

Tompkins Cortland Community College
Master Course Syllabus

Course Discipline and Number: ENSC 137
Course Title: Introduction to Engineering

Year: 2023-2024
Credit Hours: 1

Attendance Policy: *To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. It is the responsibility of all instructors to distribute reasonable attendance policies in writing during the first week of class. Students are required to comply with the attendance policy set by each of their instructors. Students are not penalized if they are unable to attend classes or participate in exams on particular days because of religious beliefs, in accordance with Chapter 161, Section 224-a of the Education Law of the State of New York. Students who plan to be absent from classroom activity for religious reasons should discuss the absence in advance with their instructors. See college catalog for more information.*

Services for Students with Disabilities: *It is the College's policy to provide, on an individual basis, appropriate academic adjustments for students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities should contact the Coordinator of Access and Equity Services, to discuss their particular need for accommodations. All course materials are available in alternate formats upon request.*

Course Description

Students will be introduced to the study and practice of engineering with emphasis on the design process. Prerequisites: MATH 201; RDNG 116 if required by placement testing; prior completion or concurrent enrollment in both PHSC 211 and ENGL 101. 1 Cr. (2 Lab.) Spring semester.

Course Context/Audience

The course is a required second semester course in the Engineering Science, A.S. degree program. It is also appropriate for students considering engineering as a profession.

Basic Skills/Entry Level Expectations

Writing: WC College level writing skills are required. See course co-requisites or pre-requisites.

Math: MC College level math skills – Course requires college level math skills. See course description for co-requisite and/or prerequisite requirement(s).

Reading: R4 Before taking this course, students must satisfactorily complete RDNG 116 or have assessment indicating that no reading course was required.

Course Goals

As a result of completing this course, the student will have a good understanding of the study and practice of engineering and an appreciation of the demands and rewards in the design process.

Course Objectives/Topics

Objective/Topic	#	Hours
A discussion of the major engineering disciplines; design achievements; educational opportunities. Assignment: Web search of professional societies; engineering colleges; "hot" topics in various disciplines	1	Hours
A discussion of engineering programs and degree opportunities. Assignment: Planning a curriculum for transfer to specific programs and disciplines	1	Hours

A discussion of patent and copyright law as it affects engineering design. Assignment: Students will select an existing product (with a patent number shown) and find the patent documentation on a web site (Patent.café.com)	2 Hours
Effective presentation techniques (sketches, computer modeling); design rationale critiquing designs; public speaking. Assignment: Students will select a simple, existing design and present the rationale and explanation to the class.	2 Hours
Decision making techniques present worth analysis	1 Hour
CPM scheduling	1 Hour
Basic principles from physics and mechanics manifest in engineering design – statics, electricity, and dynamics. Assignment: Students will analyze simple existing designs and the basic principles behind them, e.g., vise grips, compound bow.	2 Hours
Some great designs are not physical “products”: organizational methods, computer languages, traffic control, etc.	1 Hour
Final Presentations: Students will design and present original design to the class and electronically to guest “critics.” Students will be graded both on their own designs and on critiques of others.	3 Hours
Special Topics: Guest lecturers from the local academic and industrial community and/or field trips.	1 Hour

General Education Goals - Critical Thinking & Social/Global Awareness

CRITICAL THINKING OUTCOMES	HOW DOES THE COURSE ADDRESS THE OUTCOMES (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
<p>Students will be able to</p> <ul style="list-style-type: none"> ➤ develop meaningful questions to address problems or issues. ➤ gather, interpret, and evaluate relevant sources of information. ➤ reach informed conclusions and solutions. ➤ consider analytically the viewpoints of self and others. 	Not addressed
SOCIAL/GLOBAL AWARENESS OUTCOMES	HOW DOES THE COURSE ADDRESS THE OUTCOMES (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
<ul style="list-style-type: none"> ➤ Students will begin to understand how their lives are shaped by the complex world in which they live. ➤ Students will understand that their actions have social, economic and environmental consequences. 	Not addressed

Instructional Methods

The instructional format should typically be one hour of discussion and one hour of presentations

Methods of Assessment/Evaluation

Method	% Course Grade
Class projects and assignments	80%
Class participation	20%

Text(s)

Engineering Design, Eggert, Rudolph J.,4th Edition, © © 2010 Prentice Hall.

Bibliography

Engineering and Cost Analysis; Collier and Ledbetter; 2nd. Harper Rowe

Other Learning Resources

Audiovisual Effective Public Speaking
Electronic Students will need internet access for some assignments.
Other No resources specified