1: Course Logistics
   - Semester: Spring 2020
   - Section: 010
   - Class Days: Thursday
   - Class Time: 2:00 pm – 2:50 pm
   - Location: VIN 241
   - Section: 01Z
   - Lab Day: Thursday
   - Lab Time: 3:00 pm – 5:50 pm
   - Location: VIN 245

2: Instructor Information
   - Instructor: Gustavo Vargas Silva, PhD
   - Email: gustavo.vargas-silva@angelo.edu
   - Phone: (325) 486-5540
   - Office: Vincent Building 270
   - Office Hours: See Engineering Homepage

3: Required Materials
   The textbook listed below is recommended only.
   - Solidworks 2018 for Designers by Sham Tickoo; Edition: 16th, Publisher: CADCIM.
   - USB drive.

   It is also recommended that you purchase a binder to organize your notes for the class. The class primarily uses handouts, which are posted to Blackboard and need to be printed and brought class.

4: Prerequisites
   - ENGR 1304 Engineering Graphics

5: Course Description
   **Catalog:** Use of solid modeling platforms to address the design of common machine and structural elements. You will receive a hands-on introduction to the computer aided design (CAD) techniques for engineering design process. You will learn the ASME Engineering Drawing Practice standard for drawing and documentation. Create geometric models and dimensioned engineering drawings using the SolidWorks (SW) commercial software. The concepts and practice of 3D printing, and sample rapid prototyping parts will be printed.

   **Objective:** The objective of this course is to use of solid modeling platforms to address the design of common machine and structural elements related to engineering problems.

6: Student Learning Outcomes
   When you complete this class you should be able to:
   1. Construct two-dimensional sketches, and three-dimensional objects;
   2. Editing and Modifying an existing drawing;
   3. Construct assemblies of objects;
4. Apply proper relations and dimensions to sketches;
5. Prepare multiple drawing views;
6. Perform a rapid prototyping (3D printing) of a final project using 3D printers.

7: Course Outcome Mapping

The mapping of the Student Learning Outcomes for the course to the ABET Criterion 3 Student Outcomes is shown in Table 1.

Table 1: Student Learning Outcome Mapping to ABET Criterion 3

<table>
<thead>
<tr>
<th>Course Learning Outcome</th>
<th>1 Solve Problems</th>
<th>2 Design</th>
<th>3 Communication</th>
<th>4 Ethics &amp; Professionalism</th>
<th>5 Teamwork</th>
<th>6 Experimentation</th>
<th>7 Acquire Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<td>5</td>
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<tr>
<td>6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

8: Course Structure, Communication, Policies

This course has two significant components: one 1-hour lecture per week and one 3-hour lab session per week. On-time attendance of lab sessions is required.

For each lecture, you are expected to have practiced the assigned task ahead of time, and to be ready to engage with the lesson materials (through in-class exercises, discussions, and activities).

For each lab, you are expected: 1) to have read the lab exercise ahead of time, 2) to be attentive of the practice at hand, 3) and to be respectful of laboratory equipment and laboratory space.

As your instructor, you can expect from me: 1) to be prepared with lecture and lab materials in a timely fashion, 2) to value your time by ending lectures as scheduled, 3) to ensure your safety in lab by having prepared materials and equipment beforehand, 4) to provide constructive feedback on your homework and lab report/project submissions, and 5) to be adaptive and responsive should scheduling challenges arise.

The value of the course to you will be highly dependent upon your preparation for class. We will be using both Blackboard, and email to communicate during this course. Lesson materials will be organized on the Blackboard website for the course.

Attendance at lectures is required. Some of the material presented will correlate with the textbook, but other material will not and/or may be presented differently. You are responsible for all topics that are covered in class.

Important course announcements and changes will be sent by email via Blackboard. Students are expected to regularly check their Angelo State University email for these messages.

Academic integrity is expected from all students at all times in accordance with Part I, Section B.1 of the Angelo State University Code of Student Conduct.

Respect for your fellow classmates is required. Do not act in a manner that may distract others, including but not limited to: talking during lecture, texting, receiving obnoxious phone calls, watching YouTube videos, eating noisily, listening to loud music, walking to the front of the room during lecture.
just to turn your homework in because you were late to class, etc... If you need to do any of these activities, you are free to leave the classroom.

9: Professionalism

Professional engineering standard apply in this class. You are expected to demonstrate a behavior consistent with the conduct of an individual practicing in the engineering profession. You are expected to: (1) come prepared for class; (2) respect faculty and peers; (3) demonstrate responsibility and accountability for your own actions; (4) demonstrate sensitivity and appreciation for diverse cultures, backgrounds, and life experiences; (5) offer and accept constructive criticism in a productive manner; (6) demonstrate an attitude that fosters professional behavior among peers and faculty; (7) be punctual to class meetings; (8) maintain a good work ethic and integrity; and (9) recognize the classroom as a professional workplace.

10: Graded Material

10.1: Class Attendance, Participation, Timeliness and Teamwork

You are expected to meet every class meeting on time and prepared. Attendance will be taken. Should you find it necessary to miss a class for any reason, you are expected to notify your instructor as early as the absence is known—preferably before the absence. It’s important that you communicate clearly your instructors.

10.2: Reading Assignments and Homework

You will be given reading and homework assignments nearly every lesson. Reading assignments will come from the assigned textbooks or other materials provided or available. The homework assignments will consist of questions to be answered during your reading and preparation for class. Reading and homework assignments can be distributed via the Blackboard.

10.3: Projects

This course will have four individual projects and a final group project.

10.4: Grade Weighting

The weighting system shown in Table 2 will be used in determining final grade for the course.

Table 2: Grade weighting

<table>
<thead>
<tr>
<th>Item</th>
<th>Percent</th>
</tr>
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<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Project 01</td>
<td>15%</td>
</tr>
<tr>
<td>Project 02</td>
<td>15%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 03</td>
<td>15%</td>
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<tr>
<td>Project 04</td>
<td>15%</td>
</tr>
<tr>
<td>Final Project</td>
<td>30%</td>
</tr>
</tbody>
</table>

10.5: Grading Scale

All grades will be assigned on an absolute scale as a minimum. The instructor reserves the right to adjust the weights given to the projects/homework listed above. Any adjustments will be applied evenly to the entire class and never to the detriment of your grade.

The instructor will determine letter grades for the course using his professional judgment, and the following standards as described in the University Catalog:

A  Excellent work  B  Good work  C  Average work  D  Poor work  F  Failing work
11: Classroom and University Policies and Student Support

11.1: General Policies

All students are required to follow the policies and procedures presented in the Angelo State University Student Handbook\(^2\) and Angelo State University Catalog\(^3\).

11.2: Student Disability Services

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA), and subsequent legislation.

The Office of Student Affairs is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability, and it is the student’s responsibility to initiate such a request by contacting Ms. Dallas Swafford, Director of Student Disability Services, at 325-942-2047 or Dallas.Swafford@angelo.edu, or visit the Student Disabilities Services website\(^4\).

11.3: Title IX Statement

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU's Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Boone, J.D.
Director of Title IX Compliance/Title IX Coordinator
Face to face: Mayer Administration Building, Room 210
325-942-2022, michelle.boone@angelo.edu

You may also file a report online 24/7 at www.angelo.edu/incident-form\(^5\)

If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information about Title IX in general you may visit www.angelo.edu/title-ix\(^6\).

11.4: Observance of Religious Holy Day

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day\(^7\) for more information.

11.5: Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures\(^8\) for more information.
11.6: Student Conduct Policies

11.6.1: Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the Statement of Academic Integrity.

11.6.2: Plagiarism

Plagiarism is a serious topic covered in ASU’s Academic Integrity policy in the Student Handbook. Plagiarism is the action or practice of taking someone else’s work, idea, etc., and passing it off as one’s own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality via Turnitin. Resources to help you understand this policy better are available at the ASU Writing Center.

11.6.3: Copyright Policy

Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

12: Course Specific Information

12.1: Photo/Video Policy

Lectures, classroom activities, and laboratory experiments throughout the course may be photographed/filmed by the instructor for educational purposes pertaining to research and scholarship. Personally identifying information will not be used. An informed consent form and copyright release form will be forthcoming.

Some pictures/videos may be included on social media by the ENGR department and/or professor. In general, students will be informed prior to public posting of this content.

Students are allowed to take photos/videos of lectures and classroom activities provided the following conditions are met:

- The capturing of the photo/video is not disruptive to other students or the professor.
- The photos/videos are for personal use only (not posted publicly), unless otherwise discussed.

13: Instructor Prerogative

The instructor reserves the right to change the policies and procedures of this course when he deems it necessary. Any such changes will be implemented fairly and will typically not be a detriment to your grade. The instructor will notify you of any such changes in a timely manner.
14: Course Outline

The course outline is presented in Table 3. More detail and updates will be provided via Bb.

Table 3: Course lesson outline

<table>
<thead>
<tr>
<th>Week / Lecture</th>
<th>Date</th>
<th>Topic</th>
<th>Text Book</th>
<th>HW Due</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Jan 14</td>
<td>Syllabus and Intro. to SW</td>
<td>CH 1: Intro. to SW</td>
<td></td>
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</tr>
<tr>
<td>02</td>
<td>Jan 21</td>
<td>Engr. Drawing Practice ASME Y14.100</td>
<td>ASME Standard</td>
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<tr>
<td>03</td>
<td>Jan 28</td>
<td>ASME Y14.100 + Introduction to Rapid Prototyping (RP)</td>
<td>Std. Draw. Template</td>
<td>HW 1</td>
<td>Project 1: Review</td>
</tr>
<tr>
<td>04</td>
<td>Feb 04</td>
<td>Drawing Sketches for Solid models Example: 1 and 2</td>
<td>CH 2: Line, Circles, Arc, and rectangles</td>
<td></td>
<td>Project 1: Practice</td>
</tr>
<tr>
<td>05</td>
<td>Feb 11</td>
<td>Drawing Sketches for Solid models Example: 3 and 4</td>
<td>CH 2: Polygons, Slots, Ellipses, Parabolic and conic curves</td>
<td>HW 2</td>
<td>Project 1: Due, Project 2: Review</td>
</tr>
<tr>
<td>06</td>
<td>Feb 18</td>
<td>Application of RP using desktop printing system</td>
<td></td>
<td>HW 3</td>
<td>Project 2: Practice</td>
</tr>
<tr>
<td>07</td>
<td>Feb 25</td>
<td>Editing and Modifying Sketches, Example: 1</td>
<td>CH 3: Trimming, Extending, Convert, Intersection, Filleting, Chamfering</td>
<td></td>
<td>Project 2: Practice</td>
</tr>
<tr>
<td>08</td>
<td>Mar 03</td>
<td>Editing and Modifying Sketches, Example: 2</td>
<td>CH 3: Offset, Mirror, Rotating, Stretching</td>
<td>HW 4</td>
<td>Project 2: Due, Project 3: Review</td>
</tr>
<tr>
<td>09</td>
<td>Mar 10</td>
<td>SPRING BREAK</td>
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</tr>
<tr>
<td>10</td>
<td>Mar 17</td>
<td>Editing and Modifying Sketches, Example: 3</td>
<td>CH 3: Modifying Sketches</td>
<td>HW 5</td>
<td>Project 3: Practice</td>
</tr>
<tr>
<td>11</td>
<td>Mar 24</td>
<td>Adding Relations and Dimensions</td>
<td>CH 4: Example 1, 2, 3</td>
<td></td>
<td>Project 3: Practice</td>
</tr>
<tr>
<td>12</td>
<td>Mar 31</td>
<td>Assembly Modeling Example: 1</td>
<td>CH12: Top-Down Assemblies</td>
<td></td>
<td>Project 3: Due, Project 4: Review</td>
</tr>
<tr>
<td>13</td>
<td>Apr 07</td>
<td>Assembly Modeling Example: 2</td>
<td>CH 12: Moving and Rotating Assemblies</td>
<td>HW 6</td>
<td>Project 4: Practice</td>
</tr>
<tr>
<td>14</td>
<td>Apr 14</td>
<td>Assembly Modeling</td>
<td>CH 13: Mechanical Mates</td>
<td></td>
<td>Project 4: Due, Final Project: Review</td>
</tr>
<tr>
<td>15</td>
<td>Apr 21</td>
<td>Drawing Views</td>
<td>CH 14: Standard views</td>
<td>HW 7</td>
<td>Final Project: Practice</td>
</tr>
<tr>
<td>16</td>
<td>Apr 28</td>
<td></td>
<td></td>
<td></td>
<td>Final Project: Due</td>
</tr>
</tbody>
</table>

15: End Notes: Complete Hyperlinks From Syllabus

2 http://www.angelo.edu/student-handbook/
3 http://www.angelo.edu/catalogs/
4 http://www.angelo.edu/services/disability-services/
5 http://www.angelo.edu/incident-form
6 http://www.angelo.edu/title-ix
7 http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of
8 http://www.angelo.edu/content/files/14197-op-1011-grading-procedures
9 http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
10 http://www.angelo.edu/dept/writing_center/academic_honesty.php