Foundations of Engineering II
ENGR1312
Department of Engineering
SPRING 2018

A. COURSE INFORMATION
Course number/section: ENGR-1312_061_071_261_271
Class meeting time: MW4:00-5:50pm
Class location: EN316
Course Website: https://bb9.tamucc.edu/

B. INSTRUCTOR INFORMATION
Instructor: Rafael Fox
Office location: EN216
Office hours: MW3:00-4:00, and by appointment
Telephone: 361-825-2593
e-mail: Rafael.fox@tamucc.edu
Appointments: send an e-mail request with proposed times

C. COURSE DESCRIPTION
Catalog Course Description
Topics include, depending on the major: emphasis on computer applications and programming and solids modeling using CAD tools or other software; fundamentals of engineering science; advanced graphic skills.

Extended Course Description
This course will be geared toward communicating effectively through the use of graphical design. The use of 2D and 3D drawing will be used for this objective. Learning how to use the CAD software presented (AutoCAD/Inventor) is important, but the need to follow appropriate principals and standards is of greater importance. The course covers the following topics: introduction to engineering graphics design, 2D/3D visualization; geometric construction; graphical projection, sketching, & dimensioning. A project is assign for students to apply the graphical drawing techniques typical of industry for mechanical drawings.

More advance courses will use what you have learned in this class to further your mechanical engineering knowledge. Also, this knowledge has a direct impact on industry in general.

D. PREREQUISITES AND COREQUISITES
Prerequisites
ENGR 1211 - Foundations of Engineering I

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


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


*Website: [https://bb9.tamucc.edu](https://bb9.tamucc.edu)* . This will be used primarily for student interface with information and assignments. **Check it daily !!!**

**Supplies**

Small Ruler.

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. Understand and apply the Mechanical Drawing Process on assignments and exams.
2. Use projections, pictorials, orthographic, auxiliary views, and sectional views.
3. Apply drawing standards as is: dimensioning, tolerances, and geometric tolerances.
4. Develop drawing skills using 2D CAD software.
5. Develop drawing skills using 3D CAD software.
6. Effective communication through the development of technical drawings and proper presentation of a design project.

G. **INSTRUCTIONAL METHODS AND ACTIVITIES**

The book is needed to focus your learning on what is at hand. I use book examples to get a general understanding, and then I work on an example usually from the end of the chapter exercises either on the board and/or computer to apply what we learn. After this, you are to work on an exercise and/or homework on your own or group (to be decided by instructor). You will be tested on the concepts with quizzes, exams and using CAD software.
Assignments

Lab work will be assigned every week as related to the topics in class. They are to be worked during the lab time and are typically due at the end of lab sessions; therefore attendance is essential. Late assignments will NOT be accepted; if you have a special circumstance let me know without delay. In the event that you prove (after seeking different sources of help, including instructor) to have difficulty with an assignment, an extension may be obtained from instructor to submit work. Having overlapping assignments from other classes is not a good excuse.

Projects

A project will be assigned during the semester. Detail information will be presented and discussed during the semester.

H. MAJOR COURSE REQUIREMENTS AND GRADING

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams I</td>
<td>10</td>
</tr>
<tr>
<td>Exam II</td>
<td>10</td>
</tr>
<tr>
<td>Final Exam</td>
<td>15</td>
</tr>
<tr>
<td>Lab Assignments (around 12)</td>
<td>30</td>
</tr>
<tr>
<td>Homework &amp; Quizzes</td>
<td>15</td>
</tr>
<tr>
<td>Project 2-D</td>
<td>6</td>
</tr>
<tr>
<td>Project 3-D</td>
<td>5</td>
</tr>
<tr>
<td>Attendance</td>
<td>5</td>
</tr>
<tr>
<td>UCCP Grade Percentage</td>
<td>2</td>
</tr>
<tr>
<td>Semester Folder</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

**Course Folder – worth up to 2% of final grade.**

This consists of a simple letter size two pocket folder where all graded and returned assignments will be placed. On the left side place Exams (1 & 2) followed by Quizzes (1 to ?), then On the right side place first your labs (1 to ?) followed by HW (1 to ?) and followed by anything else that was graded like Project. It must be complete and organized for full credit.

I. COURSE CONTENT/SCHEDULE
## TENTATIVE WEEKLY SCHEDULE (subject to change)*

<table>
<thead>
<tr>
<th>WK</th>
<th>Week of</th>
<th>Readings</th>
<th>Lecture</th>
<th>LAB</th>
<th>Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/15</td>
<td>Ch1, 2</td>
<td>Introduction to CAD</td>
<td>Fundamentals</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1/22</td>
<td>Ch1, 2, Ch3</td>
<td>Introduction to CAD Advanced commands</td>
<td>Fundamentals of construction</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1/29</td>
<td>Ch3 CH-1</td>
<td>Advanced commands Introduction to Inventor</td>
<td>ACAD Exercise</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2/5</td>
<td>CH-2</td>
<td>Parametric Modeling Fund.</td>
<td>Inventor Exercise</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2/12</td>
<td>CH-3</td>
<td>Constructive Solid Geometry Concepts</td>
<td>Inventor Exercise</td>
<td>MID 1</td>
</tr>
<tr>
<td>6</td>
<td>2/19</td>
<td>Ch-4</td>
<td>Geometric Constructions</td>
<td>Inventor Exercise</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>2/26</td>
<td>Ch-5</td>
<td>Model History Tree</td>
<td>Inventor Exercise</td>
<td>Start 3D Project</td>
</tr>
<tr>
<td>8</td>
<td>3/5</td>
<td>Ch-6</td>
<td>Geometric Construction Tools</td>
<td>Inv. Exercise / Project</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3/12</td>
<td></td>
<td>SPRING BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>3/19</td>
<td>Ch-7</td>
<td>Orthographic Projection and Multiview Construction</td>
<td>Inv. Exercise /Project</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>3/26</td>
<td>Ch-8</td>
<td>Dimensioning and Notes Exam/Project</td>
<td>Inv. Exe. /Work on Project</td>
<td>MID 2</td>
</tr>
<tr>
<td>11</td>
<td>4/2</td>
<td>CH-12</td>
<td>Assembly Modeling and Working Drawing</td>
<td>3D Project Due</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>4/9</td>
<td>CH-9 CH-10</td>
<td>Tolerancing and Fits Pictorials and sketching</td>
<td>Inv. Exercise</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>4/16</td>
<td>CH-11</td>
<td>Auxiliary Views</td>
<td>Inv. Exe./Work on Project</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>4/23</td>
<td>CH-12</td>
<td>Section Views</td>
<td>Inv. Exe./Work on Project</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>4/30</td>
<td>OPEN</td>
<td></td>
<td>2D Project Due</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Final Exam: Wednesday May 9 @ 4:30pm – 7:00pm</td>
<td></td>
<td>FINAL</td>
</tr>
</tbody>
</table>

* Changes in this course schedule may be necessary and will be announced to the class by the Instructor.

* Exam 1, & 2 Dates are tentatively given within that week, not necessarily on Monday. Exact day of Exam is given one week in advance. No exam makeup is given unless for legitimate cause (a scheduled vacation, wedding, or airline flight is not a legitimate cause).

NOTE1: Campus is closed for Spring Break, 3/12-3/16
NOTE2: Last day to drop a class is 4/6
NOTE3: Last day of classes 5/1
NOTE4: The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.
J. COURSE POLICIES

Attendance/Tardiness
Absences are discourage and detrimental to learning and to your grade. However, it is the student's responsibility to obtain class notes, handout materials, etc. when a scheduled lecture is missed. Grading for Attendance will be deducted after the first absence. Starting with the second absence a 1% deduction will apply. If you accumulate 6 absences you have a zero which adds up to half a letter grade or 5 points. Tardy counts for 1/3 of an absent. After 20 minutes late counts for ½ absent.

Late Work and Make-up Exams
Late work, scheduled exam absences or No-show on lab/project will not be accepted unless there exists legitimate excuses (illness, death in the immediate family, etc.) and adequate documentation is furnished. If a make-up were to be needed it could be a degree higher in difficulty.

Extra Credit
Extra credit to be announced in class as needed.

Cell Phone Use
Cell phone use inside class is prohibited once class begins unless it is being used with permission for class assignment. They are to be silenced and put away where they are not seen. If a call is expected take it out of the class. Anyone that interrupts class due to cell phone will be asked to leave.

Laptop Use
May only be permitted if used for class work.

Food in Class
No food or drinks permitted. Only bottled water with a cap or sellable lid.

Missed Exam
You will receive a zero for a missed exam, unless you have accommodations with Instructor or have a legitimate excuse. You are to communicate any issues immediately.

Participation
To be announced in class when extra points are given.

K. COLLEGE AND UNIVERSITY POLICIES

- Academic Integrity (University)
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject
to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

• **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.

• **Statement of Civility**  
Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

• **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/) 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**
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/

- **Statement of Academic Continuity**
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

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.

**GENERAL DISCLAIMER**
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.