

Course Syllabus - Fall 2017

Introduction to Engineering Principles and Practices I

- ENGR 199 –71 (Lecture)
- ENGR 199 –76 (Laboratory)

Class time: M, W 3:35 – 5:15 pm

Class location: Belk 365

Course website: Check your Blackboard account at <https://wcu.blackboard.com>

Pre-requisites: None (Course is for Freshmen E&T majors only)

Co-requisites: None

Instructor: Dr. Oai Ha

Office: 231 Belk Building

Phone: 828-227-2438

E-Mail: otha@wcu.edu

Office Hours: W, F: 9-11 am; 1-2 pm, or by appointment. Students are welcome to stop by in my office if my office door is open, without seeking a prior appointment.

Course Description: This course provides an introduction to the engineering and engineering technology disciplines. Group work, oral communication, problem solving, and the design process will be introduced through lecture and project-based learning activities.

Textbook: Oakes, W.C., Leone, L.L. Engineering Your Future: A Comprehensive Introduction to Engineering, 9th edition, Oxford University Press, ISBN: 978-0190279264

References: University of North Carolina at Charlotte (2005). Introduction to Engineering, ISBN: 0-5369-5105-5

Course Learning Objectives:

At the end of the semester, the students will be able to:

- Demonstrate an insight into the engineering and technology fields as a career, and exhibit proficiency in some of the tools, techniques and skills of the profession
- Demonstrate a basic understanding of the engineering design process by successfully designing, constructing, and testing a solution that meets client requirements and performance specifications
- Apply knowledge of basic engineering mathematics for problem-solving
- Contribute productively as a member of a multidisciplinary team to accomplish project goals
- Demonstrate an ability to effectively communicate within the engineering profession through technical presentations and a variety of technical writing formats
- Develop life-long learning habits by researching and articulating ‘whole-life’ concepts which, in addition to technical competencies, are required for success in the engineering profession

Course Evaluation Dates: November 12 – December 8, 2017.

Students are strongly encouraged to participate in online course evaluations (CoursEval).

Topics for ENGR 199

The following topics will be covered during the semester. However, the contents and sequence of topics are subject to change at the discretion of the instructor during the semester.

1. Engineering Disciplines and Roles
2. Engineering Design
3. Unit Conversions and Calculations
4. Basic Electrical Theory & Circuit Simulation Software (PSpice)
5. Strength and Properties of Materials
6. Center of gravity, centroid, moment of inertia of areas
7. Deflection of beams in bending
8. Research Methods
9. Project Planning & Cost Estimation
10. Basic Computer Applications (MS EXCEL)
11. Personal & Professional Development
12. Oral & Written Communication Skills
13. Engineering Analysis & Tools (MATLAB)

Class Participation & Communication: Students are expected and encouraged to participate in the classroom through discussions and by asking questions or by working interactively with other students. All announcements, deadlines, etc. will be communicated to the students through Blackboard. Students are expected to log into Blackboard every day for updates and announcements. Also, all lecture slides, assignments, assignment solutions, etc. will be uploaded on Blackboard throughout the semester.

Student Outcomes:

This course contributes to the achievement of the following student outcomes:

- an ability to function on multidisciplinary teams;
- an ability to identify, formulate, and solve engineering problems;
- an ability to communicate effectively; and
- a recognition of the need for, and an ability to engage in life-long learning.

Course Evaluation & Grading Scale:

The following percentages will be used to determine the final grades

| | |
|----------------------------|-----------------------------|
| Homework | 30 % |
| Three Projects | 60 % (20% for each project) |
| Participation & attendance | 10 % |

Grades will be awarded based on the following scale:

| | |
|---------------------------|----------------------------|
| A (Excellent) > 90, | B (Good) = 80-90, |
| C (Satisfactory) = 70-79, | U (Unsatisfactory) = < 70. |

This scale should be used for reference only. The actual grading scale may vary. Note that this is a First Year Seminar (FYS) course, therefore only A, B, C and U grades will be awarded for this course.

Attendance:

This course is structured to maximize collaborative learning during the scheduled class time through discussions and group activities. Therefore, 100% attendance is expected and the number of unexcused absences should not exceed the credit value of this course. Student participation is strongly encouraged inside and outside the classroom. The participation grade will be adversely affected if a student is regularly missing class. Also, project grades may be affected if a student is missing lab sessions.

Course Assignments

Late homeworks, assignments or project reports will not be accepted without a prior arrangement with the instructor at least 24 hours before the assignment is due, except in the event of an emergency. Assignments turned in after the due date because of an excused absence, or an emergency must be handed in as soon as possible. A 10% reduction in the grade will be made for each day of delay.

Some of the writing assignments may be submitted for a re-grade. The purpose of re-submission is to improve writing ability. Students will be informed whether a writing assignment can be re-submitted. Students are strongly encouraged to make use of services offered by the Writing and Learning Commons located in Belk 207.

Homework: Weekly homework will be assigned during the semester. Students may work together on these assignments, but each student must turn in an original solution/answer. Homework assignments may be hand written. However, the writing should be neat and legible with appropriate explanations and a listing of all necessary assumptions. Writing assignments must be submitted as typed documents.

Projects: Three design projects will be assigned during the semester. These projects will require some self-study and will typically span over three to four weeks. The projects will be done in groups. Each group will consist of 3 students. More information on the projects will be provided in detailed project handouts.

Academic Honesty and Integrity

Students, faculty, staff, and administrators at Western Carolina University strive to achieve the highest standards of scholarship and integrity. Violation of academic integrity is a serious offense because it threatens the quality of scholarship and undermines the integrity of the community. Any violation of this policy is by nature, a violation of the Code of Student Conduct and will follow the same conduct process (Article VII.B.1.a). The standard for academic honesty at the Western Carolina University is described in detail in the Undergraduate Student Handbook. Students can access the academic integrity policy at <http://dsce.wcu.edu>.

Violations of the Academic Integrity Policy include cheating, fabrication, plagiarism, and facilitation. Students will be held responsible for the material in the statement on academic integrity. Students are, therefore, advised to read it carefully. Since the statement on academic integrity may include situations that are new and unfamiliar to the students and since the penalty for a violation may be severe (failure for the assignment, failure for the course, dismissal from the University), it is extremely important that students familiarize themselves with the material.

Students are expected to be aware of all other aspects related to student conduct covered in the university's Student Handbook.

Accommodation for Students with Disabilities

Western Carolina University is committed to providing equal educational opportunities for students with documented disabilities and/or medical conditions. Students who require reasonable accommodations must identify themselves as having a disability and/or medical condition and provide current diagnostic documentation to the Office of Disability Services. All information is confidential. Please contact the Office of Disability Services at 828-227-3886 or come by Suite 135 Killian Annex for an appointment.

Student Support Services

Student Support Services provides support to students who are either first-generation, low-income or those who have disclosed a disability with academic advising, mentoring one-on-one tutorial support, and workshops focused on career, financial aid and graduate school preparation. You may contact SSS at 828-227-7127, or email sssprogram@wcu.edu for more information. SSS is located in the Killian Annex, room 138.

Writing and Learning Commons (WaLC)

The Writing and Learning Commons (WaLC) is a free student service, located in Belk 207, providing course tutoring, writing tutoring, academic skills consultations, international student consultations, graduate and professional exam preparation resources, and online writing and learning resources for all students. To schedule tutoring appointments, visit the WaLC homepage (<http://walc.wcu.edu>) or call 828-227-2274.

Distance students and students taking classes at Biltmore Park are encouraged to use Smarthinking (<http://www.wcu.edu/academics/edoutreach/distance-online-programs/student-resources/services-for-distance-students.asp>) and the WaLC's online resources.

The Mathematics Tutoring Center

The Mathematics Tutoring Center provides tutoring in all lower-division math and many CS courses (455 Stillwell, <http://mathlab.wcu.edu>, 828-227-3830), help with mathematical concepts in other disciplines, and workshops on study skills specific to mathematics courses. Tutoring is available on a drop-in basis, 9 am – 5 pm and 6 - 9 pm Monday-Thursday, and 9 am – 5 pm on Friday.

Academic Calendar includes dates for all breaks, university closures, final exams, etc. The academic calendar can be found at <http://www.wcu.edu/academics/campus-academic-resources/registrars-office/academic-calendar.asp>.

Blackboard Support

The learning management system for this class is the Blackboard and can be found at <http://wcu.blackboard.com>. Additional help with blackboard can be found at tc.wcu.edu, 828-227-7487 or by visiting the Technology Commons located on the ground floor of the Hunter Library.