

**FRESHMAN ENGINEERING CLINIC I & FRESHMAN SEMINAR
(ENG 01101 N)
SYLLABUS FOR FALL 2007**

Course Coordinator: Dr. S. Farrell

Section (NN)	Sections	Professor	Monday Room
01	M: 8:25AM – 9:15 AM T: 8:00 AM – 10:40 AM	Van Kirk	102
02	M: 8:25AM – 9:15 AM T: 8:00 AM – 10:40 AM	Head	104
03	M: 8:25AM – 9:15 AM T: 8:00 AM – 10:40 AM	Everett	AUD
04	M: 9:50AM – 9:15 AM W: 8:00 AM – 10:40 AM	Farrell	AUD
05	M: 9:50AM – 10:40 AM W: 8:00 AM – 10:40 AM	Pietrucha	202
06	M: 9:50AM – 10:40 AM W: 8:00AM – 10:40 AM	Kadlowec	239
07	M: 9:50AM – 10:40 AM W: 8:00AM – 10:40 AM	Wyrick	309

Required Texts & Supplies (*Available at the University Bookstore*)

Introduction to Engineering Design and Problem Solving 2nd ed. (REQUIRED)
by Eide, Jenison, Mashaw & Northup
McGraw-Hill, ISBN 0-07-240221-0

Freshman Engineering Clinic I and II (REQUIRED)
McGraw-Hill / Primis, ISBN 0-390-58690-0

- Large 3-ring binder for your portfolio
- Engineering Paper for Homework: Engineer's Computation Pad Ampad Corporation
- Laboratory notebook w/ numbered pages, duplicate page sets; e.g., Boorum #09-9088.

Course Website: <http://users.rowan.edu/~farrell/Courses/Syllabi/FC07.pdf>

Engineering Clinic I Objectives¹

Objective 1: Measurements

- Apply appropriate sensors and instrumentation to make measurements of physical quantities
- Collect, analyze, and interpret data; form and support conclusions
- Know and apply measurement unit systems and conversions

Objective 2: Engineering Professions

- Understand the function of the members of a technology team
- Explain the functions of the Engineer
- Describe the engineering disciplines

Objective 3: Teamwork

- Work effectively in teams with individual and joint accountability
- Assign roles, responsibilities and tasks
- Monitor progress, meet deadlines, and integrate individual contributions into a final deliverable

Objective 4: Problem Solving

- Apply the Scientific Problem-Solving Method to solve engineering problems
- Present the problem and its solution in standard engineering format
- Demonstrate independent thought, creativity, and critical thinking in real-world problem solving

Objective 5: Communication

- Communicate effectively about laboratory work with a specific audience both orally and in writing
 - Technical reports, memos, laboratory notebooks
 - Graphical representation of data
 - Appropriate use of significant figures; estimations
 - Oral presentations
- Demonstrate appropriate and effective business communication skills via e-mail and oral communications with faculty.

Objective 6: Design Process

- Devise a system, component, or process using the Ten Step Design Process

Objective 7: Safety/ Professionalism/ Ethics

- Recognize health, safety, and environmental issues related to technological processes and deal with them responsibly.
- Demonstrate high ethical standards in all academic activities and assignments, including data collection and reporting, reports, exams, and homework assignments.

¹ Based on Recommendations by Lyle D. Feisel, Ph. D., P.E. and George D. Peterson, Ph.D., P.E., A colloquy on Learning Objectives for Engineering Education Laboratories, *Proc. 2002 ASEE Ann. Conf.*, 2002.

Freshman Seminar Objectives

Objective 1: Writing and critical thinking skills

- See Engineering Clinic Objectives 4 and 5 above

Objective 2: Library research skills

- Identify and locate library holdings
- Distinguish between scholarly journals and popular press
- Select appropriate electronic databases to obtain scholarly and popular articles
- Use information from a library resource appropriately in written and oral reports.

Objective 3: Cooperative Learning

- Work on structured tasks in a small group to support the learning of one self and others in the group

Objective 4: Classroom management skills

- Develop personal learning strategies for course material and reflect on level of success
- Develop effective methods of organization and time-management
- Use effective test-taking strategies

Computer Usage

The engineering computer skills to be applied in the course may include: (i) word processing; (ii) spreadsheets; (iii) computer-aided design; (iv) symbolic programming; and (v) the use of application software.

Lectures and Labs

This course consists of both seminar/lecture sessions (on Mondays) and laboratory sessions (on Tuesday or Wednesday, depending on your section). On Mondays, you will meet with your section instructor in the room shown at the beginning of this syllabus. On your lab day, you will meet with your section instructor to work on your semester project(s) except for the days of joint presentations.

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.

Portfolio

It will be beneficial for you to maintain a portfolio of handouts and your work, which will help you to learn and review the material presented in this course. You are required to compile a portfolio in a 3-ring binder of **all** materials for this class that you will submit at the end of the semester for a final grade.

Quizzes

May be given at discretion of section instructor.

Midterm and Final Exams

The exam is closed book and notes. 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.

Grading

This course is only offered for grade credit, which is determined by evaluating work performed in the following areas:

Engineering Laboratory Project(s)	45%
Monday Sessions including: In-class assignments and quizzes Homework Professionalism and ethics	30%
Midterm Exam	10%
Final Exam	10%
Portfolio	5%
Total	100%

Extra Credit

Student and Professional Engineering Societies: An excellent method to gain insight into a field of engineering is to attend engineering student club and engineering professional society meetings. You will receive 1 point 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 complete a section of the **Extra Credit Form** (included in this Handbook) and obtain a signature from the faculty member in attendance. To expand your knowledge of all engineering fields, you are encouraged to attend meetings of engineering clubs outside of your chosen engineering discipline. Check your e-mail and bulletin boards in Rowan Hall to find out about meetings.

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.

Professionalism

You will be expected to behave professionally, and your conduct will be considered in the final determination of your grade. 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. The practice of professionalism will be divided into the three areas of safety, attendance, and ethics.

Attendance Policy

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 me. 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.

The policy in this class in matters of academic misconduct will follow that stated in *University Student Handbook* and the Dean of Students web page (<http://www.rowan.edu/studentaffairs/deanstu/policies/>). 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.

ENGINEERING HOMEWORK FORMAT

All homework problems, unless otherwise directed by your instructor, should follow the Engineering Format. This format is used for most professional engineering work. Unless otherwise directed by your instructor, you should use engineering paper or the equivalent for all homework assignments. Write only on the front side of the paper (the dark green grid should be on the back).

Please refer to the example on the next page.

- 1) **Headers:** The five boxes at the top of each sheet of engineering paper that you use for a homework assignment should contain the following information from left to right:
 - a) Put the staple (which is the required homework binder) in the first (small) box
 - b) Print your full name in the second (large) box. *If this is a team homework, then print the team leaders name in the fourth box and the names of each participating team member below this box.*
 - c) Print the course and section number in the third (large) box
 - d) Print the date that the assignment was completed in the fourth (large) box.
 - e) Print the page number / total number of pages in the fifth (small) box
- 2) **Writing Mechanics:** All homework should be:
 - a) Carefully printed and not written in cursive
 - b) Printed in pencil and not in ink
 - c) Neat and clean, *i.e.* printed on the lines with no smudges or cross-outs
- 3) **Calculations:** All homework calculations should:
 - a) Include at least one complete sample for every type of calculation presented
 - b) Include all units for each term in each equation and the units must balance
 - c) Use the appropriate number of significant figures (usually three) for all numbers
 - d) Clearly indicate the final solution by boxing it in with a rectangle
- 4) **Problem Order:** Problems should be presented
 - a) In the order assigned (one, two, three, etc.)
 - b) With a new problem starting on a new page of engineering paper
 - c) With the designated problem number, from textbook or professor, under box 2.
 - d) Using only the front side of each sheet of engineering paper
- 5) **Problem Essentials:** Problem solutions should include the following items in order:
 - a) Homework problem number listed at beginning of problem
 - b) The given information - the information that will be used to solve the problem
 - c) The required information - the information or solution that we are looking for
 - d) A straight-edge diagram or diagrams that clearly illustrate the problem
 - e) The solution of the problem including all required steps and calculations
- 6) **Evaluation:** Double-check all of your calculations to make sure that:
 - a) All of your math is correct, *i.e.* you made no errors in using the calculator or computer
 - b) All of your equations are correct, *i.e.* you made no errors in manipulating equations
 - c) All of your units balance, *i.e.* you derived the correct units for the desired solution
- 7) **Computers:** Homework Assignments using Computers
 - a) Show sample calculations (with units) for each spreadsheet calculation. A printout of a spreadsheet is not sufficient because of the difficulty in inferring formulas from the numbers. Spreadsheet formulas can be printed in addition to the sample calculation using the commands: Tools, Options, View tab, click in Formulas box under Window Options.
 - b) Do not printout raw data from data acquisition experiments. A graphical presentation of this data is sufficient unless otherwise requested from the professor.

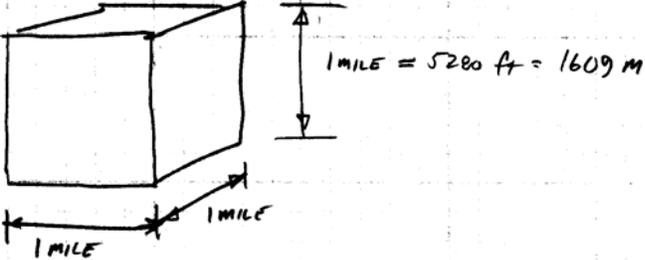
Staple	Name	Class/Section	Date	Page 2 of 5
	JOHN SMEATON	FRESHMAN CLINIC I SECTION 4	16 SEPT 2002	2/5
Problem Number	2-8 METEOROLOGISTS OFTEN REFER TO AIR MASSES IN FORECASTING THE WEATHER.			
Problem Statement	<p>TO FIND: ESTIMATE OF MASS OF 1 MILE³ OF AIR, IN SLUGS & Kg.</p> <p>MAKE YOUR OWN REASONABLE ASSUMPTIONS WITH RESPECT TO CONDITIONS IN THE ATMOSPHERE</p>			
Definition Sketch	<p>SOLUTION:</p> 			
Unit Conversions Shown	<p><u>SIMPLEST APPROACH:</u> ASSUME DENSITY OF AIR IS CONSTANT OVER THE 1 CUBIC MILE SEGMENT (NOT NECESSARILY A GOOD ASSUMPTION).</p> <p>IF SO, THEN $\rho_{AIR} = 1.22 \text{ kg/m}^3 = 0.00237 \text{ SLUGS/ft}^3$</p> <p>AND $M_{AIR} = \rho \cdot V = (1.22 \frac{\text{kg}}{\text{m}^3}) (1609 \text{ m})^3 = 5.09 \times 10^9 \text{ kg}$</p> <p>OR $(0.00237 \frac{\text{SLUGS}}{\text{ft}^3}) (5280 \text{ ft})^3 = 3.49 \times 10^8 \text{ SLUGS}$</p>			
Box Around Answer	<p>SO $M_{AIR} \approx 5.1 \times 10^9 \text{ kg}$ $\approx 3.5 \times 10^8 \text{ SLUGS}$ } ASSUMING CONSTANT DENSITY.</p>			
Commentary	<p>IN REALITY, DENSITY IS NOT CONSTANT (IT IS A FN OF TEMPERATURE & PRESSURE, WHICH VARY W/ ELEVATION IN THE ATMOSPHERE).</p> <p>TRUE MASS IS SOMEWHAT LESS</p>			

Figure 1: Sample homework on engineering paper in proper format.

FAQ

Q: Who is my advisor?

A: Your advisor is the chairperson of your academic program or department (see faculty and staff listing for names and office numbers).

Q: How do I get to see my advisor?

A: You can make an appointment with your advisor by:

- a. Calling her or him and requesting an appointment.
- b. Calling the departmental secretary and asking for the chairperson's advising schedule.
- c. Calling the Dean's Office for assistance in getting an appointment with Dr. Chin.

Q: What if I need advising quickly and my advisor is not available?

A: See your Monday section instructor, who will either answer your question or direct you to the appropriate person.

Q: Is it OK to drop a course if I am doing poorly or don't like it?

A: Not until you have talked to your advisor about it!! The engineering curriculum is very tightly scheduled and dropping a course may cause you lots of headaches trying to catch up. There are ways to reschedule courses but you and your advisor should devise a plan for rescheduling if you need to drop something. So, PLEASE see your advisor before you drop a course.

Q: How do I address members of the faculty and staff?

A: The accepted form of address in public or formal situations is Ms. LAST_NAME for a woman or Mr. LAST_NAME for a man. If you know that a person is a member of the faculty, then you should use either Doctor LAST_NAME or Professor LAST_NAME. Sometimes people use an administrative title, for instance, our deans could be addressed as Dr. Dorland or Dean Dorland and Dr. Chin or Dean Chin. This usually does not extend to the administrative title "Chair", the chairpersons should be addressed as Dr. or Prof. The technical and administrative staff in the laboratories and offices are addressed as Ms. or Mr.

The **only exception** to the above standards is when a person *specifically requests* that you call them something else. If you do not know a person's last name then ma'am or sir – even though they sound a little too formal – are appropriate. The person will usually tell you their name and appreciate your consideration.

Q: Is it OK to walk into a faculty-person's office if the door is open?

A: NO. Always knock and wait to be acknowledged. The person may be in the middle of a task and not have time to talk to you – it's much less embarrassing to be asked to come back than to be chased out! If a faculty member has scheduled office hours – honor them – if you can't make those times, make an appointment!

Q: Where can I find a stapler to staple my homework with before I turn it in?

A: There are staplers in the study rooms on the 2nd and 3rd floors (rooms 226 and 327). Don't walk into the office of a person who is working and ask to borrow a stapler – getting your work stapled is YOUR responsibility.

Q: Whom should I go to if I am having trouble with the computers?

A: There are several levels of resources to use here:

- a. There are computer lab monitors in the 1st floor PC lab
- b. Try the main Information Resources Support Desk:
<http://www.rowan.edu/ir/supportdesk/students/>
- c. Try talking to the instructor of the course that you are working on
- d. Send an email message to support@galaxy.rowan.edu, and 'cc' your course instructor, if you are having difficulty with computers in the College of Engineering

Q: How do I check my email?

A: Use the Campus Web Portal: <http://cp.rowan.edu/>

Q: Can I still use my old Yahoo (or AOL, Hotmail, etc.) email account?

A: Yes, BUT – it is YOUR responsibility to set up email forwarding from your campus email address to the account you want to use. Most faculty will only send email to your Rowan-issued email address.

Q: Where are the faculty mailboxes?

A: The faculty all have mailboxes in Hall room 212 – let the secretaries know that you have something that you wish to leave for a certain faculty member – they will direct you.

Q: How do I get an internship for next summer?

A: Ms. M. Basantis is the internship coordinator. She maintains a bulletin board for internships on the 1st floor across from her office and also sends email notices to all students of available internships. Get your resume to her early and often!

Resources

Faculty and staff directory - located on first floor near computer lab

Campus map – www.rowan.edu/campus_map/index.html

Computer Usage in Residence Halls - <http://www.rowan.edu/res/>

Engineering Directory

Name	Phone	Rm	E-mail
Dean's Office			
Dianne Dorland, Ph.D., P.E. (Dean)	5301	113	dorland@rowan.edu
Steven H. Chin, Ph.D., P.E. (Assoc. Dean)	5301	110	chin@rowan.edu
Mary Fisher, Budget Coordinator	5331	111	fisher@rowan.edu
Maria Perez-Colon, Administrative Assistant	5302	111	perezcolon@rowan.edu
Carol Cope, Secretary	5306	111	cope@rowan.edu
Outreach Office			
Melanie Basantis, Outreach Director	5307	106	basantis@rowan.edu
Kathy Urbano, Secretary	5309	106	urbano@rowan.edu
Chemical Engineering			
Robert Hesketh, Ph.D. Chair	5313	315	hesketh@rowan.edu
Kevin Dahm, Ph.D.	5318	330	dahm@rowan.edu
Stephanie Farrell, Ph.D.	5315	331	farrell@rowan.edu
Zenaida Otero Gephardt, Ph.D., P.E.	5314	141	gephardtzo@rowan.edu
Brian Lefebvre, Ph.D.	5338	139	lefebvre@rowan.edu
James Newell, Ph.D.	5316	332	newell@rowan.edu
Mariano Savelski, Ph.D.	5317	328	savelski@rowan.edu
C. Stewart Slater, Ph.D.	5312	336	slater@rowan.edu
Jesse Van Kirk			vankirk@rowan.edu
Marv Harris, Technician	5319	341	harrism@rowan.edu
Susan Patterson, Secretary	5361	312	pattersons@rowan.edu
Civil & Environmental Engineering			
Ralph Dusseau, Ph.D., P.E. (Chair)	5322	314	dusseau@rowan.edu
Douglas Cleary, Ph.D., P.E.	5325	233	cleary@rowan.edu
Jess Everett, Ph.D., P.E.	5326	335	everett@rowan.edu
Kauser Jahan, Ph.D., P.E.	5323	333	jahan@rowan.edu
Yusuf Mehta, Ph.D., P.E.	5327	329	mehta@rowan.edu
William Riddell, Ph.D.	5348	137	riddell@rowan.edu
Beena Sukumaran, Ph.D.	5324	140	sukumaran@rowan.edu
Joshua Wyrick, Ph.D.	5380	234	wyrick@rowan.edu
Aaron Nolan, Technician	5359	222	nolan@rowan.edu
Charla Newland, Secretary	5321	312	newlandc@rowan.edu
Electrical & Computer Engineering			
Shreekanth Mandayam, Ph.D. (Chair)	5333	214	shreek@rowan.edu
James Beard, Ph.D.	5356	238A	beard@rowan.edu
Linda Head, Ph.D.	5335	334	head@rowan.edu
Peter Jansson, Ph.D., P.E.	5373	134	jansson@rowan.edu
Robert Krchnavek, Ph.D.	5336	227	krchnavek@rowan.edu
Bernard Pietrucha, Ph.D.	5379	228	Pietrucha@rowan.edu
Robi Polikar, Ph.D.	5372	136	polikar@rowan.edu

Ravi P. Ramachandran, Ph.D.	5334	229	ravi@rowan.edu
John Schmalzel, Ph.D., P.E.	5332		schmalzel@rowan.edu
Gina Tang, Ph.D.	5339	334	tang@rowan.edu
Phil Mease , Technician	5337	222	mease@rowan.edu
Loretta Brewer, Secretary	5362	212	brewerl@rowan.edu

Mechanical Engineering

Anthony Marchese, Ph.D. (Chair)	5343	215	marchese@rowan.edu
John Chen, Ph.D., P.E.	5345		jchen@rowan.edu
Krishan Bhatia, Ph.D.	5346	135	bhatia@rowan.edu
Emine Celik, Ph.E.		231	celik@rowan.edu
T.R. Chandrupatla, Ph.D., P.E.	5342	231	chandrupatla@rowan.edu
Eric Constans, Ph.D.	5349	138	constans@rowan.edu
Jennifer Kadlowec, Ph.D.	5344	232	kadlowec@rowan.edu
Paris VonLockette, Ph.D.	5341	132	vonlochette@rowan.edu
Hong Zhang, Ph.D.	5347	133	zhang@rowan.edu
Chuck Linderman, Technician	5355	222	linderman@rowan.edu
Dottie Stiles, Secretary	5311	212	stiles@rowan.edu

**Freshman Clinic
Extra Credit Form**

To obtain credit for attending a student meeting you must complete a section of this form and obtain a signature from the faculty member in attendance. Check your e-mail and bulletin boards in Rowan Hall to find out about meetings.

Please return this form to your professor at the end of the semester.

Name of Organization/Society _____

Date _____

Topic of Meeting _____

Signature of Faculty Advisor _____

Name of Organization/Society _____

Date _____

Topic of Meeting _____

Signature of Faculty Advisor _____

Name of Organization/Society _____

Date _____

Topic of Meeting _____

Signature of Faculty Advisor _____