ERE485:
FUNDAMENTALS OF ENGINEERING PREPARATION

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Mailboxes: Across from entrance to Baker 402

Class Meeting Time and Location: Wednesdays 11:40am – 12:35pm, Baker 437

Course Description: Discussion of content and administation of the Fundamentals of Engineeering (FE) Exam, a comprehensive review of FE-type problems, and a targeted review of specific topics on the FE Exam. Spring.

Prerequisite: Senior standing or consent of instructor.

Required Text: FE Supplied-Reference Handbook

While you can purchase this, in the exam you will have to use an electronic copy, which can be downloaded following instructions:

1) Register on the NCEES site at: https://account.ncees.org/register
2) Follow the instructions to register your account and log into the system.
3) To the right, under "Useful Documents" click on "Reference Handbook" and then "FE Reference Handbook"
4) Save the reference book

YOU MUST HAVE ACCESS TO THIS HANDBOOK FOR EVERY CLASS, INCLUDING THE FIRST CLASS OF THE SEMESTER.

Additional Resources:

A number of study manuals can be purchased online
Practice problems can also be purchased online

Course Objectives:

1) Review past engineering course material
2) Identify individual strengths and weakenesses on this material
3) Prepare for the Fundamentals of Engineering (FE) exam.

Program Learning Outcomes:

By the end of this course, students will have reinforced their ability:

1) To use the techniques, skills, and modern engineering/science tools necessary for engineering/science practice (ABET outcome k)

College Learning Outcomes:

This course will contribute to students achieving the following College-wide learning outcomes:

1) Quantitative Reasoning: Students will be able to effectively describe, interpret, apply, and evaluate quantitative information.

Grading:

1) Quizzes (weekly quiz to be taken during the class period) 30%
2) Homework Assignments (1 homework may be missed without penalty) 30%
3) Attendance to review sessions and final evaluation class (1 of these classes can be missed without penalty) 40%

Problem Sets:

1) You will be provided with weekly engineering assignments in Blackboard.
2) You will enter your answers in Blackboard prior to the following class (11:40 am the following Wednesday).
3) You will hand in a sheet of paper prior to the following class (11:40 am the following Wednesday) showing your work on the assignments (place this in the box outside of Baker 402).
4) You will be graded on your attempt to find the solution, and not on getting the correct answer.

Academic Dishonesty:

Academic dishonesty is a breach of trust between a student, one's fellow students, or the instructor(s). By registering for courses at ESF you acknowledge your awareness of the ESF Code of Student Conduct (http://www.esf.edu/students/handbook/StudentHB.05.pdf), in particular academic dishonesty includes but is not limited to plagiarism and cheating, and other forms of academic misconduct. The Academic Integrity Handbook contains further information and guidance (http://www.esf.edu/students/integrity/). Infractions of the academic integrity code may lead to academic penalties as per the ESF Grading Policy (http://www.esf.edu/provost/policies/documents/GradingPolicy.11.12.2013.pdf).

Sources of Support and Class Absence:

If you experience academic or personal difficulties that affect your studies or life, there are people and resources that will help you. There is a website that serves to answer many student questions: http://www.esf.edu/students/success. In addition, the ESF Office of Student Life, 110 Bray Hall (470-6660) will provide academic support, career guidance, personal counseling, or direct you to the proper source of help. If you encounter a situation beyond your control in which you will be missing 3 or more days of classes, you should contact the Office of Student Life and they will get in touch with all your instructors for you. Supportive documentation may be required.

Accommodations for Students with Learning and Physical Disabilities:

SUNY-ESF works with the Office of Disability Services (ODS) at Syracuse University, who is responsible for coordinating disability-related accommodations. Students can contact ODS at 804 University Avenue- Room 309, 315-443-4498 to schedule an appointment and discuss their needs and the process for requesting accommodations. Students may also contact the ESF Office of Student Affairs, 110 Bray Hall, 315-470-6660 for assistance with the process. To learn more about ODS, visit http://disabilityservices.syr.edu. Authorized accommodation forms must be in the instructor's possession one week prior to any anticipated accommodation. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Inclusive Excellence Statement:

As an institution, we embrace inclusive excellence and the strengths of a diverse and inclusive community. During classroom discussions, we may be challenged by different ideas. Understanding individual differences and broader social differences will deepen our understanding of each other and the world around us. In this course, all people are strongly encouraged to respectfully share their unique perspectives and experiences. This statement is intended to help cultivate a respectful environment, and it should not be used in a way that limits expression or restricts academic freedom at ESF.

Religious Observance:

ESF protects the rights of students to observe religious holy days according to their tradition. Students will be provided an opportunity to make up any exam or work requirements that may be missed due to a religious observance provided they give the instructor reasonable advance notification.

National Council of Examiners for Engineering and Surveying (NCEES):

1) Non-profit organization composed of engineering and surveying licensing boards representing all states and U.S. territories
2) Develops scores, and administers the examinations used for engineering and surveying licensure
3) Provides services facilitating professional mobility for licensed engineers and surveyors

The NCEES administers the Fundamental of Engineering (FE) Exam

Effective Beginning with the January 2014 Examinations

1) The FE examination is an 6-hour:
    a. Nondisclosure agreement (2 minutes)
    b. Tutorial (8 minutes)
    c. Exam (5 hours 20 minutes)
    d. Scheduled break (25 minutes)
    e. Brief survey (5 minutes)
2) Exam is 110 questions
3) Offerred in 7 subject areas-Chemical, **Civil,** Electrical, **Environmental,** Industrial, Mechanical, and **Other Disciplines**.
4) Starting July 1st, 2017 the FE will contain Alternative Item Type (AIT) questions. These include Multiple Correct, Point and Click, Drag and Drop, or Fill in the Blank type questions (for more information on the AIT's, please visit https://ncees.org/exams/cbt/)

The following materials are NOT permitted in exam room:

1) Devices or materials that might compromise the security of the examination or examination process are not permitted.
2) Only models of calculators as specified by NCEES are permitted in the examination room. See http://ncees.org/exams/calculator-policy/
3) FE examinees will be furnished a copy of the FE Supplied-Reference Handbook at the exam site. This is the only reference material you will use during the exam.

When will I know my exam result? Typically within 7-10 days after the exam date.

After I pass a Fundamentals exam, what's next?

Passing a Fundamentals exam is first step toward licensure.

To continue the licensure process, complete the following:

1) Obtain at least 4 years of experience deemed acceptable to your licensing board
2) Take one of the Principles and Practice (PE) exams

Recent FE Exam Pass Rates:

January – June 2017 FE examinees who:

- Took the FE exam for the first time
- Attended EAC/ABET-accredited engineering programs
- Took the FE exam within 12 months of graduation

Exam	Volume	Pass Rate
Chemical	1,000	74%
Civil	6,203	69%
Electrical and Computer	1,459	72%
Environmental	758	77%
Industrial	301	67%
Mechanical	4,243	78%
Other Disciplines	1,419	78%

ERE =>	Spring 2017:	72%
	Spring 2016:	90%
	Spring 2015:	80%
	Spring 2014:	76%

What's on the exam? See:

http://ncees.org/wp-content/uploads/2015/07/FE-Env-CBT-specs.pdf

ERE485 Tentative Class Schedule

Date	Tentative Schedule of Topic Areas
17-Jan	Introduction to Class, Math, Prob & Stats, Ethics
24-Jan	Eng Economics, Materials, Thermo, Chemistry
31-Jan	Water and Wastewater Treatmen, Env. Science
7-Feb	Water Resources, Groundwater, Soils
14-Feb	Air Quality, Fluids
21-Feb	Solid and Hazardous Waste, Risk Assessment
28-Feb	Specific Topic Review
7-Mar	Specific Topic Review
14-Mar	Spring Break
21-Mar	Specific Topic Review
28-Mar	Specific Topic Review
4-Apr	Specific Topic Review
11-Apr	Specific Topic Review (tentative)
25-Apr	Course Evaluations/FE Exam Feedback