
Mechanical Engineering

ME 1403.0C1- Engineering Practice and Graphics

Syllabus

FALL 2018

Part A - Course Outline

Required Course in Mechanical Engineering Program

Catalog Description: [TCCN: ENGR 1204]

(1-3) 2 hours credit. Prerequisites: MAT 1093 and ME 1302.
Introduction to engineering graphics: geometric constructions, multi-view drawing, dimensioning, sections, pictorials and auxiliary views. Computer-aided design, generation of mechanical drawings, and design projects. (Formerly ME 1403. Credit cannot be earned for both ME 1402 and ME 1403.) (Formerly titled "Engineering Graphics.")

Prerequisites:

MAT 1093 – Pre-Calculus

Textbook(s) and/or required material:

S. Tickoo, ***SolidWorks 2017 for Designers***, 14th ed., 2017, CADCIM Technologies, ISBN: 978-1-942689-18-8.

F. Giesecke, A. Mitchell, H. Spencer, I. Hill, J. Dygdon, J. Novak, R. Loeng, S. Lockhart, and C. Jonson, "**Technical Drawing with Engineering Graphics**", 15th Edition, Pearson Education, 2016: ISBN: 978-0-13-430641-4.

Ulrich Fischer, Max Heinzler, Friedrich Noher. "**Mechanical and Metal Trades Handbook",** 3rd edition, ISBN-10: 3808519142; ISBN-13: 978-3808519141

Major prerequisites by topic:

1. Algebra
2. Fundamentals of engineering design

Topics covered:

1. Engineering Design: Identification and explanation of the key steps in the engineering design process; Application of the principles of design process in solving an open-ended design problem.
2. Engineering Tools
3. Principles of Program Management: Basic principles of program management including the use of PERT Charts, Gantt Charts, and principles from Project Management Software.
4. Communication Skills: Principles of oral and written communication skills.
5. Engineering Ethics: Basic principles of Engineering Ethics, legal guidelines and case studies.
6. Fundamentals of engineering drawing.
7. Engineering design and graphic applications with SolidWorks®.

Contribution of course to meet the professional component:
This course contributes to the student's ability to work professionally in mechanical systems and design.

Relationship of course to Student Outcomes:
This course primarily contributes to Mechanical Engineering student outcomes:
(a) Ability to apply knowledge of mathematics, science, and engineering
(c) Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
(f) An understanding of professional and ethical responsibility
(g) Ability to communicate effectively
(k) Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Course objectives (contribution to Student Outcomes):
After the successful completion of this course, the student will be able to do the following:
1. Use modern graphics and analysis software (k)
2. Conceive, design and draw, communicate and solve mechanical assemblies/systems (c, g)
3. Calculate the properties of mechanical parts and assemblies by applying the knowledge of mathematics, science, and engineering (a)

Performance criteria:
Student Outcomes will be evaluated through the analysis of homework, quizzes, examinations and projects.

Course Coordinator: Dr. Can Saygin

Person who prepared this description: Madhavrao Govindaraju, August 2017.

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Part B – General Course Information and Policies

This course consists of class room lecture part and computer graphic laboratory practices. Attendance is mandatory for both parts. Grades will be awarded based on performance in both parts. Final grade will have 35% weightage from class room lecture part and 65% weightage from laboratory practices part.

Part B 1– Classroom Lectures - Information and Policies

Instructor: Alireza Zarreh
Office: BSE 0.226
Email: alireza.zarreh@gmail.com

Lecture Hours: 2.00 – 2.50 PM on MW
Class room: EB 2.04.06
Office Hours: 3:00 – 4:00 PM MW; BSE 0.226

iClicker: iClickers will be used for lecture attendance and in-class participation. Both will be graded. You need to have your iClicker registered for in-class participation.

YOU MUST REGISTER YOUR iClicker IN THE FIRST WEEK OF THE SEMESTER. YOU CAN REGISTER IN CLOUD BY VISITING THE WEBSITE:

https://www.iclicker.com/students

Email Communication:

At times the instructor will send messages related to course assignment, using the Blackboard Learn. Students are expected to check their e-mail received through UTSA accounts on a regular basis. If the students use a different email account, they need to make sure that their UTSA account messages are forwarded to their regular account.

Class Conduct:

Students are expected to assist in maintaining a classroom environment that is conducive to learning. To assure all students have an opportunity to gain from time spent in class; students are prohibited from engaging in any form of distraction. Examples of distractions are: coming late to class, talking, sleeping, using cell phones, text messaging, etc. If a laptop is open, it needs to be used for this class and never used to check emails, play games, or search the internet. Instructor has the privilege to ask any student to leave the classroom if found to be not following the specified instructions.

Grading for Lecture Part:

Attendance	10%
Iclicker Questions	10%
Homework	15%
Midterm Examination 1	20%
Midterm Examination 2	20%
Final Examination	25%
Total	100%

Grading for Laboratory Part:

Attendance	10%
Tutorials and Exercises	15%
Midterm Examination 1	10%
Midterm Examination 2	15%
Final Examination	20%
Project	20%
Quizzes	10%
Total	100%

Total Grade for the course will be:

40% of Lecture part and 60% of Laboratory Part.

COURSE POLICIES

Lecture Notes:

Students are expected to have the textbook throughout the semester. It is up to the students to decide if they want to have the hard-copy or the e-book. Instructor might share his Powerpoint lecture slides or material from other references. In this case, supplementary material, hand-outs, project information, and grades in Excel will be available on Blackboard Learn at http://learnn.utsa,edu/). In-class discussions will be encouraged through various active learning exercises; therefore attendance is a key to success. In-class attendance is 10% of the overall grade.

Attendance:

Each student is expected to attend the lectures and project sessions (meetings with TAs). Attendance will be monitored using iClickers in class. TAs will take attendance during project sessions. Students are expected to be in the classroom on time; this is at least 5 minutes before the class starts. Tardiness beyond the first 5 minutes of the class will not be tolerated. Students who are late to class should not disturb their classmates by coming in late; they will simply miss the class. Leaving the class/project sessions early is also not acceptable. Students need to talk with the Instructor prior to class if they have a valid excuse to leave early. During class, all cell phones, PDAs, tablets, and/or any other device that is not related to the subject matter needs to be turned-off. In-class participation will be tracked using iClickers for multiple-choice questions that will be included as part of the lectures.

The class is based on active learning exercises and interactions. Weekly assignments will be given and they must be completed by the deadline. Unannounced multiple-choice questions will be asked during lectures from the weekly assignments, as well as the lecture of the day and students will have to respond in 30-45 seconds using their iClickers. Students are strongly recommended to study the material before class and stay awake during lectures. Attendance with in-class participation account for (combined) 25% of the overall grade. Attendance is 1 point per day and in-class participation points are based on 2 points per question. Multiple questions may be asked in a day or none. Overall points per day could be 8-10 points. So if the student is absent he/she will miss attendance as well as in-class participation points (“zero” for both).

If student comes after the first 5 minutes of the lecture, he/she may miss the attendance point but can participate in iClicker questions.

Use of iClicker

- iClickers will be used for lecture attendance. Each attendance is 1 point. Student's attendance, which is 10% of the overall grade. In other words, students will be given 4 days of buffer for possible lateness, illnesses, car troubles, etc., whatever the reason they might have for missing the class or be late. If a student misses more than 4 days, even with a valid excuse, NO attendance points will be given for those missed days.
- iClickers will also be used during lectures. Unannounced multiple-choice questions during lectures from the weekly assignments, as well as from the lecture of the day will be asked. Students will have to respond in 30-45 seconds using their iClickers. Each such question is worth 2 points. Throughout the semester, 30-40 questions will be asked. At the end of the semester, a 10% buffer will be given to all students. For example, if 40 questions are asked during the semester, that will be equal to 100 points. Student's final in-class participation grade will be calculated out of 90 points, which will correspond to 15% of the overall grade. If a student earns more than 90 points, the student can keep all extra "bonus" points.
- After giving a buffer of 4 days of attendance and 10% on the in-class participation, NO OTHER make-up questions will be given for any excuse the student may have.
- iClicker questions may also include from topics covered in the reading assignments.
- When answering iClicker questions, the right answers must be from the slides and/or the specific pages of the text book. "Personal" experience might conflict with the "right" answer so students are encouraged to ignore their personal experiences when answering iClicker questions. This applies to the exams, too.

Academic Dishonesty

"Helping" a friend while he/she is absent in class by having his/her iClicker with the student during the lecture is considered Academic Dishonesty. If a student is caught with two or more iClickers, the student and the owners of the iClickers will directly lose 25 points out of 100 on the overall grade. In other words, 25 points will be directly subtracted from the end-of-semester overall grade before giving the final letter grade.

Examinations

There will be two mid-term examinations and a final examination. These examinations will consist of multiple-choice, fill in the blanks, and True/False type of questions. The mid-term examinations will not be comprehensive; the final examination will be comprehensive. Students will be responsible for all lecture and tutorial material that have been covered in the class for the examination.

Students are allowed 1 page (front and back), hand-written or typed FORMULA SHEET for each mid-term examination. Students can bring all 3 pages to the final examination. Make-up examination is only given in case of a medical emergency. The format of the make-up examination could be completely different than the regular tests. If a student misses the test, he or she needs to contact the Instructor through email within 48 hours (including weekend, holidays). A "Zero" grade will be given if a valid excuse is not received within 48 hours.

Grading

The final grade will be based on the overall performance during the semester.

A+	97- 100	B+ 87-89	C+ 77-79	D+ 67 – 69	F Below 60
A	94- 96	B 84-86	C 74-76	D 64-66	
A-	90- 93	B- 80-83	C- 70-73	D- 60-63	

Academic Dishonesty

Read Section 203 of the Student Code of Conduct 2013-2013 UTSA Information Bulletin.

(http://www.utsa.edu/infoguide/appendices/b.html)

- "Unauthorized" Collaboration: Although teamwork is encouraged for studying the course material and for some assignments, each student is required to do his/her own original thinking during examinations. Do not tempt your neighbor into cheating.
- Plagiarism: Copying or using someone else's work without giving credit (citation) intentionally or unintentionally is a violation of UTSA's Student Code of Conduct.

ACADEMIC DISHONESTY WILL BE DEALT WITH FOLLOWING THE UNIVERISTY REGULATIONS.

Roadrunner Creed and Honor Code:

Please review the UTSA's statement on "The Roadrunner Creed" and "Academic Honor Code" at the following link: www.utsa.edu/about/creed.

UTSA Disability Services Office (Phone: 210-458-4157) provides accommodations and equipment that enable students to participate in class activities. Students are encouraged to contact the UTSA Disability Office if any assistance is needed.

UTSA Tomas Rivera Center (Phone: 210-458-4694) provides learning assistance, academic coaching, and tutoring. Students need to contact the office if any assistance is needed.

Syllabus:

"This syllabus is provided for informational purposes regarding the anticipated course content and schedule of this course. It is based upon the most recent information on the date of its issuance and is as accurate and complete as possible. The instructor reserve the right to make any changes that deem necessary and /or appropriate. The instructor will make his best efforts to communicate any change in the syllabus in a timely manner. Students are responsible for being aware of these changes."

ME 1403 – Fall 2018
Engineering Practice and Graphics
Lecture portion schedule

	Date	Monday	Wednesday
Week 1	Aug 20 – 26		No Class
Week 2	Aug 27 – Sep 2	Opening Lecture	Inroduction to Technical Drawing
Week 3	Sep 3 – 9	**No Class - Labor Day**	Orthographic Projection
Week 4	Sep 10 – 16	Orthographic writing	Orthographic writing
Week 5	Sep 17 – 23	Orthographic Reading	Orthographic Reading
Week 6	Sep 24 – Sep 30	Review	**First Midterm Exam**
Week 7	Oct 1 – 7	Project	Project - Project management
Week 8	Oct 8 – 14	Pictorial Sketching	Section
Week 9	Oct 15 – 21	Section - Orthographic Convention	Orthographic Convention
Week 10	Oct 22 – 28	Convention in section - Review	**Second Midterm Exam**
Week 11	Oct 29 – Nov 4	Dimensioning	Dimensioning
Week 12	Nov 5 – 11	Thread Fastener	**GUEST LECTURE**
Week 13	Nov 12 – 18	Thread Fastener	Working Drawing
Week 14	Nov 19 – 25	Working Drawing	Tolerancing
Week 15	Nov 26 – Dec 2	Tolerancing	**GUEST LECTURE**
Week 16	Dec 3 – 9	Engineering Ethics	Engineering Ethics - Closing Lecture
Week 17	**Final Exam: Mon, Dec 10, 12:30 pm - 03:00 pm**		

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Part B 2– Computer Graphic Laboratory Practice

Teaching Assistants:

Name	Last name	email
Chi-Wen (Mike)	Chang	chi-wen.chang@utsa.edu
Daniel	Ramirez	azc408@my.utsa.edu
Syed Hasib Akhter	Faruqui	shafnehal@gmail.com
Minhajul (Simon)	Abrar	mabrarsimon@gmail.com

Lab Location: **AET 0.210.1**

Laboratory Timings:

SECTION	LOCATION	DAY/TIME	Teaching Assistant
ME 1403 OL1	AET 0.210.1	TR 8:30-9:45am	Mike
ME 1403 OL2	AET 0.210.1	MW 12:30-1:45pm	Simon
ME 1403 OL3	AET 0.210.1	MW 5:30-6:45pm	Syed
ME 1403 OL4	AET 0.210.1	MW 7:00-8:15pm	Daniel
ME 1403 OL5	AET 0.210.1	TR 10:00-11:15am	Mike
ME 1403 OL6	AET 0.210.1	TR 11:30-12:45pm	Daniel
ME 1403 OL7	AET 0.210.1	TR 3:00-4:15pm	Simon
ME 1403 OL8	AET 0.210.1	TR 4:30-5:45pm	Syed

COURSE POLICIES

Course Activities:

This course consists of a combination of lectures and laboratory activities. Lectures will include topics consistent with course objectives, lab instructions, and in-class exercises. During class and laboratory sessions, you will learn to use engineering analysis techniques, modern engineering software and behavior attributes of a professional engineer. At the end of the laboratory session

you must remove from your work area all trash and leave it clean for the next student. If you leave your work area messy you will receive NO credit for attendance of laboratory session.

Attendance:

Attendance at each class and laboratory meeting is MANDATORY. Attendance will be taken and your lack of attendance WILL affect your final grade. **AFTER THE 4TH ABSENCE OF THE CLASS WITHOUT A VALID EXCUSE, YOUR FINAL LETTER GRADE WILL BE REDUCED 10 POINT FOR EACH ABSENCE**.

If you fail to attend and participate in the laboratory, your assignments will receive a grade of ZERO. Laboratory sessions begin as posted. Students who arrive five (5) minutes after class begins will be dismissed and will receive NO CREDIT FOR ATTENDANCE, and the assigned homework will receive a grade of ZERO. Students, who leaves the lab before the end of the class will receive NO CREDIT FOR ATTENDANCE.

Tutorials/Homework:

A. Tutorials are due at the end of the last lab of the week. Homework are due at the beginning of the first lab of the following week.
B. Assignment must be submitted **via BLACKBOARD**. Submissions after the **deadline** WILL NOT BE ACCEPTED and WILL RECEIVE A GRADE OF ZERO. Late assignments will NOT be accepted. No assignment will be accepted if submitted by e-mail, slipped under the instructor's door, left in instructor's mailbox or otherwise submitted to the instructor.
C. Each drawing submitted MUST have the front, side, top and isometric views.

**Assignments without the proper format WILL NOT BE ACCEPTED and WILL RECEIVE A GRADE OF ZERO.

Examination Schedule:

Midterm and final exam/project schedule is shown in the attached Assignment Table.

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Lab portion schedule

	Date	CHAPTERS	IN-CLASS TUTORIALS	Exams (Wednesday)
Week 1	Aug 20 – 26			
Week 2	Aug 27 – Sep 2	Chapter 2	Tut: 2, 3, 4, Ex:3	
Week 3	Sep 3 – 9	Chapter 3	Tut: 2, 3 Ex:3	**Quiz 1 (Skatches, Chapter 2,3)**
Week 4	Sep 10 – 16	Chapter 4	Tut: 1, 2 Ex: 1	
Week 5	Sep 17 – 23	Chapter 5	Tut: 1,3	**First Midterm Exam (Chapter 2-4)**
Week 6	Sep 24 – Sep 30	Chapter 6	Tut: 2, 3 Ex:1	
Week 7	Oct 1 – 7	Chapter 7	Tut: 1, 2 Ex: 1	**Quiz 2 (Part Design, Chapter 5 & 6)**
Week 8	Oct 8 – 14	Chapter 8	Tut: 1, 3 Ex:3	
Week 9	Oct 15 – 21	Chapter 9	Tut: 2, 3 Ex:2	**Quiz 3 (Part Design, Chapter 7 & 8)**
Week 10	Oct 22 – 28	Chapter 12	Tut: 1	
Week 11	Oct 29 – Nov 4	Chapter 12	Tut: 2 Ex: 3	**Second Midterm Exam (Chapter 5-9)**
Week 12	Nov 5 – 11	Chapter 13	Tut: 1,2 Ex:1	
Week 13	Nov 12 – 18	Chapter 14	Tut: 1,2 Ex:1	**Quiz 4 (Assembly, Chapter 12 & 13)**
Week 14	Nov 19 – 25	Chapter 15	Tut: 1,2 Ex:1	
Week 15	Nov 26 – Dec 2	Rendering		**Final Presentation**
Week 16	Dec 3 – 9	**Final Exam: Mon,Tue April 23, 24**		