

**ENGT 3302-110, 10317, Manufacturing Processes
Spring 2020**

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

January 13th-May 8th, 2020, Tuesday and Thursday, 4.00 - 5.15 pm

Instructional Method: Face to Face

Location: Founder's Hall, Room 212

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Dr Rakesh Sagar

Email: rakeshsagar@tamuct.edu

Office Hours

Contact me by email for appointments at least two days before class.

Student-instructor interaction

I will be checking email on regular basis and would reply as promptly as possible.

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://portal.publicsafetycloud.net/Account/Login) [https://portal.publicsafetycloud.net/Account/Login] 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.

COURSE INFORMATION

Course Overview and description

Manufacturing processes is a 3.00 credit hour, face to face learning lecture course taught twice a week. The course entails following topics: Introduction to metal and non-metallic manufacturing processes including casting, forging, rolling, extrusion, sheet metal forming, cutting tools turning and milling operations, abrasive machining, welding and joining, powder compaction, molding, forming of plastics and surface treatments.

Course Objective or Goal

Mechanical engineering is a vast branch of knowledge, it helps the students to handle the problems of design, manufacturing, maintenance of mechanical equipment's and machines.

Student Learning Outcomes

1. Explain mechanical behavior and testing of materials. Describe the physical properties of materials.
2. Understand the casting, welding and other joining processes.

3. A working knowledge of extrusion, wire drawing, sheet metal forming, rolling and forging of metals.
4. Understand the fundamentals and the processes of machining.

Competency Goals Statements (certification or standards)

Prerequisite(s): ENGT 3415 (Co-requisite), CTC ENGR 2302 or equivalent.

Required Reading and Textbook(s)

Manufacturing Engineering & Technology, 7th Edition, Serope Kalpakjian, Steven Schmid, Published by Pearson, ISBN-13: 9780133128741.

COURSE REQUIREMENTS

1. The course will involve home works and exams.
2. Periodic home works will be assigned throughout the semester.
3. The course will entail **three** midterm exams and a **comprehensive** final exam.

Grading Criteria Rubric and Conversion

Activity	Points	% of Final Grade
Midterm Exams	35	35
Homework	40	40
Final Exam	25	25

Assessments:

1. Home Work- Total 40 points
2. Exams:
 - a) 1st Exam - Total 10 points
 - b) 2nd Exam - Total 10 points
 - c) 3rd Exam - Total 15 points
 - d) Comprehensive Final Exam- 25 points
 - e) Course grades will be assigned by the following scale based on weighted grade percentage.

Grade	Weighted Grade (%)
A	>= 90.00
B	80.00 - 89.99
C	70.00 - 79.99
D	60.00 - 69.99
F	< 60.00

Posting of Grades

All turned in work will be graded within 2 weeks and results will be posted on Canvas.

COURSE OUTLINE AND CALENDAR
Complete Course Calendar

Week	Day	Topic	Reading
1	T, 01/14	General Introduction	
	R, 01/16	Fundamentals of Materials: Behavior and Manufacturing Properties	Ch 1
2	T, 01/21	Mechanical Behavior, Testing, and Manufacturing Properties of Materials	Ch 2
	R, 01/23	Physical Properties of Materials	Ch 3
3	T, 01/28	Metal Alloys	Ch 4
	R, 01/30	Metal Alloys: Their Structure	Ch 4
4	T, 02/4	Metal Alloys: Modification of properties by Heat Treatment	Ch 4
	R, 02/6	Metal-casting Processes and Equipment	Ch 10
5	T, 02/11	Exam 1	
	R, 02/13	Metal-casting Processes and Equipment	Ch 11
6	T, 02/18	Metal Casting: Design, Materials, and Economics	Ch 12
	R, 02/20	Metal Casting: Design, Materials, and Economics	Ch 12
7	T, 02/25	Forming and Shaping Processes and Equipment	Ch 13
	R, 02/27	Forming and Shaping Processes and Equipment	Ch 13
8	T, 03/03	Metal-forging Processes and Equipment	Ch 14
	R, 03/05	Metal Extrusion and Drawing Processes and Equipment	Ch 15
9	T, 03/17	Exam 2	
	R, 03/19	Sheet-metal Forming Processes and Equipment	Ch 16
10	T, 03/24	Joining Processes and Equipment	Ch 30
	R, 03/26	Joining Processes and Equipment	Ch 30
11	T, 03/31	Powder Metal Processes and Equipment	Ch 17
	R, 04/02	Plastics and Composite Materials: Forming and Shaping	Ch 19
12	T, 04/07	Plastics and Composite Materials: Forming and Shaping	Ch 19
	R, 04/09	Surface Treatments	Ch 34
13	T, 04/14	Exam 3	
	R, 04/16	Fundamentals of Machining	Ch 21
14	T, 04/21	Fundamentals of Machining	Ch 21
	R, 04/23	Machining Processes: Milling, Broaching, Sawing, Filing, and Gear Manufacturing	Ch 24
15	T, 04/28	Advanced Machining Processes and Equipment	Ch 27
	R, 04/30	Review	
16	T, 05/05	Final Comprehensive Exam	

Important University Dates

January 13, 2020	Add, Drop and Late Registration Begins for 16- and First 8-Week Classes \$25 Fee assessed for late registrants
January 13, 2020	Classes Begin for Spring Semester
January 15, 2020	Deadline for Add, Drop, and Late Registration for 16- and First 8-Week Classes
January 20, 2020	Martin Luther King, Jr Day (University Closed)
January 21, 2020	Deadline to Drop First 8-Week Classes with No Record
January 29, 2020	Deadline to Drop 16-Week Classes with No Record
February 21, 2020	Deadline to Drop First 8-Week Classes with a Quit (Q) or Withdraw (W)
March 1, 2020	Deadline for Teacher Education and Professional Certification Applications
March 6, 2020	Classes end for 1st 8-Weeks
March 9-12, 2020	Spring Break (No Classes - Administrative Offices Open)
March 13, 2020	Spring Break (University Closed)
March 10, 2020	Deadline for Faculty Submission of First 8-Week Final Class Grades (due by 3pm)
March 15, 2020	Deadline for Clinical Teaching/Practicum Applications
March 16, 2020	Add, Drop, and Late Registration Begins for Second 8-Week Classes \$25 Fee assessed for late registrants
March 16, 2020	Classes Begin for Second 8-Week Session
March 16, 2020	Class Schedule Published for Summer Semester
March 18, 2020	Deadline for Add, Drop, and Late Registration for Second 8-Week Classes
March 23,	Deadline to Drop Second 8-Week Classes with No Record

2020

March 27, 2020	Deadline for Graduation Application for Ceremony Participation
March 30, 2020	Registration Opens for Seniors, Post-Bacc, and Graduate Students for Summer Semester
April 3, 2020	Deadline to Drop 16-Week Classes with a Quit (Q) or Withdraw (W)
April 6, 2020	Registration opens for all students for the Summer and Fall Semesters
April 24, 2020	Deadline to Drop Second 8-Week Classes with a Quit (Q) or Withdraw (W)
May 8, 2020	Deadline for Applications for Tuition Rebate for Spring Graduation (5pm)
May 8, 2020	Deadline for Degree Conferral Applications to the Registrar's Office. \$20 Late Application Fee.
May 8, 2020	Deadline to Withdraw from the University for 16- and Second 8-Week Classes
May 8, 2020	Spring Semester Ends
May 9, 2020	Spring Commencement Ceremony

TECHNOLOGY REQUIREMENTS AND SUPPORT

Computer access will be needed to complete homework and projects. It is preferable that each student has a laptop, but not required. Use of a calculator (but not a scientific one) will be permissible on exams.

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.

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

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.

UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

Drop Policy

If you discover that you need to drop this class, you must complete a [Drop Request Form](https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf) [https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf].

Professors 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, signed and returned. Once you return the signed 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. Academic integrity is defined as a commitment to honesty, trust, fairness, respect, and responsibility. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. Academic misconduct is any act that improperly affects a true and honest evaluation of a student's academic performance and includes, but is not limited to, working with others in an unauthorized manner, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student's work, collusion, and the abuse of resource materials. All academic misconduct concerns will be referred to the university's Office of Student Conduct. Ignorance of the university's standards and expectations is never an excuse to act with a lack of integrity. 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/index.html) [https://www.tamuct.edu/student-affairs/index.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, both on-campus and online. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors are available at the Tutoring Center in Warrior Hall, Suite 111. Tutor.com tutoring **will not offer writing support** beginning August 1, 2019, but will continue to offer other tutoring support.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, 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 .

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. Access Tutor.com through Canvas.

University Writing Center

Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (TAMUCT) is a free workspace open to all TAMUCT students from 10:00 a.m.-5:00 p.m. Monday thru Thursday with satellite hours in the University Library Monday thru Thursday from 6:00-9:00 p.m. This semester, the UWC is also offering online only hours from 12:00-3:00 p.m. on Saturdays.

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 visiting the UWC during normal operating hours (both half-hour and hour sessions are available) or by making an appointment via [WOnline](https://tamuct.mywconline.com/) [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 and/or need any assistance with scheduling.

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 250,000 eBooks and 82,000 journals, in addition to the 85,000 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 on Skype 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 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/departments/compliance/titleix.php) [https://www.tamuct.edu/departments/compliance/titleix.php].

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, who are exhibiting concerning behaviors, or individuals causing a significant disruption to our community, 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/student-affairs/bat.html) website for more information [https://www.tamuct.edu/student-affairs/bat.html]. 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.

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.

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