ENTC 4415 Project Justification and Management
Engineering Technology Program, School of Engineering and Computing Sciences
Fall 2019

A. COURSE INFORMATION

Course number/section: ENTC 4415.001/4415.201
Class meeting time: Lec: MWF 1:00 – 1:50 p.m.
Lab: F 2:00-4:30 p.m.
Class location: Lec: M CS-114, WF EN-107; Lab: EN-316
Course Website: bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Dr. Ruby Mehrubeoglu
Office location: EN 222D
Office hours: MW 11:00-12:30 p.m., F 11:00-1:00, 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**

**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 using multiple realistic constraints and engineering codes/standards to be considered during the design process
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: 08/26-08/30</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 (SLO 4)</td>
</tr>
<tr>
<td>2: 09/02-09/06</td>
<td>LABOR DAY HOLIDAY (9/3) Project Selection, Risk Analysis; <strong>Designing with Codes and Standards</strong></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 Guest Speaker* (CASA) (Technical Writing; Effective Presentations)</td>
<td>Lab2 (SLO 4)</td>
</tr>
<tr>
<td>3: 09/9-09/13</td>
<td>Engineering Economics</td>
<td>Handouts Ch. 2 (C &amp; J)</td>
<td>Creating a Task List</td>
<td>Lab 3 (SLO 4)</td>
</tr>
<tr>
<td>4: 09/16-09/20</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 (SLO 4)</td>
</tr>
<tr>
<td>5: 09/23-09/27</td>
<td>Project Manager</td>
<td>Ch. 3 (M &amp; M) Ch. 5 (C &amp; J)</td>
<td>Drawing a Gantt Chart; Preliminary Project Plan Proposal Oral Presentations</td>
<td>SLO 6</td>
</tr>
<tr>
<td>6: 09/30-10/04</td>
<td>Negotiation, Conflict Management; <strong>GUEST SPEAKER</strong></td>
<td>Ch. 4, 5 (M&amp;M) Ch. 6 (C &amp; J)</td>
<td>Tracking Progress</td>
<td>Preliminary Project Plan Proposal (written) (SLO 1, 5)</td>
</tr>
<tr>
<td>7: 10/07-10/11</td>
<td>Project Team, Human Factors</td>
<td>Ch. 5, 6 (M &amp; M) Ch. 7, 8 (C &amp; J)</td>
<td>Exam 1’ Project Scheduling</td>
<td>Lab 6 (SLO 2, 4) Guest Speaker Report due</td>
</tr>
<tr>
<td>8: 10/14-10/18</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</td>
<td>Lab 7 (SLO 4)</td>
</tr>
<tr>
<td>9: 10/21-10/25</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>Project Plan Proposal – Draft Oral Presentations (SLO 6)</td>
</tr>
<tr>
<td>10: 10/28-11/01</td>
<td>Resource Allocation; Critical Path</td>
<td>Ch. 9 (M &amp; M) Ch. 14 (C &amp; J)</td>
<td>Troubleshooting Problems;</td>
<td>Project Proposal Draft (SLO 1, 5)</td>
</tr>
<tr>
<td>11: 11/04-11/08</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 (SLO 4)</td>
</tr>
<tr>
<td>12: 11/11-11/15</td>
<td>Project Control; Project Auditing and Evaluation <strong>Guest Speaker</strong></td>
<td>Ch. 11, 12, 13 (M &amp; M) Ch. 18 (C &amp; J)</td>
<td>Measuring Performance with Earned Value Analysis; Sharing Project Information</td>
<td>Final Project Plan Proposal Oral Presentations (SLO 6)</td>
</tr>
<tr>
<td>13: 11/18-11/22</td>
<td>Reading Day (21 Nov. 2018) Thanksgiving Holiday (22-23 November 2018) Project Termination</td>
<td>Ch. 13 (M &amp; M) Ch. 18 (C &amp; J)</td>
<td>Consolidating Resources; Advanced topics: Enterprise Project Management</td>
<td>Final CP Plan Proposal (Written) (SLO 1,2,3,5)</td>
</tr>
<tr>
<td>14: 11/25-11/29</td>
<td>Ethics and Social Responsibility; Engineering Economic Analysis - Problems</td>
<td>Handouts</td>
<td>Ethics Case Studies;</td>
<td>Problems</td>
</tr>
<tr>
<td>15: 12/02-12/04</td>
<td>Exam Review: Engineering Economic Analysis Problems</td>
<td>Handouts</td>
<td></td>
<td>Course CD/ flash drive due</td>
</tr>
</tbody>
</table>

**Final Exam Date:** Friday, December 6, 2019, 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. The presentation dates of guest speakers depends on the availability of the guest speakers and may also change.

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 UNIVERSITY 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

- 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)
  We hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day 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, and the College of Science
and Engineering Grade Appeals webpage at
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/

L. **OTHER INFORMATION**

- **Academic Advising**
The College of Science & Engineering requires that students meet with an Academic
Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a
degree plan, which must be signed by the student, a faculty mentor, and the department
chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop
by the Advising Center to check availability and schedule an appointment. The College’s
Academic Advising Center is located in Center for Instruction 350 or can be reached at
(361) 825-3928.

- Students are expected to work in teams and contribute to teamwork equally. Peer
assessment scores will be considered when computing individual grades in team
assignments.

**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.