Instructors

• Eric Adams
• Gayle Sherman (Administrative Assistant)

Schedule and Room

• Monday and Wed; 8:45-9:45*
• Wrap-up before Thanksgiving*
• Friday seminars (w/lunch); 12-1
Additional Matters-1/2

• Retreat follow-up
  – group and track email addresses to Aaron
  – first team assignment: group name

• Academic matters
  – registration problems
  – advising
  – classes
Additional Matters-2/2

• Attendance
• Intramurals
  – MEng or share with other CEE (e.g., Parsons Lab)
Workshops/Fieldtrips-1/2

• Introduction to AutoCAD
  – 7-9 pm Thursdays, Sept 13, 20, 27 & Oct 4
• Application of health risk assessment for management of contaminated sites
  – 9-12 am Friday Sept 28
• Introduction to GIS
  – 6-8 pm Tuesdays, Oct 2, 9, 16
  – Field trip Sat Oct 13
Workshops/Fieldtrips-2/2

• MatLAB
  – Free from IST; also MIT computer stations, MEng computers, Introductory materials on course Web site
• Field trip to Cape Cod
  – Mass Military Reservation
  – USGS field station
  – Waquoit Bay National Estuary Research Reserve
  – Saturday Sept 22 (tentative)
Syllabus/Themes-1/3

• What the profession does
  – Outside professionals (seminars)
  – Projects (more later)

• How the profession is run
  – Project level
    • getting work, responding to Requests For Proposals
    • project evaluation; management
    • conflict resolution: negotiation
Themes-2/3

– Company level
  • profile of a company
  • Chase-an-engineer exercise

– Professional ethics
  • staff presentation, team exercises

• Personal professional skills
  – Written and oral communication
    • staff presentations
    • practice with critique
  – Self-advocacy, negotiation
    • staff presentations, workshops
Themes-3/3

– Job searching
  • resume writing, interview workshop, networking, job fairs/campus interviews
– Professional Registration (more later)
– Team building/participation
  • group exercises
– Library skills
Professional Registration-1/14

• Why?
  – Required to sign engineering drawings, do certain types of consulting, provide expert testimony
  – Helpful for promotion
  – Also for academics, though less so
Professional Registration-2/14

• Procedures
  – Graduate from accredited undergrad program*
  – Pass 8 hr FE exam
  – 4 years of increasingly responsible practice*
    • grad school counts 1
  – Submit application
    • 6 letters of recommendation
    • Document experience (no more than 1 pound of paper)
  – Pass 8 hr PE exam
Professional Registration-3/14
FE (Fundamentals of Engineering)
Exam Details

– Morning
  • 4 hour general exam
  • 120 multiple choice questions (1 point each)
– Afternoon
  • 4 hour exam in discipline (or general)
  • 60 multiple choice questions (2 points each)
– Closed book (reference materials supplied)
– Passing: Scaled score of 70%
FE Exam (AM) Content (%); April 2006

- Chemistry: 9
- Computers: 7
- Elect & Mag: 9
- Engrg Econ: 8
- Ethics: 7
- Fluid Mech: 7
- Material Prop: 7
- Math: 15
- Mechanics: 10
- Prob/stat: 7
- Strength mat’ls: 7
- Thermo: 7
- Total: 100

www.ncees.org/exams
Professional Registration-5/14
FE Exam (PM: Civil) Content (%); April 2006

- Surveying 11
- Hydraul/Hydrol 12
- Soil Mechanics 15
- Environ Engrg 12
- Transportation 12
- Struct Analysis 10
- Struct Design 10
- Constr Mgmt 10
- Materials 8
- Total 100

www.ncees.org/exams
Professional Registration-6/14
FE Exam (PM: Environ) Content (%); April 2006

- Water Resources 25
- Water/WW Treatment 30
- Air Quality 15
- Solid/Hazardous Waste 15
- Environmental Science/Mgmt 15
- Total 100

www.ncees.org/exams
### Professional Registration-7/14
FE Pass Rates (%) April 2007 Discipline-specific

<table>
<thead>
<tr>
<th>Examination Module</th>
<th>First Time Takers</th>
<th>Repeat Takers</th>
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<tbody>
<tr>
<td>Chemical</td>
<td>85</td>
<td>46</td>
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<td>Civil</td>
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<tr>
<td>General</td>
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[www.ncees.org/exams](http://www.ncees.org/exams)
### Professional Registration-8/14
FE Pass Rates (%) April 2003 General exam

<table>
<thead>
<tr>
<th>Undergraduate Major</th>
<th>First Time Takers</th>
<th>Repeat Takers</th>
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<tbody>
<tr>
<td>Chemical</td>
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<td>29</td>
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<tr>
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<tr>
<td>Industrial</td>
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<td>21</td>
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<tr>
<td>Mechanical</td>
<td>84</td>
<td>41</td>
</tr>
<tr>
<td>General</td>
<td>82</td>
<td>26</td>
</tr>
</tbody>
</table>

[www.ncees.org/exams](http://www.ncees.org/exams)
Professional Registration-9/14
PE Exam Details

– PE Civil
  • AM 40 multiple choice (breadth)
  • PM 40 multiple choice (depth; 1/5 disciplines)
– PE Structural I
  • 80 multiple choice questions (40 + 40)
– PE Structural II
  • 4 essay questions (pick 1/2 each session)
– PE Environmental
  • 100 multiple choice questions (50+50)
– Open Book
# Professional Registration-10/14

## PE Pass Rates (%) April 2007

<table>
<thead>
<tr>
<th>Examination Module</th>
<th>First Time Takers</th>
<th>Repeat Takers</th>
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</thead>
<tbody>
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<tr>
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<td>27</td>
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<tr>
<td>PE Civil</td>
<td>67</td>
<td>34</td>
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<tr>
<td>PE Elec &amp; Comp</td>
<td>66</td>
<td>27</td>
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<tr>
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<td>30</td>
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<tr>
<td>PE Naval Arch</td>
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<td>100</td>
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<tr>
<td>PE Structural I</td>
<td>51</td>
<td>37</td>
</tr>
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</table>
Comity (reciprocity) among states

- Applies in most states (including MA) but not all
- Some (including MA) require applicant to meet present-day requirements
Professional Registration-12/14
International students

• Applicants applying from non-ABET accredited UG engineering institutions must have their transcript approved.
  – Appraisal applications available through PCS, 150 Fourth Avenue North, POB 198689, Ste. 700, Nashville, TN 37219
  – See also http://www.mass.gov/dpl/boards/en/misc/abetreq.htm
Professional Registration-13/14
Continuing Professional Competency

- Required in some states (not MA)
- Measured by Professional Development Hours (PDHs)
  - Generally 15 PDHs required per year
- Typical awards
  - Continuing Education Unit (10)
  - Active participation in technical or professional society (2)
  - Published paper (10)
• FE Exam (Registration) Dates
  – Saturday, October 27, 2007 (Sept 1)
  – Saturday, April 12, 2008 (March 1)
• Registration Info: www.pcseshq.org
• More info:
  www.state.ma.us/reg/boards/,
  www.ncees.org/exams,
  www.mass.gov/dpl/boards/en/
Group Projects

• Conducted separately by track
  – Environmental
  – HPS
  – Geo might be separate or a blend with above
Group Projects-Logistics

- Projects introduced/discussed 9/7, 9/14
- Projects selected by mid-September
- Draft proposals due early November*
- Final proposals due early December
- Project work continues during January-term
- Final projects due late March/early April*
- Individual theses usually culled from project
- Project web sites maintained throughout
First Assignment

• Write your resume
  – See brochure from MIT Careers Office

• Due
  – draft by this Friday at noon (for peer review during Seminar 1)
  – on file by Sept 14 (we will review; later will go in CEED resume book)
  – updated as you go
First Seminar

- Title: The MIT Career Services Office
- Speakers: D. Rosencrans
- Friday, Sept 7 at noon
- Bring:
  - 3 copies of resume
  - copy of a job description (from magazine, web, etc.) you would be interested in
- Volunteers needed
  - send resume and mock cover letter to Deborah Rosencrans at Careers office ASAP