ENTC 4415 Project Justification and Management
Spring 2017

A. COURSE INFORMATION

Course number/section: ENTC4415.001/4415.201
Class meeting time: Lec: MWF 1:00-1:50 pm.; Lab: WF 3:00-4:15 pm.
Class location: EN 106 (lecture), EN 107 (lab)
Course Website: bb9.tamu.edu

B. INSTRUCTOR INFORMATION

Instructor: Byung Cheol (Bruce) Lee
Office: EN 315
Office hours: 3:30 – 5:30 pm, Tue/Wed/Thr, or by appointment
Telephone: 361-825-4134
e-mail: bruce.lee@tamucc.edu

C. COURSE DESCRIPTION

Catalog Course Description
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. Students prepare proposals, including
specifications, timelines, schedule, and budget, for projects to be implemented in ENTC 4350 -
Capstone Projects. This course should be taken the semester preceding ENTC 4350 - Capstone
Projects

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
ENTC 3455 - Solid Mechanics for Mechanical Engineering and ENTC 4320 - Heat Transfer.
Senior standing, within one academic year of graduation.
E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Textbook(s)

Optional Textbook(s) or Other References

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 action plans, 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>
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<tbody>
<tr>
<td>Quizzes</td>
<td>5</td>
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<tr>
<td>Homework</td>
<td>5</td>
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<tr>
<td>Lab Reports*</td>
<td>10</td>
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<tr>
<td>Midterm Exam</td>
<td>20</td>
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<tr>
<td>Capstone Preliminary Proposal Plan*</td>
<td>10</td>
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<tr>
<td>Capstone Preliminary Proposal Plan – Oral Presentation*</td>
<td>5</td>
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<tr>
<td>Capstone Project Proposal Plan – Final Report*</td>
<td>15</td>
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<tr>
<td>Capstone Project Proposal Plan – Final Oral Defense*</td>
<td>5</td>
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<tr>
<td>Final Exam</td>
<td>25</td>
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*Team assignment: Peer evaluations will be conducted as well.

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>WEEK:</th>
<th>LECTURE (MWF 1:00 ~ 1:50 @EN106)</th>
<th>LAB (WF 3:00 ~ 4:15 @ EN107)</th>
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</thead>
<tbody>
<tr>
<td>1: 1/18-1/20</td>
<td>Projects in Contemporary Organizations (Ch.1)</td>
<td>Introduction to MS Project Assigning Project Group</td>
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<td>2: 1/23-1/27</td>
<td>Projects in Contemporary Organizations (Ch.1)</td>
<td>Lab 1: A Guide Tour of Project (Ch.1) Finding Project Topics</td>
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<td>3: 1/30-2/03</td>
<td>The Project in the Organizational Structure (Ch.5)</td>
<td>Lab 2: Creating a Task List (Ch.2) Selecting Topic</td>
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<td>4: 2/06-2/10</td>
<td>Project Activity and Risk Planning (Ch.6)</td>
<td>Lab 3: Setting Up Resources (Ch.3) Introduction</td>
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<td>5: 2/13-2/17</td>
<td>Budgeting: Estimating Cost and Risks (Ch.7)</td>
<td>Preliminary Project Plan (Presentation, Report)</td>
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<td>6: 2/20-3/24</td>
<td>Engineering Economics (Handouts)</td>
<td>Lab 4: Assigning Resources to Tasks (Ch.4)</td>
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<td>Literature Review 1</td>
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<td>7: 2/27-3/03</td>
<td>Engineering Economics (Handouts)</td>
<td>Lab 5: Formatting and Sharing Your Plan (Ch.5)</td>
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<td>Literature Review 2</td>
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<td>8: 3/06-3/10</td>
<td>Engineering Economics (Handouts) Exam Review</td>
<td>Lab 6: Tracking Progress on Tasks (Ch.6)</td>
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<td>Budgeting &amp; Scheduling</td>
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<td>Spring Break</td>
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<td>10: 3/20-3/24</td>
<td>Bar/Gantt Charts, Precedence Diagram Method</td>
<td>Lab 7: Fine-Tuning Task Details (Ch.7) Design/Experiment Method 1</td>
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<td>12: 4/03-4/07</td>
<td>Lead/Lag in Network Diagrams</td>
<td>Lab 9: Fine-Tuning Assignment Details (Ch.9) Summary &amp; Potential Results</td>
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<td>13: 4/10-4/14</td>
<td>Work Breakdown Structure (WBS), Resource Constraining &amp; Project Crashing</td>
<td>Project Tracking &amp; Control, Earned Value Analysis</td>
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<td>14: 4/17-4/21</td>
<td>Project Tracking &amp; Control, Earned Value Analysis</td>
<td>Program Evaluation and Review Technique (PERT)</td>
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<td>15: 4/24-4/28</td>
<td>Final Project Plan Proposal (Presentation)</td>
<td>Final Project Plan Proposal (Written)</td>
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<td>16: 5/01</td>
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Final Exam        | TBA                                                                                         |

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor.
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 week from the total score of maximum 100 up to 5 weeks, 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, instragramming, 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](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. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar ([http://www.tamucc.edu/academics/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](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
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 (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

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.

http://disabilityservices.tamucc.edu/

L. OTHER INFORMATION
Students are expected to work in teams and contribute to teamwork equally.

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.