

## **ENGR 4421-120, 81300, Solid Modeling**

### **Fall 2021**

Texas A&M University-Central Texas

### **COURSE DATES, MODALITY, AND LOCATION**

16-week class, 08/23/21 – 12/10/21

Weekly classes are Tuesdays 2:00 pm -4:45 pm and Labs on Thursdays 2:00 pm – 5:00 pm at Founder's Hall Building, Room 207. *Classes will focus on problem-solving. Students are expected to already be familiar with the material BEFORE class by referring to the supplemental textbook.*

### **INSTRUCTOR AND CONTACT INFORMATION**

**Instructor:** Sam Jackson

**Office:** 302D Heritage Hall

**Email:** sam.jackson@tamuct.edu

### **Office Hours**

I will be available for students on an appointment-basis, please send me an email to set an appointment.

### **Student-instructor interaction**

The instructor will reply to the students' emails within 24 hours. The students need to make an appointment with the instructor if the student need to meet the Instructor during the office hours

### **WARRIOR SHIELD**

#### **Emergency Warning System for Texas A&M University-Central Texas**

Warrior Shield is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in Warrior Shield through their myCT email account.

Connect to Warrior Shield by [911Cellular](https://www.tamuct.edu/police/911cellular.html) [https://www.tamuct.edu/police/911cellular.html] to change where you receive your alerts or to opt out. By staying enrolled in Warrior Shield, university officials can quickly pass on safety-related information, regardless of your location.

**Fall 2021 Return to Campus Plan.** For the most recent campus information regarding COVID-19 see the Texas A&M University-Central Texas Fall 2021 Return to Campus Plan [https://www.tamuct.edu/covid19/]

### **COURSE INFORMATION**

#### **Course Overview and description**

A study of the development and application of solid models of components and assemblies in engineering design and analysis. The course covers the use of solid models in problems related to component design, stress analysis, fluid flow, heat transfer, machine dynamics, and assembly

interference. Students will produce engineering drawings, visual representations, and data files for machining and rapid prototyping taking into account the accuracy and validity considerations of solid models.

### **Course Objective or Goal**

#### **Student Learning Outcomes**

1. Identify, analyze, and solve broadly-defined engineering technology problems
2. Apply the knowledge, techniques, skills, and modern tools of the discipline
3. Adapt to emerging applications of mathematics, science, engineering, and technology
4. Design, develop, implement, operate, and maintain mechanical systems
5. Improve processes by conducting, analyzing, and interpreting experiments using standard tests and measurements
6. Apply written, oral, and graphical communication in both technical and non-technical environments
7. Collaborate with others as a member or leader in an engineering team.

#### **Required Reading and Textbook(s)**

- SolidWorks Software.

#### **Supplemental Text**

- Introduction to Solid Modeling Using SolidWorks 2019 15th Edition by William Howard (Author), Joseph Musto (Author)

### **COURSE REQUIREMENTS**

Course Requirements: (include point values for each- not just a percentage)

- Homework 40 points.(SLO 1-4)
- Projects 60 points. There are 2 Projects of weight 30 points each. (The Projects are Proctored during the class time) (SLO 1-4)

### **PROJECTS**

Two large **Projects** will be conducted during the semester

#### Project 1 Parts design (30 weighted pts);

The Instructor will assign a part to design using the tools that the students learn from the first 8 weeks of class. The student has to design the part using the SolidWork software and do a presentation about the tools that the student used to design the part. The presentation will be 10 minutes during the class time. The project will be graded up to 100 pts and then scaled to the 30 pt weight. Grading will be according to the rubric at the end of the syllabus.

#### Project 2 Assemble parts (30 weighted pts)

The Instructor will assign three parts to design using the tools that the students learn from the 14 weeks of class then assemble them together. The student has to design the parts and assemble them using the SolidWork software and do a final presentation about the tools that the student used in the project. The presentation will be 15 minutes during the class time. The project will be graded up to 100 pts and then scaled to the 30

pt weight. Grading will be according to the rubric at the end of the syllabus.

### Grading Criteria Rubric and Conversion

Homework	40% (40 points)	90- 100%= A
Project 1	30% (30 points)	80- 89%= B
Project 2	30% (30 points)	70- 79%= C
		60- 69%= D
TOTAL	100% (100 points)	Below 60 % F

### Posting of Grades

Combined grades will be posted on TAMUCT Canvas after each Project.

### COURSE OUTLINE AND CALENDAR

#### Complete Course Calendar

Week # T, R)	New Material
#1 Aug 24, 26	Chapter 1
#2 Aug 31, Sep 2	Chapter 1
#3 Sep 7, 9	Chapter 2
#4 Sep 14, 16	Chapter 2 and 3
#5 Sep 21, 23	Chapter 3
#6 Sep 28, 30	Chapter 4
#7 Oct 5, 7	Chapter 5
#8 Oct 12, 14	Chapter 5
#9 Oct 19, 21	Project 1
#10 Oct 26, 28	Chapter 6
#11 Nov 2, 4	Chapter 7
#12 Nov 9	Chapter 7
#13 Nov 16, 18	Chapter 8
#14 Nov 23	Chapter 8
#15 Nov 30, Dec 2	TBD
#16 Dec 7	Project 2

### Important University Dates

see <https://www.tamuct.edu/registrar/academic-calendar.html>

### TECHNOLOGY REQUIREMENTS AND SUPPORT

The students need SolidWorks Software.

### Technology Requirements

This course will use the A&M-Central Texas Instructure Canvas learning management system.

**We strongly recommend the latest versions of Chrome or Firefox browsers. Canvas no longer**

### **supports any version of Internet Explorer.**

Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com/>] or access Canvas through the TAMUCT Online link in myCT [<https://tamuct.onecampus.com/>]. You will log in through our Microsoft portal.

Username: Your MyCT email address. Password: Your MyCT password

### **Canvas Support**

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select “Chat with Canvas Support,” submit a support request through “Report a Problem,” or call the Canvas support line: 1-844-757-0953.

For issues related to course content and requirements, contact your instructor.

### **Online Proctored Testing**

A&M-Central Texas uses Proctorio for online identity verification and proctored testing. This service is provided at no direct cost to students. If the course requires identity verification or proctored testing, the technology requirements are: Any computer meeting the minimum computing requirements, plus web camera, speaker, and microphone (or headset). Proctorio also requires the Chrome web browser with their custom plug in.

### **Other Technology Support**

For log-in problems, students should contact Help Desk Central

24 hours a day, 7 days a week

Email: [helpdesk@tamu.edu](mailto:helpdesk@tamu.edu)

Phone: (254) 519-5466

[Web Chat](http://hdc.tamu.edu): [<http://hdc.tamu.edu>]

*Please let the support technician know you are an A&M-Central Texas student.*

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## **UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES**

### **Drop Policy**

If you discover that you need to drop this class, you must complete the [Drop Request](#) Dynamic Form through Warrior Web.

[<https://dynamicforms.ngwebsolutions.com/casAuthentication.ashx?InstID=eaed95b9-f2be-45f3-a37d-46928168bc10&targetUrl=https%3A%2F%2Fdynamicforms.ngwebsolutions.com%2Fsubmit%2FForm%2Fstart%2F53b8369e-0502-4f36-be43-f02a4202f612>].

Faculty cannot drop students; this is always the responsibility of the student. The Registrar’s Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Registrar’s Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar’s Office immediately. You are to attend class until the procedure is complete to avoid

penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

### **Academic Integrity**

Texas A&M University-Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. All academic misconduct concerns will be referred to the Office of Student Conduct. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more [information regarding the Student Conduct process](https://www.tamuct.edu/student-affairs/student-conduct.html), [https://www.tamuct.edu/student-affairs/student-conduct.html].

If you know of potential honor violations by other students, you may [submit a report](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0), [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout\_id=0].

### **Academic Accommodations**

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Office of Access and Inclusion is responsible for ensuring that students with a disability receive equal access to the university's programs, services and activities. If you believe you have a disability requiring reasonable accommodations, please contact the Office of Access and Inclusion, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such.

For more information, please visit our [Access & Inclusion](https://tamuct.instructure.com/courses/717) Canvas page (log-in required) [https://tamuct.instructure.com/courses/717]

### **Important information for Pregnant and/or Parenting Students**

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit [Student Affairs](https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html) [https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf) online, please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in

the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

### **Tutoring**

Tutoring is available to all A&M-Central Texas students, on a remote online basis. Visit the Academic Support Community in Canvas to view schedules and contact information. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Student success coaching is available online upon request.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, success coaching, or have any other question, contact Academic Support Programs at (254) 501-5836, visit the Office of Student Success at 212F Warrior Hall, or by emailing [studentsuccess@tamuct.edu](mailto:studentsuccess@tamuct.edu).

Chat live with a tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive online tutoring support at no additional cost. This tool provides tutoring in over 40 subject areas except writing support. Access Tutor.com through Canvas.

### **University Writing Center**

University Writing Center: Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (A&M–Central Texas) is a free service open to all A&M–Central Texas students. For the Fall 2021 semester, the hours of operation are from 10:00 a.m.-5:00 p.m. Monday thru Thursday in Warrior Hall 416 (with online tutoring available every hour as well) with satellite hours available online only Monday thru Thursday from 6:00-9:00 p.m. and Saturday 12:00-3:00 p.m.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. By providing a practice audience for students' ideas and writing, our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. In addition, students may work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

Students may arrange a one-to-one session with a trained and experienced writing tutor by making an appointment via WOnline at <https://tamuct.mywconline.com/>. In addition, you can email Dr. Bruce Bowles Jr. at [bruce.bowles@tamuct.edu](mailto:bruce.bowles@tamuct.edu) if you have any questions about the UWC, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor by making an appointment via WOnline at <https://tamuct.mywconline.com/>. In addition, you can email Dr. Bruce Bowles Jr. at

bruce.bowles@tamuct.edu if you have any questions about the UWC, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor.

### **University Library**

The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 400,000 eBooks and 82,000 journals, in addition to the 96,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place virtually through WebEx, Microsoft Teams or in-person at the library. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our [Library website](http://tamuct.libguides.com/index) [http://tamuct.libguides.com/index].

### **OPTIONAL POLICY STATEMENTS**

#### **A Note about Sexual Violence at A&M-Central Texas**

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Wellness and Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/compliance/titleix.html) [https://www.tamuct.edu/compliance/titleix.html].

#### **Behavioral Intervention**

Texas A&M University-Central Texas cares about the safety, health, and well-being of its

students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, please make a referral to the Behavioral Intervention Team. Referring your concern shows you care. You can complete the [referral](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2) online [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout\_id=2].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](https://www.tamuct.edu/bit) website for more information [https://www.tamuct.edu/bit]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5800.

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## **OTHER POLICIES**

### **Copyright Notice**

Students should assume that all course material is copyrighted by the respective author(s). Reproduction of course material is prohibited without consent by the author and/or course instructor. Violation of copyright is against the law and Texas A&M University-Central Texas' Code of Academic Honesty. All alleged violations will be reported to the Office of Student Conduct.



## Projects Rubric

<b>Category</b>	<b>Excellent (A) 95%</b>	<b>Good (B) 85%</b>	<b>Fair (C) 75%</b>	<b>Poor (D) 65%</b>	<b>Fail (F) 0%</b>
<b>Title (5%)</b>	Clearly describes the content of the Design.	Describes the content but the usage of descriptive words is not appropriate	The content is not clearly described. Fair use of descriptive words	No title. Poor description or poor use of descriptive words.	No submission/No effort exhibited
<b>2D CAD Design (25%)</b>	Perfect 2D CAD Design	Minor procedural error	Missing no more than one view on the 2D Design	Major conceptual or procedural error.	No submission/No effort exhibited
<b>Dimensions (20%)</b>	Perfect Dimensioning	Error within 1% - 10% in Dimensioning	Error within 11% - 20% in Dimensioning	Error more than 20% in Dimensioning	No submission/No effort exhibited
<b>Presentation (10%)</b>	Effectively uses eye contact. Speaks clearly, effectively and confidently using suitable volume and pace. Fully engages the audience. Selects rich and varied words for context and uses correct grammar.	Maintains eye contact. Speaks clearly and uses suitable volume and pace. Takes steps to engage the audience. Dresses appropriately. Selects words appropriate for context and uses correct grammar.	Some eye contact, but not maintained. Speaks clearly and unclearly in different portions. Occasionally engages audience. Dresses inappropriately. Selects words inappropriate for context; uses incorrect grammar.	Poor eye contact. Not audible and uses unsuitable pace. No audience engagement. Uses incorrect words or grammar	No submission/No effort exhibited

Final 3D Design (40%)	Perfect.	Minor careless or technical mistakes	Makes beginning steps towards the final design	Some relevant information supplied	No submission/No effort exhibited
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