement Systems	Exam 1* , ‘One-Minute Technology’ Presentations; Calculator Exercises 7-Segment Display Lab
8	03/03, 03/05	Ch 6, 7 (Pond) pp. 205-213 (H&S)	Geometry and Trigonometry for Engineering Technologists; Technical Laboratory; Technical Writing	Campus Plant/Facilities Tours; ‘One-Minute Technology’ Presentations;
9	03/10, 03/12	Ch. 11, 12, 13 (Hawks & St.) Handouts	Elementary Statistics, ET and Environmental Issues; Engineering Tools (Intro to LabVIEW)	Plant Tour 1* ‘One-Minute Technology’ Presentations; Tools for Solving Engineering Problems; Introduction to LabVIEW;
10	03/17, 03/19	SPRING BREAK		
11	03/24, 03/26	Ch. 8 (Pond), Handouts	Guest Speaker* Personal Computer, Computer Networks, Internet;	Tools for Solving Engineering Problems; Exercises with LabVIEW.
12	03/31, 04/02	Ch. 9 (Pond) Handouts	Industrial Automation, PLCs Engineering Tools (Introduction to MATLAB)	Math Exercises for Solving Engineering Problems; Introduction to MATLAB
13	04/07, 04/09	Handouts	Engineering Tools (MATLAB)	Plant Tour 2*
14	04/14, 04/16	Ch. 10 (Pond)	Future in Technology; Project Management;	EXAM 2
15	04/21, 04/23	Ch. 14, 15, 16 (Hawks & Strong) pp. 214-221 (H&S)	Engineering Economics	Eng. Economics Problems
16	04/28, 04/30	Ch. 17, 18 (Hawks & Strong) pp. 256-260 (H&S)	Ethics case studies; Lifelong Learning	Final Project Presentations (PowerPoint); Video Project Presentation; CDs due

Final Exam Date: Friday, 7 May 2010, 1:45 p.m. - 4:15 p.m.

* Tentative Schedule; Subject to change

FOOD AND DRINK: Eating or drinking is NOT permitted in the labs. Students with food or drink will be asked to discard them, or leave the room.

ENGINEERING LIBRARY RESOURCES

The Mary and Jeff Bell Library houses substantial engineering reference materials available for research and coursework support. Designated coursework will require access and use of these resources as a portion of the grade for assigned work.

All students are required to utilize the resources in the Bell Library, and become particularly familiarized with the Engineering Village resources. Demonstration of the use of the library will be expected in the class assignments.

SAFETY: The safety of students, faculty, staff and visitors to the ET laboratories is of paramount importance to the ET program. You must follow all safety procedures and use personal protective equipment as required in each laboratory. Any student who attempts to use equipment without authorization or violates any safety policy or regulation will be immediately removed from the laboratory.

NOTICE TO STUDENTS WITH DISABILITIES: Texas A&M University-Corpus Christi complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services for Students with Disabilities Office, located in Driftwood 101, at 825-5816. If you need disability accommodations in this class, please see me as soon as possible.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services Office for assistance at (361) 825-5816.

ADVISING

The College of Science and Technology requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. The College's Academic Advising Center is located in Faculty Center 178, and can be reached at 825-6094.

Students are expected to meet with their Faculty Advisors every semester.

GRADE APPEALS

As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.