ENTC 4415 Project Justification and Management
Engineering Technology Program, School of Engineering and Computing Sciences
Spring 2015

A. COURSE INFORMATION

Course number/section:         ENTC 4415.001/4415.201
Class meeting time:            Lec: MWF 2:00-2:50 p.m.; Lab: WF: 3:00-4:15 a.m.
Class location:                EN 214
Course Website:                bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor:                    Dr. Ruby Mehrubeoglu
Office location:               EN 222B
Office hours:                  MW 9:30-11:00 a.m., F 10:00-12:00, and by appointment
Telephone:                    361-825-3378
E-mail:                       Ruby.Mehrubeoglu@tamucc.edu
Appointments:                 E-mail or call to make an appointment

C. COURSE DESCRIPTION

Catalog Course Description
Topics include foundations of engineering economy, cash flow and equivalence, and project justification; Introduction to project management, planning, scheduling and control, use of project management software, GANTT charts, PERT charts, and critical path analysis. Students prepare proposals, including specifications, timelines, schedule and budget for the projects to be implemented in ENTC 4350, Capstone Projects. This course should be taken the semester preceding ENTC 4350.

Extended Course Description
This course is about planning the capstone design project using project justification and management principles. The course introduces students to the concepts of project life cycle which the students plan and prepare. The students are expected to finalize the design of their capstone projects by the end of this course using project management principles. This course introduces students to planning tools and problem solving methodologies as applied to broadly-defined engineering and engineering technology problems, which will be directly applicable in the engineering/technology workforce after graduation.

D. PREREQUISITES AND COREQUISITES

Prerequisites
Senior standing, within one academic year of graduation

Corequisites
none
E. **REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES**

**Required Textbook(s)**


**Optional Textbook(s) or Other References**


   *(ISBN: 978-0-470-65907-6)*

**Supplies**
none

F. **STUDENT LEARNING OUTCOMES AND ASSESSMENT**

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Identify and analyze the requirements for a business/capstone project
2. Determine justification and audit of performance for a project
3. Apply engineering economics principles and tools, and perform economic analysis
4. Create schedules and budgets for projects and use planning and scheduling tools
5. Prepare and submit a formal Capstone Project Plan proposal
6. Prepare and give professional presentations
G. INSTRUCTIONAL METHODS AND ACTIVITIES

Methods and activities for instruction include the following: lectures, invited speakers, group discussions, homework assignments, laboratory exercises, written reports, examinations, library research, and oral presentations.

H. MAJOR COURSE REQUIREMENTS AND GRADING

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework + Quizzes</td>
<td>10</td>
</tr>
<tr>
<td>Pre-Lab Reports</td>
<td>8</td>
</tr>
<tr>
<td>Post-Lab Reports*</td>
<td>12</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20</td>
</tr>
<tr>
<td>Capstone Preliminary Proposal Plan*</td>
<td>2</td>
</tr>
<tr>
<td>Capstone Preliminary Proposal Plan – Oral Presentation*</td>
<td>2</td>
</tr>
<tr>
<td>Capstone Project Proposal Plan – Draft Report*</td>
<td>5</td>
</tr>
<tr>
<td>Capstone Project Proposal Plan – Draft Oral Presentation*</td>
<td>2</td>
</tr>
<tr>
<td>Capstone Project Proposal Plan – Final Report*</td>
<td>10</td>
</tr>
<tr>
<td>Capstone Project Proposal Plan – Final Oral Defense*</td>
<td>4</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25</td>
</tr>
</tbody>
</table>

*Team assignment: Peer evaluations that assess the contribution of each team member to the team assignment, based on the team-determined tasks for each team member, will be considered in the score of individuals for the team assignments.
# I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>WEEK: DATE</th>
<th>TOPIC (LEC)</th>
<th>CHAPTER(S)</th>
<th>TOPIC (LAB)</th>
<th>ASSIGNMENTS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Jan. 21, 23</td>
<td>Review of Syllabus; Review of Safety and Security Procedures; Project, Project Management, Project Life Cycle</td>
<td>Ch. 1 (M &amp; M)Appendix A (C &amp; J)</td>
<td>Lab Safety; Material Safety: MSDS Introduction to MS Project</td>
<td>Lab 1</td>
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<tr>
<td>2: Jan 26, 28, 30</td>
<td>Project Selection, Risk Analysis</td>
<td>Ch. 2 (M &amp; M)Ch. 1 (C &amp; J)</td>
<td>Concept Mapping; Managing a Simple Project; Creating a New Project Plan</td>
<td>Lab2</td>
</tr>
<tr>
<td>3: Feb 2, 4, 6</td>
<td>Engineering Economics</td>
<td>Handouts Ch. 2 (C &amp; J)</td>
<td>Creating a Task List Guest Speaker* (CASA)</td>
<td>Lab 3</td>
</tr>
<tr>
<td>4: Feb 9, 11, 13</td>
<td>Engineering Economics: Earned Value Analysis;</td>
<td>Handouts Ch. 3, 4 (C &amp; J)</td>
<td>Setting up Resources and Assigning Resources to Tasks</td>
<td>Lab 4</td>
</tr>
<tr>
<td>5: Feb 16, 18, 20</td>
<td>Project Manager</td>
<td>Ch. 3 (M &amp; M)Ch. 5 (C &amp; J)</td>
<td>Preliminary Project Plan Proposal Oral Presentations</td>
<td>Preliminary Project Plan Proposal (written)</td>
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<tr>
<td>6: Feb 23, 25, 27</td>
<td>Negotiation, Conflict Management;</td>
<td>Ch. 4, 5 (M&amp;M)Ch. 6 (C &amp; J)</td>
<td>Tracking Progress</td>
<td>Lab 5</td>
</tr>
<tr>
<td>7: Mar 2, 4, 6</td>
<td>Project Team, Human Factors</td>
<td>Ch. 5, 6 (M &amp; M)Ch. 7, 8 (C &amp; J)</td>
<td>Preliminary Project Plan Proposal Oral Presentations</td>
<td>Preliminary Project Plan Proposal (written)</td>
</tr>
<tr>
<td>8: Mar 9, 11, 13</td>
<td>Project Planning; Systems Integration; Action Plan; Work Breakdown; Responsibility Chart</td>
<td>Ch. 6 (M &amp; M)Ch. 9, 10 (C&amp;J)</td>
<td>Project Scheduling Guest Speaker* (INDUSTRY)</td>
<td>Lab 6</td>
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<tr>
<td>9: Mar 16, 18, 20</td>
<td>SPRING BREAK</td>
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<td>Lab 7</td>
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<tr>
<td>10: Mar 23, 25, 27</td>
<td>Budgeting; Cost Estimation; Scheduling</td>
<td>Ch. 7, 8 (M &amp; M)Ch. 11, 12, 13 (C&amp;J)</td>
<td>Organizing, Tracking, Viewing and Reporting the Project Plan</td>
<td>Lab 8</td>
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<tr>
<td>11: Mar 30, Apr 1, 3</td>
<td>Resource Allocation; Critical Path</td>
<td>Ch. 9 (M &amp; M)Ch. 14 (C &amp; J)</td>
<td>Troubleshooting Problems; Project Proposal Draft: Oral Presentations</td>
<td>Project Proposal Draft (written)</td>
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<tr>
<td>12: Apr 6, 8, 10</td>
<td>Planning, Monitoring, controlling; reporting; PMIS</td>
<td>Ch. 10 (M &amp; M)Ch. 15, 16 (C &amp; J)</td>
<td>Formatting and Customizing the Project</td>
<td>Lab 9</td>
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<tr>
<td>13: Apr 13, 15, 17</td>
<td>Project Control; Project Auditing and Evaluation</td>
<td>Ch. 11, 12 (M &amp; M)Ch. 18 (C &amp; J)</td>
<td>Measuring Performance with Earned Value Analysis; Sharing Project Information</td>
<td>Lab 10</td>
</tr>
<tr>
<td>14: Apr 20, 22, 24</td>
<td>Project Termination</td>
<td>Ch. 12, 13 (M &amp; M)Ch. 18 (C &amp; J)</td>
<td>Consolident Resources; Advanced topics: Enterprise Project Management</td>
<td>Guest Speaker Presentation Report</td>
</tr>
<tr>
<td>15: Apr 27, 29, May 1</td>
<td>Ethics and Social Responsibility</td>
<td>Handouts</td>
<td>Final Project Plan Proposal Oral Presentations</td>
<td>Final CP Plan Proposal Oral Presentations (written)</td>
</tr>
<tr>
<td>16: May 4</td>
<td>Advanced Topics in Project Management</td>
<td>Handouts</td>
<td>Ethics Case Studies; Course CD due</td>
<td>Course CD/flash drive</td>
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*Homework assignments will be announced in class and will be due one week from the date assigned.

Final Exam Date: Wednesday, May 13, 2015, 1:45 – 4:15 pm

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.
J. COURSE POLICIES

Attendance/Tardiness
You are advised to attend all lectures and laboratories. 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. The students are expected to display responsible conduct in the classroom and laboratory, including but not limited to adhering to the rules and regulations, and respecting the instructor and fellow classmates.

Late Work and Make-up Exams
No makeup examinations will be given except in the case of a documented extreme emergency, or University-accepted excuse. Makeup exams will be different from the regular exams and more challenging.

All assignments, both individual and team, must be uploaded by each student to Black Board online system as well as hard copies handed to the course professor in class by the due dates. Late assignments will only be accepted with penalty and with prior notification. 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. Late assignments will not be accepted after the graded assignments are returned to class.

Extra Credit
Extra credit may be assigned at the discretion of the instructor.

Food in Class
Eating or drinking is strictly prohibited in the labs, and not permitted in the lecture rooms. Students with food or drink in visible sight will be asked to discard them, or leave the room. All signage regarding health and safety must be followed in the lecture rooms and laboratories.

Missed Exam
No makeup examinations will be given except in the case of a documented extreme emergency, or University-accepted excuse. Makeup exams will be different from the regular exams and more challenging.

Participation
Students are expected to participate in the in-class and online exercises, discussions, and team work.

Use of Electronic Devices
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, instgramming, browsing on the internet, and disrupting the classroom activities. Anyone displaying unsuitable classroom behavior will be asked to leave the classroom or the laboratory. Recording of part or all of the lecture
or lab instruction and materials requires approval of the course instructor.

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

K. COLLEGE AND UNIVERSITIY POLICIES

- **Academic Integrity (University)**
  It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior.
  See Full University Policy at [http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity](http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity)

- **Classroom/Professional Behavior**
  Please follow the student handbook and the course policies outlined above.

- **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course by Friday, April 10, 2015. No student is eligible to receive a W without completing the official drop process by this deadline. Visit the Office of the University Registrar for the Course Drop Form that must be submitted. After April 10, 2015 a student will not be allowed to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, 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 Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the
grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  Disability Services (DS) is the hub for coordinating services and accommodations to ensure accessibility and utilization of all programs for all Texas A&M University-Corpus Christi students with disabilities. Our services are designed to meet the unique educational needs of enrolled students with documented permanent or temporary disabilities. DS provides intake and consultation services to students seeking to register with our office. DS reviews an individual’s documentation of disability and assesses eligibility for services and the determination of reasonable accommodations. For more information visit the Disability Services Office at 116 Corpus Christi Hall or go to [http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

L. **OTHER INFORMATION**

Students are expected to work in teams and contribute to teamwork equally. Engineering Technology students will be exposed to advanced topics related to project management, and will analyze case studies in the classroom.

**GENERAL DISCLAIMER**

The instructor reserves the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. The instructor will announce such changes in a timely manner during regularly scheduled lecture periods.