Freshman Engineering Clinic II (FEC II) Syllabus

Pre-requisite: Freshman Engineering Clinic I

This is the general syllabus. Your professor will provide additional information for your section. Check your course schedule (or Banner) to determine where and when your section meets.

FEC II Goal: Complete a Competitive Assessment

In today's changing and competitive market place, it is imperative that manufacturers keep abreast of the technological advances and design innovations incorporated into competing product lines. The terms competitive assessment and reverse engineering have been coined by manufacturers to describe the process of ethically acquiring, inspecting, analyzing, instrumenting and testing the product lines of other manufacturers. You will be required to use the skills obtained in Freshman Engineering Clinic I. Developing engineers with hands-on practice is critical to the economic development of US industry.

FEC II Objectives

1) Introduce students to the science and art of design by evaluating the work of practicing designers,
2) Introduce multidisciplinary teams of engineering students to unifying engineering science principles such as mass, momentum and energy balances; materials; thermodynamics, and electricity/magnetism using a consumer appliance or an engineering process as a test bed,
3) Enable students to determine how scientific principles, material properties, manufacturing techniques, cost, safety requirements, environmental considerations and intellectual property rights impact the design of a product, within the context of ethical behavior,
4) Allow students to participate actively in a meaningful design effort by instrumenting and evaluating the performance of a consumer appliance, product or an engineering process,
5) Continue development of technical communication skills in graphical, written, and oral formats, and
6) Continue development of time management, and critical thinking skills.

Textbooks and supplies

- FEC II web-book on PathFinder (at NO cost)
- Large 3-ring binder for your portfolio*
- Engineering Paper, e.g., Engineer's Computation Pad, Ampad Corporation*
- Laboratory notebook w/ numbered pages, duplicate page sets; e.g., Boorum #09-9088*

*You should already have these from FEC I.

Course Topics (addressed in lecture AND incorporated into projects)

- Product Development
- Ethics/Safety/Professionalism/
- Intellectual Property
- Engineering Economics
- Engineering Statistics
- Engineering Graphics
- MATLAB
- Data Acquisition

Course Schedule

Please refer to your professor for your section's detailed schedule. Please note that like any plan, it may change during the course of the semester.

Grading

This course is only offered for grade credit. A possible grading scheme is given in Table 1. Points will be deducted from your final grade for unprofessional, unethical, or unsafe behavior.

Table 1: Grading Scheme*

Engineering Laboratory Project(s) (Lab reports, lab performance, lab notebook, and all project-related activity)	50%
"Lecture" Sessions (Online BEFORE exercises, Online AFTER exercises, Offline Homework, In-class assignments and quizzes)	30%
Midterm Exam	10%
Final Exam	10%
Total	**100%**

*If your instructor chooses to use a different scheme, you will be notified in writing.

All work is due at the beginning of the class period and should be presented in a professional manner. It is your responsibility to turn in the homework at the beginning of class without prompting from the professor. Late work will not be accepted for unexcused absences. Use the FEC II homework format.

Extra Credit

An excellent method to gain insight into a field of engineering is to attend engineering student club and engineering professional society meetings. Appropriate Rowan Groups are described in the course web-book. You will receive 0.5 points per meeting added to your final grade, up to a total of 3 points during the semester. To obtain credit for attending a student meeting you must document your attendance. Your section's professor will select one of two methods:

- The online event submittal webpage of the Rowan Seminar Passport Program (include a selfie taken at the meeting that includes an officer, faculty member, or relevant white board)

- The **Extra Credit Form** (included in this Syllabus), including a signature from a faculty member or club officer in attendance AT THE MEETING.

To expand your knowledge of all engineering fields, you are encouraged to attend meetings of engineering clubs outside of your chosen engineering discipline; however, you may attend the meetings of a given club multiple times. Check e-mail, websites, Facebook, and bulletin boards in Rowan Hall to find out about meetings. You professor may allow you to substitute other events for engineering club meetings.

Lectures and Labs

This course consists of both seminar / lecture and laboratory sessions. You will meet with your section instructor in the room(s) shown on your course schedule (and Banner). Additional laboratory room(s) may be identified by your instructor.

Portfolio

You may receive handouts in this course (such as this syllabus). It will be beneficial for you to maintain a portfolio of these handouts and your work. This portfolio will help you to learn and review the material presented in this course. You may be required to compile a portfolio of materials for this class that you will submit at the end of the semester for a final grade. This portfolio will consist of all handouts given in class, lecture notes, homework problems, quizzes, copies of ALL lab reports and projects, and laboratory notebooks. These materials are required to be contained in a large 3-ring binder. The material in this portfolio should be neatly organized into sections and separated with dividers. Your portfolio will be inspected as directed by your section instructor.

Homework and quizzes

May be given at discretion of section instructor. Please see your instructor for details.

Midterm and Final Exams

The format and length of the midterm exam will be determined by each section instructor. A two-hour final exam will be scheduled during finals week.

Computer Usage

The engineering computer skills to be applied in the course may include:

(i) Word processing;
(ii) Spreadsheets and MATLAB;
(iii) Computer-aided design;
(iv) Symbolic programming; and
(v) The use of application software.

Teamwork

The grade received on all team assignments is a "raw score". Raw scores will be averaged and then adjusted according to each individual's contribution to the overall team effort. Each team member will be evaluated by every member of the team, including him/herself. The adjusted score (not the raw score) will be used in calculating course grades. Thus, the student who consistently demonstrates a higher level of effort will be rewarded. Likewise, the student who contributes less than the average effort to team assignments will be penalized.

OTHER INFORMATION

Professional Conduct

Expect to be graded on your professionalism in this course. Many people--including your fellow employees, community and family--rely on your professional decisions and actions. Your work should place the highest value on safety. In addition, engineers are expected to consider the ethical and environmental consequences of their actions. In seeking internships and fulltime employment, employers will ask professors their opinion of not only your excellence in engineering, but also your ability to make engineering decisions that are safe, ethical and environmentally responsible. The practice of professionalism will be divided into the three areas of *safety, attendance, and ethics*.

Examples of Good and Poor Professional Conduct

Good Conduct	Poor Conduct
• Arrive on time • Pay attention • Good attendance • Prepared (read the text, review notes from previous class, read handouts before coming to lab) • Follow good laboratory safety practice (safety glasses, long pants, closed shoes, follow precautions for specific experiment) • Respect the office hours • Prepared for office hours • Good attitude toward learning and problem solving • Make constructive comments	• Arrive late for class frequently / making a conspicuous and disruptive late entrance. • Not paying attention in class (reading newspaper, text messaging, tweeting, checking Social Media, etc.) • Disruptive behavior in class (side conversations, watch movie, etc.) • Ignore good safety practice (no safety goggles, shorts, sandals etc.) • Absent from class frequently • Unprepared for class • Disregard office hours • Not prepared when coming to ask questions during office hours

Safety

Safety is of critical importance. You will receive rules and guidelines that must be followed. Failure to follow safe laboratory practices can lead to accidents that can endanger you and other students. Your grade will be reduced if you fail to follow proper safety procedures.

You need to be aware of the various University-wide policies that can affect you. These policies are available online and are distributed as part of the Student Information Guide (available at www.rowan.edu/studentaffairs/infoguide/). Specific policies you should note include:

- Classroom Behavior Policy
  www.rowan.edu/provost/policies/documents/classroom_behavior_policy_nov-1020.pdf
- Academic Integrity Policy
  www.rowan.edu/provost/policies/documents/2009_AcadInteg_policy.pdf
- Laptop Computers in the Classroom
  www.rowan.edu/provost/policies/documents/LaptopComputersintheClassroom.pdf
- Mobile Electronic Device Policy
  www.rowan.edu/provost/policies/documents/mobile_electronic_devices.pdf
- Attendance Policy
  www.rowan.edu/provost/policies/documents/AttendancePolicy-FacultyStudentsResponsibilities5-31-12_001.pdf

Attendance is required, since a substantial amount of material is presented for which no texts are available and many of the laboratories and in-class exercises will be conducted in teams. In addition to classes, you are expected to attend all scheduled team meetings.

Habitual late arrival or absence from class is unprofessional and unacceptable. You will receive credit for attendance in class only if you are *present at the start* of the class period. If you know that you will be absent from class for a valid reason, obtain approval from your instructor 24 hours before the class period. The only exception is a medical emergency.

Academic and Work Conduct

Your ability to work effectively with your coworkers (classmates) and team leaders and managers is being formulated through your university experience. If you contribute creatively and effectively to the workload of your team in homework and laboratory assignments, and studying for quizzes and the exams, then you will be successful in your academic endeavors. If you are careless in your work, no company will want to hire you.

Your academic success is important. If you have a documented disability that may have an impact upon your work in this class, please contact your instructor. Students must provide documentation of their disability to the Academic Success Center in order to receive official University services and accommodations. The Academic Success Center can be reached at 856-

256-4234. The Center is located on the 3rd floor of Savitz Hall. The staff is available to answer questions regarding accommodations or assist you in your pursuit of accommodations. We look forward to working with you to meet your learning goals. If you arrange for an alternate test taking environment, you must let your professor know ahead of time.

The policy in this class in matters of academic misconduct will follow that stated in *University Student Handbook*. Any student cheating in this class will receive a grade of F for the course. Cheating includes receiving or knowingly providing information by any dishonest or deceptive means. For paper HW assignments, copying is writing on your paper while looking at another student's paper. When working electronically, copying is when two students are working on one computer or a student uses a file created by another student.

Freshman Clinic
Extra Credit Form

To obtain credit for attending a student meeting you must complete one section of this form. **All of the fields must be completed out for each meeting attended. Return this form to your professor at the end of the semester.** Check email and social media to find out about meetings.

Name of Organization/Society	
Date	
Topic of Meeting	
Signature of Faculty Advisor/Student Officer	
Name of Organization/Society	
Date	
Topic of Meeting	
Signature of Faculty Advisor/Student Officer	
Name of Organization/Society	
Date	
Topic of Meeting	
Signature of Faculty Advisor/Student Officer	