Instructor: Tugba Arsava, PhD
Office Location: Annex 304
Office Hours: W 11-1. Additional office hours can be made available on request.
Email: arsavat@wit.edu
Telephone: (617) 989-4785

Meeting Times and Credits:

This is a three-credit course. There will be one hour of lecture per week and two laboratory
sessions per week. Each laboratory session is two hours long.

Attendance:

Attendance will be taken at every class meeting. Each student is expected to strive for 100%
attendance. Students beware: absentia leads to failure, plain and simple. Attendance is to be
taken seriously. Class attendance policy in general class policies section.

Catalog Description:

This course develops the skills needed during the student's study of engineering. Topics
include task/time management, effective use of notes, engineering research, oral and written
communications, problem-solving techniques, ethics and professional responsibility and
Institute resources. In the laboratory, students work in teams to complete a variety of
engineering tasks.

Textbook and required materials:

(1) Studying Engineering Ed. 4, By Raymond Landis - Discover Press

(2) iClicker 2
Prerequisites:

Freshman status in the biomedical, civil, computer, electrical, electromechanical, interdisciplinary, or mechanical engineering programs.

Goals:

A central goal of this course is to help the student develop the skills needed to succeed during his or her study of engineering. The Institute goal for this introductory course is to introduce the student to the various engineering disciplines, to understand an engineer's role both now and in the future, and to provide the student with the necessary and appropriate skills and awareness of the resources to complete successfully his or her program through the development of intellectual and interpersonal connections between the student and the Institute.

Course Objectives:

1. The student will develop an objective of what engineering study entails.

2. The student will understand the academic expectations of Wentworth with respect to work habits, behavior, and classroom demeanor.

4. The student will understand societal trends, both domestic and global, and determine an engineer's role in facing these challenges.

5. The student will be able to explain the importance of reading various types of articles, books and reference materials, and demonstrate comprehension by reciting, summarizing and/or paraphrasing.

6. The student will gain a working knowledge of various computer software programs that will be valuable tools in their engineering education.

7. The student will recognize and understand the concepts of working in groups/teams.

8. The student will have a clearer understanding of engineering, as well as the engineering profession - its history, as well as future career roles and directions within it.
Learning Outcomes:

1) (abet criteria d) Ability to function on multidisciplinary teams
   *Assessment:* Peer Assessment

2) Responsibility. (abet criteria f) Understanding of professional and ethical
   *Assessment:* Indicator Question in Final Exam

3) (abet criteria g) Ability to communicate effectively
   *Assessment:* Written/Oral Assignment in Lab module

4) (abet criteria h) Broad education necessary to understand the impact
   of engineering solutions in a global, economic, environmental, and
   societal context.
   *Assessment:* Indicator Question in Final Exam

Recommended References:


Please note that throughout the semester the students are urged to do research and look beyond the textbook and class notes so that they develop the valuable skill of learning to learn. This skill of learning to learn independently and effectively is vital to each student's success during the course of study and to his or her lifelong professional development.

Topics to be covered and general plan for the lecture portion of the course:

(Please note that the following is an outline of the topics to be covered in this course, rather than a weekly schedule. The instructor reserves the right to modify the order as he sees fit.)

- Elements of success: a discussion of common strategies employed by successful students.
- Introduction to engineering: history of engineering education, the engineering disciplines, and the engineering profession.
- Challenges to engineers in the near and intermediate future: population growth, environmental challenges, energy shortage, etc.
- Team learning.
- Introduction to engineering computer software.
- Effective problem-solving techniques.
- Engineering Ethics, and codes of ethics in various engineering disciplines.
The laboratory portion of this course:

The laboratory portions of this course are designed to introduce students to the various engineering disciplines taught at Wentworth such that the student can make a more informed choice of major in the first year, which is basic to all engineering disciplines, before moving forward into discipline-specific course work in the second year.

The laboratory component of the course is divided into 5 modules, with each module lasting two weeks. Every two weeks students will rotate to a different major for an introduction to that major. All students will see all of the majors during the 14 week course; however the laboratory experiences will be determined by the individual majors and may vary from group to group. All will give a good indication of the type of work done by engineers within those specific disciplines.

A) Biomedical Engineering
B) Civil Engineering
C) Electrical Engineering
D) Innovation/Design
E) Mechanical Engineering

A laboratory report is expected from each student each week. Laboratory reports will be handed in to the laboratory instructor, who may or may not be the same as the lecture instructor. Lab Instructors will correct the lab reports for their area of expertise. All reports will share common elements of professional and ethical responsibility, and the impacts of the work related to the experiments in a global, economic, environmental, and societal context, along with a technical evaluation of the data developed.

More on the activities of the laboratory modules will be communicated to you by the instructors of those modules. The grade of the laboratory portion is 50% of the overall grade of the course.

General course requirements and policies:

In order to meet the objectives outlined above, the following will be undertaken:

1. Attendance and class participation will be noted. Topics shown above will be the subjects of lectures and class discussions.
2. All written work submitted for this course must meet the Standards for English I. Poorly written papers will be returned to the student without grade, for revision. Students are encouraged to utilize the Center for Teaching and Learning (CTL) to facility to help polish
their papers. Papers without proper references/bibliography will not be accepted; the student must give credit where credit is due - it is the ethical, professional, and legal thing to do. No late papers or reports will be accepted. Please note that The Center for Teaching and Learning, located in Beatty 402, offers FREE tutoring in a number of subjects from all departments and is open Monday-Friday (Monday-Thursday evenings). You are encouraged to visit the CTL website http://www.academics/resource to make an appointment if you want or need extra help with any of your courses.

(3) All students must participate in both the lecture and lab on a daily basis. Lack of participation may result in a deduction on the daily attendance (up to a deduction to a score of 0)

(4) Timely completion of weekly quizzes is required. No makeup quizzes will be offered, regardless of the excuse.

| Grading: |
|---------------------------------|---|
| • Quizzes                       | 15% |
| • Homework                      | 5%  |
| • Class attendance/participation| 10% |
| • Final Exam:                   | 20% |
| Grade on five laboratory modules: | 50% |
| • modules: by the laboratory instructors) | |
| TOTAL                           | 100% |
**Additional Grading Policy:** Students must receive a passing in the laboratory modules in order to pass the course.

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**General Class Policies**

**Attendance Policy**
Students are expected to attend classes, take tests, and submit papers and other work at the times specified by the instructor. Students who are absent from class or studio will be evaluated by faculty responsible for the course to ascertain their ability to achieve the course objectives and to continue in the course. Instructors may include, as part of the semester's grades, marks for the quality and quantity of the student's participation in class. A student who is absent from class on the day of a previously announced examination, including the final examination, is not entitled, as a matter of right, to make up what was missed. The instructor involved is free to decide whether a make-up will be allowed.

A student who is absent from class is responsible for obtaining knowledge of what happened in class, especially information about announced tests, papers, or other assignments.

Attendance will be taken through the iclicker that must be brought to the lecture for every meeting. Failing to do this will result in a deduction for attendance and classroom participation.

**Classroom Behavior**
Students are expected to conduct themselves in a professional manner during both lecture as well as in the laboratory. If a student is perceived as being disruptive, they may be asked to leave and receive a deduction of one day's absence (with or without notice).

Examples of behavior that is considered disruptive would include:

- Use of any electronic device during lecture that is considered not necessary for the current material. This includes the use of any laptop, cellphone, or other communication device not necessary for that day's lecture.
- During lab, using any device that is unrelated to the lab tasks.
- Talking during lecture to fellow students on topics unrelated to the course.
- Working on assignments for other course.
- Eating in either the lab or during lecture.
- Having any material displayed on your computer that may be considered offensive. This can include a desktop background, any audio, or screen saver that is not appropriate for a professional environment.
**Drop/Add:**
The drop/add period for day students ends on Friday of the first week of classes. Dropping and/or adding courses is done online. Courses dropped in this period are removed from the student’s record. Courses to be added that require written permission, e.g. closed courses, must be done using a *Drop/Add form* that is available in the Student Service Center. Nonattendance does not constitute dropping a course. If a student has registered for a course and subsequently withdraws or receives a failing grade in its prerequisite, **then the student must drop that course.** In some cases, the student will be dropped from that course by the Registrar. However, it is the student’s responsibility to make sure that he or she meets the course prerequisites and to drop a course if the student has not successfully completed the prerequisite. The student must see his or her academic advisor or academic department head for schedule revision and to discuss the impact of the failed or withdrawn course on the student’s degree status.

**Make-Up Policy:**
Makeup exams will be offered to those students with college-excused absences. Only in rare circumstances will makeups be offered to those with unexcused absences. It is the responsibility of the student to notify me of his or her absence (and desire to take a makeup), and to provide documentation of the reason for absence. Ordinary school commitments (e.g., other exams, projects) are not sufficient reason for a special exam. Makeup exams will be different from regular exams, but will cover the same material. Under no circumstances will the same exam be given on different days. **Makeup exams are difficult to administer, and they are never fair.**

**Academic Support:**
One mission of The Learning Center (TLC) is to assist all Wentworth students with academic challenges in the areas of math, science, technical courses specific to majors, and communications and writing. The TLC is a free resource for students looking to improve or maintain their academic standing. In this student-based learning environment, students can receive individual help with their studies, meet and work in study groups, or go online to find resources to assist them in meeting their goals for academic success. A second mission of the Center is to provide resources and support to students and faculty for learning, teaching and advising. The Center also coordinates a variety of community events. Make appointments at

http://www.wit.edu.academics/resource/ or through Lconnect.
**Academic Honesty Statement:**
“Students at Wentworth are expected to be honest and forthright in their academic endeavors. Academic dishonesty includes cheating, inventing false information or citations, plagiarism, tampering with computers, destroying other people’s studio property, or academic misconduct” (Academic Catalog). See your catalogue for a full explanation.

**Student Accountability Statement:**
Cheating, plagiarism and taking credit for another’s work will result in a failure in the course along with a report to the Disciplinary Action Committee.

**Disability Services Statement:**
College can be challenging and it is common to feel overwhelmed or stressed at times. If these feelings are related to course work or academic performance, please talk to me. For more significant mental health concerns, the Center for Wellness and Disability Services (003 Watson Hall, 617-9894390) provides free and confidential mental health counseling.

If you or someone you know needs support around thoughts of suicide, the following resources are available:

* Center for Wellness and Disability Services, Watson 003, 617-989-4390, M-F 8:15-4:45
* Campus Police, First level of 610 Huntington Avenue, 617-989-4444, 24/7
* Samaritans, call or text 1-877-870-4673 * Crisis Text Line, text “start” to 741-741
* National Suicide Prevention Lifeline, call 1-800-273-8255
* GLBT Youth Hotline, call 1-866-488-7386
* Beth Israel Deaconess Emergency Room, 190 Pilgrim Rd Boston, MA

Students requiring academic accommodations must provide an official accommodation memo from the Center for Wellness and Disability Services and contact me privately to discuss logistics.
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<tr>
<th>Week Number</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>General Course Introduction ‘What is Engineering?’; ‘Keys to Success in Engineering’</td>
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<tr>
<td>2</td>
<td>Engineering Education and Engineering Profession</td>
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<td>3</td>
<td>Engineering Design</td>
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<td>4</td>
<td>Societal Trends and an Engineer's Role</td>
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<td>5</td>
<td>Columbus Day (No Class)</td>
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<td>6</td>
<td>Societal Trends Case Study and Research</td>
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<td>7</td>
<td>Research Techniques</td>
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<td>8</td>
<td>Engineering Analysis (Dimensions)</td>
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<td>9</td>
<td>Engineering Analysis (Units)</td>
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<td>10</td>
<td>Basic Data Analysis in Excel</td>
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<td>11</td>
<td>Engineering Ethics and Professional Responsibility Engineering Ethics Case Study</td>
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<td>12</td>
<td>Technical Writing Final Exam Preparation</td>
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<td>13</td>
<td>Final Exam</td>
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* Note: This is a tentative schedule and is subject to change. Each topic may span multiple lecture periods.