MEEN 4370.001/4370.201
F 12:00 - 14:50 (lec)
Location: EN 316B
Spring 2013
Office Telephone: 361-825-3378

Dr. Ruby Mehrubeoglu
Office: EN 222B
Office Hours:
 MW 13:00-15:00, R 11:30-12:00
E-Mail: Ruby.Mehrubeoglu@tamucc.edu

MEEN 4370 Capstone Projects

COURSE INFORMATION
Prerequisite: MEEN 4340
Meeting Times: F 12:00-2:50 p.m. (Lecture)
Meeting Places: EN 220 (lecture)

CREDIT HOURS: 3 (3:0)

PROFESSOR INFORMATION
Dr. Ruby Mehrubeoglu (Dr. M.)
Office Location: EN 222B
Office Telephone: (361) 825-3378
Fax Number: (361) 825-5848
Office Hours: MW 1:00 p.m. – 3:00 p.m., R 11:30 a.m. – 12:00 p.m., and by appointment
E-mail Address: Ruby.Mehrubeoglu@tamucc.edu

COURSE DESCRIPTION
This course allows students to employ the knowledge attained in other courses to implement (including building, testing, and documenting) the approved project in ENTC 4315, within budget and on schedule. Course requirements include a written report and oral presentations.

LEARNING OBJECTIVES (STUDENT LEARNING OUTCOMES)

- Keep real-time documentation of project’s progress and results (including research, testing, troubleshooting, analysis results, charts, diagrams, design sketches, etc.) in a project notebook
- Create and present capstone project status reports
- Analyze/justify/demonstrate the project design, performance and needed improvements, using modern engineering tools, software, and theoretical formulas
- Design, develop and create a prototype of proposed capstone project (through integration of knowledge, concepts, and skills in engineering)
- Practice professional skills (team, time, budget management, leadership, conflict resolution, etc.), to complete the capstone project
- Create and apply testing schemes to validate the product performance, and troubleshoot technical problems
- Develop a patent application for the proposed product
- Analyze the social and global impacts and ethical implications of the project
- Revise engineering concepts in the context of FE exam

REQUIRED READINGS
RECOMMENDED READING

INSTRUCTIONAL METHODS
Methods and activities for instruction include the following: lectures, invited speakers, group discussions, webinars, team assignments, homework assignments, reports, oral presentation, and a technical notebook.

MAJOR COURSE REQUIREMENTS AND ASSESSMENT
The students are required to keep a real-time notebook of their capstone project from the beginning to the end of the capstone project’s lifecycle. In addition, students are expected to meet with their capstone project advisors weekly, and submit weekly progress summaries and present oral updates to the class. Assessment is based on project updates, notebooks, homework assignments, pop quizzes, laboratory assignments and reports, capstone project reports and presentations. The final grade is computed as follows:

<table>
<thead>
<tr>
<th>Assessment Tool</th>
<th>Points</th>
<th>Total Score</th>
<th>Tentative Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly Advisor Meeting (summaries and in-class updates)</td>
<td>10</td>
<td>90 ≤ total</td>
<td>A</td>
</tr>
<tr>
<td>Notebooks</td>
<td>5</td>
<td>80 ≤ total &lt; 90</td>
<td>B</td>
</tr>
<tr>
<td>Homework + Pop Quizzes</td>
<td>15</td>
<td>70 ≤ total &lt; 80</td>
<td>C</td>
</tr>
<tr>
<td>Capstone Project Proposal and Oral Presentation</td>
<td>10</td>
<td>60 ≤ total &lt; 70</td>
<td>D</td>
</tr>
<tr>
<td>CP Progress Report and Oral Presentation</td>
<td>20</td>
<td>total &lt; 60</td>
<td>F</td>
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<tr>
<td>Final Project Defense and Report</td>
<td>40</td>
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<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
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ATTENDANCE POLICY
You are advised to attend all lectures and laboratories. Lab periods will be used for presentations, guest speakers, and FE Exam reviews. If you miss a class period, you are responsible for whatever is covered or announced during your absence. There will be no make ups for oral presentations or quizzes.

CLASSROOM/PROFESSIONAL BEHAVIOR
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.
CELL PHONE/ELECTRONIC DEVICE USAGE
The use of cell phones, electronic devices, or computers for purposes other than those of the course objectives of the day is not permitted. Restricted activities include but are not limited to text messaging, twittering, talking on the phone, browsing on the internet, or disrupting the classroom activities. Anyone displaying unprofessional classroom behavior will be asked to leave the classroom or the laboratory.

LATE ASSIGNMENTS
Late assignments will only be accepted with penalty. There will be a 20 point deduction per late day from the total score of maximum 100 up to 5 days, after which a late assignment will not be accepted.

ACADEMIC INTEGRITY
Plagiarism and other academic dishonesty are not tolerated. Your attention is called to the University policy in the Student Handbook.

FOOD AND DRINK
Eating or drinking is NOT permitted in the labs. Students with food or drink will be asked to discard such items, or leave the room.

SAFETY
The safety of students, faculty, staff and visitors to the ET laboratories is of paramount importance to the Mechanical Engineering and Engineering Technology Program. You must follow all safety procedures and use personal protective equipment as required in each laboratory. Any student who attempts to use equipment without authorization or violates any safety policy or regulation will be removed from the laboratory immediately.

GRADE APPEALS
As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

DISABILITIES ACCOMODATIONS
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
<table>
<thead>
<tr>
<th>WEEK</th>
<th>Date</th>
<th>Reading</th>
<th>Lecture Topics*</th>
<th>Laboratory Topics and Assignments*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01/25</td>
<td>Appendix A, B (MS OP)</td>
<td>Review of syllabus; Review of safety and security procedures; Lab notebooks</td>
<td>Lab Safety; Workshop Tour&lt;br&gt;<strong>Assignment:</strong> Gantt chart, network diagram and calendar view of the proposed capstone project plan (<strong>UPDATED PLAN from last semester</strong>)&lt;br&gt;<strong>Assignment:</strong> Set up weekly appointments with capstone project advisor</td>
</tr>
<tr>
<td>2</td>
<td>02/01</td>
<td>Review of Ch 12 (MS OP)</td>
<td>Student updates on projects&lt;br&gt;- resource allocation&lt;br&gt;- schedule&lt;br&gt;- budget&lt;br&gt;Identifying vendors for materials purchase</td>
<td><strong>Lab Assignment:</strong> Measuring Performance with Earned Value Analysis&lt;br&gt;<strong>WEEKLY ASSIGNMENT:</strong>&lt;br&gt;a) Weekly advisor-approved advisor meeting summaries&lt;br&gt;b) <strong>Notebook reviews by instructor</strong>&lt;br&gt;<strong>Project Phase:</strong> Updated CAD/circuit drawings, and theoretical analysis of performance</td>
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<td>3</td>
<td>02/08</td>
<td>Review of Ch 13, 14 (MS OP) Ch 3,5 (GWE)</td>
<td><strong>Guest Lecturer – PMI</strong>&lt;br&gt;Technical Writing;&lt;br&gt;Social and economic impact of the project;</td>
<td><strong>Lab Assignment:</strong> Tracking work and updating capstone project plan&lt;br&gt;<strong>HW Assignment:</strong> Final DESIGN, RESOURCES and BUDGET due&lt;br&gt;<strong>WEEKLY ASSIGNMENT:</strong> (see above)</td>
</tr>
<tr>
<td>4</td>
<td>02/15</td>
<td>Ch 22 (MS OP) Ch 5,6,9 (GWE)</td>
<td>Engineering Ethics and Ethics Writing</td>
<td>**Capstone Project Proposal – Oral Presentation and Report&lt;br&gt;<strong>Lab Assignment:</strong> Managing Risks, Issues and documentation&lt;br&gt;<strong>WEEKLY ASSIGNMENT:</strong> (see above)&lt;br&gt;<strong>Project Phase:</strong> Complete the acquisition of materials for the project</td>
</tr>
<tr>
<td>5</td>
<td>02/22</td>
<td>Ch 7, 8 (GWE)</td>
<td>Engineering Economics; Review of Engineering Concepts</td>
<td><strong>Project Phase:</strong> Building&lt;br&gt;<strong>WEEKLY ASSIGNMENT:</strong> (see above)</td>
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<tr>
<td>6</td>
<td>03/01</td>
<td>Ch 10 (GWE)</td>
<td>Review of Engineering Concepts</td>
<td><strong>Project Phase:</strong> Building&lt;br&gt;<strong>HW Assignment:</strong> Patent Application&lt;br&gt;<strong>WEEKLY ASSIGNMENT:</strong> (see above)</td>
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<td>7</td>
<td>03/08</td>
<td>Ch 11 (GWE)</td>
<td>Review of Engineering Concepts</td>
<td><strong>Project Phase:</strong> Implementation&lt;br&gt;<strong>WEEKLY ASSIGNMENT:</strong> (see above)</td>
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<td>8</td>
<td>03/15</td>
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<td><strong>SPRING BREAK</strong></td>
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<tr>
<td>9</td>
<td>03/22</td>
<td>Ch 11 (GWE)</td>
<td>Review of Engineering Concepts</td>
<td><strong>Project Phase:</strong> Implementation&lt;br&gt;<strong>WEEKLY ASSIGNMENT:</strong> (see above) + logo design</td>
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<td>10</td>
<td>03/29</td>
<td>Review of Engineering Concepts</td>
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<td><strong>Project Phase:</strong> Testing and Troubleshooting&lt;br&gt;<strong>Progress Report and Presentation</strong></td>
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<td>11</td>
<td>04/05</td>
<td>Review of Engineering Concepts</td>
<td></td>
<td><strong>Project Phase:</strong> Testing and Troubleshooting&lt;br&gt;<strong>WEEKLY ASSIGNMENT:</strong> (see above)</td>
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<tr>
<td>12</td>
<td>04/12</td>
<td></td>
<td><strong>FE EXAM</strong></td>
<td><strong>Project Phase:</strong> Evaluation and Improvements</td>
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<tr>
<td>13</td>
<td>04/19</td>
<td><strong>Intellectual Property and Patenting: Guest Lecturer</strong></td>
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<td><strong>Project Phase:</strong> (Troubleshooting/modifications) Testing and Validation&lt;br&gt;<strong>WEEKLY ASSIGNMENT:</strong> (see above) + business plan</td>
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<td>14</td>
<td>04/26</td>
<td>Lifelong learning; Webinar;</td>
<td></td>
<td><strong>Project Phase:</strong> Final Evaluation&lt;br&gt;<strong>WEEKLY ASSIGNMENT:</strong> (see above) + patent application</td>
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<tr>
<td>15</td>
<td>05/03</td>
<td></td>
<td><strong>Final Project Presentations - Dry run; Video Recording;</strong>&lt;br&gt;CDs due (notebooks, oral presentations and final reports will be due BEFORE the final exam (formal oral presentations) date)</td>
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<tr>
<td>5/10</td>
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<td></td>
<td><strong>FORMAL FINAL PROJECT ORAL PRESENTATIONS</strong></td>
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Final Exam Date*: Friday, 10 May 2012, 1:45 p.m. - 4:15 p.m. – The students will be presenting their final capstone projects to faculty, technical staff, students and industry representatives (Oral Defense, Final Project Report, and Notebooks Due)

* Tentative Schedule; subject to change