



Design for Manufacturing TECH 5413 Fall 2026

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Office Hours: Tuesday: 9:00 am – 11:00 am
Wednesday: 09:00 am– 10:00 am
Thursday: 9:00 am – 11:00 am
Course Dates: August 24 – December 5
Course Credits: 3

Introduction

Hello everyone. I am Dr. Mahmoud Elsharafi and I will be your professor for Design for Manufacturing - TECH 5413.

Design for Manufacturing is a complete web or online course, which is conducted in D2L learning management system (LMS). Along with the recommended text, online lectures, which are summarized elaborations of the text, sample papers and additional reading on subject matter is encouraged. This aids in the completion of homework assignments, projects or group work that I would assign at the end of each chapter. Completed homework should be submitted in the specified drop-box as stipulated. Discussions will be posed from time to time, to ensure that the learning process remain as interactive as possible. Late work is not accepted.

If you have any questions, queries or concerns, feel free to contact me via email or stop by the office. I will be more than willing to help.

Course Description

Course Prerequisites: Graduate standing or the consent of the instructor.

Course Catalog Description: This course is a study of design for manufacturing, and design for quality with an integrated hands-on design project.

Overview of the course:

Purpose: This course is aimed at preparing students for a study of design for manufacturing, and design for quality with an integrated hands-on design project.

Objectives/outcomes: Managers, technical personnel, and engineers must be knowledgeable about methods of design for manufacturing, and design for quality with an integrated hands-on design project.

General Topics: Product-Development Process, Team Behavior and Tools, Problem Definition and Need Identification, Decision Making and Concept Selection, Detail Design, Design for Manufacturing, Cost Evaluation, Risk, Reliability, and Safety.

Target Audience: Graduate standing

Required for any specific major: Online M.S. in Industrial Technology.

Method of instruction: power point lectures, audio files, discussions, group work, etc.

Required Text

Engineering Design by George Dieter and Linda Schmidt. McGraw Hill ISBN: 9781260113297 (Latest Edition)

Important Dates

Fall 2025

Classes begin:	August 24
Deadline to file for graduation	September 21
Last day for “W” Fall 2026 part of term A-4:00 pm	October 7
Last day for “W” for Fall 2026 long and part of Term B - 4:00 p.m:	November 23
Final Exams:	December 5

Course Assessment

Assignments	Points
Home Work 1 - 14	200
Quiz 1-3	300
Final	100
Discussions 1-4	200
Individual Paper (6- 12 pages) Due, week 14	100
Presentation (15 - 20 slides) Due by final (week 15)	100
Total Points	1000

Grading Scale:

Grade	Points
A	900
B	800 to 899
C	700 to 799
D	600 to 699
F	Less than 600

Student e-mail:

All students are provided with email accounts through the university server. Every student must use the university email for student-instructor interaction.

If you choose not to use university email, I will accept yahoo or hotmail or gmail email as long as the email address has your *first* and *last name*.

Policies & Procedures:

1. Submit *Student Information Sheet*:

Every student in this course is expected to complete the student information in discussion 1 at the beginning of the semester.

2. Course Content Structure:

The course is divided into 4 parts.

Every part covers:

- a. online homework;
- b. several chapters,
- c. online discussion topics, and
- d. online test.

You should read the textbook chapter first, and then review the online power points provided. The power point will be summaries or elaborations of the textbook, and the homework is administered at the end of each chapter. After you have completed reviewing the power point, you should then log into "Discussion Tool" and post answers to the discussion question (specific to the part) posted by the instructor. You must also read other students' posts and respond to two other students' responses. Discussion posts must be made by the due date on the schedule in order to receive full credit. You should also complete the Test/Quiz, by the set dates.

3. Grading and Feedback:

All the course activities will be graded one week after the set due date. You can check your grades by going to **GradeBook**. If there is any discrepancy in the grade, you must contact me immediately. I will provide individual feedback or a general feedback throughout the course, as it relates to performance in course activities.

5. Cheating/Plagiarism/Academic Dishonesty:

Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor or the attempt to commit such acts.

"Plagiarism" includes, but is not limited to the appropriation of, buying, receiving as a gift, or obtaining by any means material that is attributable in whole or in part to another source, including words, ideas, illustrations, structure, computer code, other expression and media, and presenting that material as one's own academic work being offered for credit.

NOTE: Students found plagiarizing or cheating will receive a zero for course activity which could cause failure in the class, suspension and/or dismissal from the college.

6. Discussion Board Participation:

Each discussion board post is worth 5% of the grade.

For each discussion question, students must firstly , respond to the question directly, then secondly, read and respond to other students posts and reply to at least two other students responses (not optional). You must ensure that the responses to the questions are meaningful, reflective, refer to personal experience and support your course readings. Avoid postings that are limited to 'I agree' or 'great idea', etc. If you agree (or disagree) with a posting then say why you agree by supporting your statement with concepts from the readings or by bringing in a related example or experience.

You are expected to read all messages. You are responsible for reading all of the messages that are posted in the online discussion. Not reading messages is the equivalent of sleeping in class.

Use a person's name in the body of your message when you reply to their message. It helps to keep all of us oriented. It helps us maintain a clearer sense of who is speaking and who is being spoken to. As we begin to associate names with tone and ideas, we come to know each other better.

Change the subject line when you introduce a new topic. The value of this tip will become apparent as the number of messages grows.

7. Submission and Naming Convention of Course Activities:

Keep in mind the following standards/practices for naming and submission of assignments:

- a. All course activity files that will be submitted to the instructor should bear the name as follows:

First name + last name + the name of the assignment

Example: *Jane Doe Home Work 1* or *Jane Doe Paper*

- b. Be sure to put your name at the top of each page header
- c. Always keep a copy of all the work you submit so that you won't need to re-do it if it should get lost in cyberspace.

8. Make-Up/Late Submission Policy:

All course activities must be submitted before or on set due dates.

9. Accommodation for Students with Disabilities:

Midwestern State University is committed to providing equal access for qualified students with disabilities to all university courses and programs, and by law all students with disabilities are guaranteed a learning environment that provides reasonable accommodation of their disability.

This guarantee is provided through Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. The ADA reads: “No qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subject to discrimination by any such entity.”

The Director of Disability Support Services serves as the ADA Coordinator and may be contacted at (940) 397-4140, TDD (940) 397-4515, or 3410 Taft Blvd., Clark Student Center 168.

9. Course Incomplete/Withdrawal/Grade Appeal:

All students are required to complete the course within the semester they are signed up. Incomplete grades for the course are rarely given and will only be granted if the student has complete at least 75% of the course with a grade of ‘C’ or better and provides a valid, documented excuse for not being able to complete the course on time and has contacted prior to the scheduled last class to request an extension. The student will sign a contract that includes the incomplete course activities and the new due dates.

10. Netiquette:

Anything you type in the discussion area is public – which means that every student in this class (including your instructor) will see what you write. Please pay attention to the language you use and adhere to the following guidelines:

- 1) Do not post anything too personal;
- 2) **Do not use language that is inappropriate for a classroom setting or prejudicial in regard to gender, race, or ethnicity;**
- 3) **Do not all caps in the postings (it is considered shouting)**
- 4) Be courteous and respectful to other people on the list
- 5) Do not overuse acronyms like you would use in text messaging. Some of the list participants may not be familiar with acronyms.
- 6) If the posting is going to be long, use line breaks and paragraphs
- 7) Fill in the Subject Line
- 8) Write your full name at the end of the posting
- 9) Be careful with sarcasm and subtle humor; *one person’s joke is another person’s insult.*

NOTE: If you do not adhere to the guidelines for any posting, you will lose the points that would have been granted, and the instructor reserves the right to remove your posting and to deny you any further posting privileges.

11. Attendance and Class Participation:

Regular and active participation is an essential, unmistakably important aspect of this online course. The expectation of the instructor is that students will log on a minimum of three times every seven days. It is critical that you read all of the lecture and assignment materials as well as all of the public discussion materials. Your full participation ON A WEEKLY BASIS is not only a requirement; it is also an essential aspect of the online course process. All students are expected to do the work assigned, notify the instructor when emergencies arise, and make up assignments no later than the due dates.

12. Tracking:

D2L course platforms have a tracking feature. This feature quantifies how often students access different tools, pages, features, links, discussions, etc. in your course.

13. Absenteeism:

All the course activities have set dates to be completed and submitted. After the due dates the activities will not be available for the students. Thus, if you are ill for a prolonged time and cannot complete the activities, you must contact me and update the situation. You are expected to log into the course every week.

If I am going to be out because of ill health, attending a conference, etc you will be notified through email.

Hardware/Software Requirements:

Computer:

A minimum of 64 MB RAM, 1 G of free disk space, 150 MHz or higher recommended, a monitor capable of at least 800 x 600 resolution

Peripherals: You will need speakers to be able to listen to audio files.

Software:

The course content is presented through Microsoft Office 2007 - Powerpoint presentations, Word documents, Acrobat documents and Tegrity files. In order to view the content you must have Microsoft 2007 programs and Acrobat Reader. You are required to submit all the course activities typed in Microsoft Word 2007.

Anti-virus software: is highly recommended for students and instructors. Online courses involve much file sharing, which increases your risk of computer virus infection. Anti-virus software will help protect your computer in case of exposure to a computer virus.

Other software: There will be audio/video files in the course for which you will need [Windows Media Player](#) or [QuickTime](#) or [Real Player](#).

Internet connection: Recommended - Cable modem, DSL, or intranet (T-1); or 56.6 Kbps modem

Note: Corporate or academic security firewalls may block some course content, such as chat or streaming media. Accommodations for access can usually be arranged if you contact your network administrator, though local security policies ultimately dictate what is allowed. 56 K modem or better

Unsupported Browsers:

America Online (AOL), Prodigy, Juno, MSN, Yahoo and other Internet Service Providers (ISPs), provide their own internal and proprietary web browsers. These browsers may not be compatible with online courses.

Preparation for Computer Emergencies:

Computer Crash

Not having a working computer or a crashed computer during the semester will NOT be considered as an acceptable reason for not completing course activities at a scheduled time. NOTE: Identify a second computer before the semester begins, that you can use when/if your personal computer crashes.

Server problems

When the Blackboard server needs downtime for maintenance, the Blackboard administrator will post an announcement in your course informing the time and the date. If the server experiences unforeseen problems your course instructor will send an email.

Complete Loss of Contact

If you lose contact with me completely (i.e. you cannot contact me via email), you need to call me at my office, and explain the reason you cannot contact me and leave me a way to contact you.

Lost/Corrupt/Disappeared files

You must keep/save a copy of every project/assignment on an external disk or personal computer. In the event of any kind of failure (e.g., D2L server crash or virus infection, students own computer crashes, loss of files in cyberspace, etc) or any contradictions/problems, I may/will request you to resubmit the files. In other words, if you submit a document to me, and I either do not receive it (lost in cyberspace) or it is corrupted when I open it, it is incumbent upon you to resend it to me, corrected, with little or no "downtime" in regard to the timeline for submission.

End-of-Course Evaluation & Instructor Evaluation:

Every student must complete end-of-course evaluation provided by MWSU.

Disclaimer & Rights:

Information contained in this syllabus was to the best knowledge of the instructor considered correct and complete when distributed for use in the beginning of the semester. However, the instructor reserves the right, acting within the policies and procedures of MWSU to make changes in the course content or instructional techniques without notice or obligation. The students will be informed about the changes, if any.

SCHEDULE

A daily or weekly schedule is not required or required addendum as part of the syllabus. It does however, help keep the course on track throughout the semester. It helps the instructor from "running out of time" at the end of a course, enables students to see what is coming up, where

classes fit into the plan, and shows evidence of good planning and organization. It also saves the instructor significant planning time during the course. It is particularly important for an Internet course, because students "attend" classes at different times, so it helps to eliminate the logistical problems caused by changing subject matter or improvising "on the fly."

Week	Topic/Activity	Suggested Reading	Homework	Discussion	Due date
1	Syllabus. Chapter 1: Engineering Design	Chapter 1: Engineering Design Power Point for Chapter 1	Do home-work at end of power point for Chapter 1	Introductions: Each student should create their profile, by adding appropriate details. Name, Address, Phone number (cell/work), Email address. And a profile picture.	It is due on Sunday of week 2
2	Chapter 2 – Product-Development Process	Chapter 2 – Product-Development Process Power Point for Chapter 2	Do home-work at end of power point for Chapter 2		It is due on Sunday of week 3
3	Chapter 3: Team Behavior and Tools Chapter 4 – Gathering Information	Chapter 3: Team Behavior and Tools Chapter 4 – Gathering Information Power Point for Chapter 3, 4	Do home-work at end of power point for Chapter 3, 4		It is due on Sunday of week 4
4	Chapter 5: Problem Definition and Need Identification	Chapter 5: Problem Definition and Need Identification Power Point for Chapter 5	Do home-work at end of power point for Chapter 5	<u>Post a discussion on any ONE and reply to any TWO:</u> Any topic on: Chapters 1-5	It is due on Sunday of week 5
	Quiz 1 – Chapters 1 - 5	Quiz 1			It is due on Sunday of week 6

5	10 short answer questions				Quiz 1 – Chapters 1-5 10 short answer questions
6	Chapter 6 – Concept Generation Chapter 7 – Decision Making and Concept Selection	Chapter 6 – Concept Generation Chapter 7 – Decision Making and Concept Selection Power Point for Chapter 8, 9	Do home-work at end of power point for Chapter 6, 7		It is due on Sunday of week 7
7	Chapter 8: Embodiment Design Chapter 9: Detail Design	Chapter 8: Embodiment Design Chapter 9: Detail Design Power Point for Chapter 8, 9	Do home-work at end of power point for Chapter 8, 9		It is due on Sunday of week 8
8	Chapter 10: Materials Selection	Chapter 10: Materials Selection Power Point for Chapter 10	Do home-work at end of power point for Chapter 10	<u>Post a discussion on any ONE and reply to any TWO: Any topic on:</u> Chapters 6 - 10	It is due on Sunday of week 9
9	Quiz 2: Chapters 6 – 10 10 short answer questions	Quiz 2			Quiz 2: Chapters 6 – 10 10 short answer questions. It is due on Sunday of Week 10
10			Do home-work at end of power point for Chapter 11, 12		It is due on Sunday of Week 11

	Chapter 11: Design for Manufacturing Chapter 12 – Cost Evaluation	Chapter 11: Design for Manufacturing Chapter 12 – Cost Evaluation Power Point for Chapter 11, 12			
11	Chapter 13 – Risk, Reliability, and Safety	Chapter 13 – Risk, Reliability, and Safety Power Point for Chapter 13	Do home-work at end of power point for Chapter 13		It is due on Sunday of Week 12
12	Chapter 14 – Quality, Robust Design, and Optimization	Chapter 14 – Quality, Robust Design, and Optimization Power Point for Chapter 14	Do home-work at end of power point for Chapter 14 <u>Post a discussion on any ONE and reply to any TWO: Any topic on:</u> Chapters 11 - 14		It is due on Sunday of Week 13
13	Quiz 3: Chapters 11 – 14 10 short answer questions.				It is due on Sunday of week 14 Quiz 3: Chapters 11 – 14 10 short answer questions.
14	Individual 8 - 10 page paper due with 2-4 references on Senior Design Project				Individual 8 - 10 page paper due with 2-4 references on Senior

					Design Project
15	Presentation: 8 – 10 slides on Senior Design Project		Presentation 8 – 10 slides on Senior Design Project		Presentation 8 – 10 slides on Senior Design Project
16	Final Chapters 1 – 14	Chapters 1 - 14			Finals day in week 16 – Dec 7 Final Ten short answer questions.

Reminder for Grades: It is the student's responsibility to frequently check their grades. Remember; most grading will not be completed until after the module closes. Once it closes, all assignments not completed should have zeros placed into the grade book. If a zero has not been placed into a missed exam or assignment, please inform the instructor. Unless there is a value in all possible assignments, the grade will not be accurate. I do my best to place zeroes in material that has been closed but I need your help in checking for accuracy. Also, if students have taken an exam and it does not show up in the grade book after the module closes, please inform me.

ACADEMIC INTEGRITY POLICY

Scholastic dishonesty will not be tolerated and will be prosecuted to the fullest extent. You are expected to have read and understood the current issue of the student handbook regarding student responsibilities & rights, and the intellectual property policy information about procedures and what constitutes acceptable on-campus behavior. Any form of plagiarism will not be accepted, and will be heavily reprimanded.

MOFFETT LIBRARY

Moffett Library provides resources and services to support student's studies and assignments, including books, peer-reviewed journals, databases, and multimedia materials accessible both on campus and remotely. The library offers media equipment checkout, reservable study rooms, and research assistance from librarians to help students effectively find, evaluate, and use information. Get started on this [Moffett Library webpage](#) to explore these resources and learn how to best utilize the library.

REFUND AND REPAYMENT POLICY

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. Two formulas (federal and state) exist in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

CHANGE OF SCHEDULE

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for a 100 % refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

GRADE APPEAL PROCESS

Students who wish to appeal a grade should consult the Midwestern State University [MSU Catalog](#).

ACADEMIC INTEGRITY POLICY AND ETHICS

Scholastic dishonesty will not be tolerated and will be prosecuted to the fullest extent. You are expected to have read and understood the current issue of the [student handbook](#), regarding student responsibilities & rights, and the intellectual property policy information about procedures and what constitutes acceptable on-campus behavior. Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work not the individual's to whom credit is given). Any form of plagiarism will not be accepted, and will be heavily reprimanded. Additional guidelines on procedures in these matters may be found in the Office of [Student Rights and Responsibilities](#) and the [MCOSME student resources website](#).

EMERGENCY AID RESOURCES FOR BASIC NEEDS

Unexpected life circumstances can affect anyone. If you are experiencing challenges meeting basic needs, such as housing, utilities, food, transportation, healthcare, technology, textbooks or other life necessities, resources may be available to help. Visit the [Student Emergency Support and Resources](#) webpage to learn more, and explore emergency support opportunities through MSU and how to access them. For additional information, please contact the [Office of Student Affairs](#): Clark Student Center #108, (940) 397-7500, student.affairs@mstuexas.edu.

SMOKING/TOBACCO POLICY

College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated smoking areas at each location.

ALCOHOL AND DRUG POLICY

To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on university property or at university sponsored activities.

CAMPUS CARRY

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit [Campus Carry](#).

ACTIVE SHOOTER

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit [Safety / Emergency Procedures](#). Students are encouraged to watch the video entitled “Run. Hide. Fight.” which may be electronically accessed via the University police department’s webpage: ["Run. Hide. Fight."](#)

MIDTERM REPORT

In order to help students I will keep track of their progress toward course objectives, then I will provide a Midterm Progress Report through each student’s WebWorld account. Midterm grades will not be reported on the students’ transcript; nor will they be calculated in the cumulative GPA. They simply give students an idea of where they stand at the midpoint of the semester. Students earning below a C at the midway point should schedule a meeting with the professor.

Conflict Resolution

- a. The student should contact the instructor face to face or via e-mail if there is an issue with the course or the instructor. The faculty and the student will discuss this face to face or via email. Hopefully a resolution is reached on the issue.
- b. The student should notify the faculty via email again if the issue still did not get resolved after the first encounter or communication.
- c. The student can then contact the Chair of the McCoy School of Engineering, Dr. Desai, face to face or via email, (raj.desai@msutexas.edu), and discuss this issue. Dr. Desai will discuss the issue at hand with the faculty member. Dr. Desai will discuss the result of this discussion with the student. Hopefully a resolution is reached on the issue after this.
- d. The student should notify the Chair via email if the issue still did not get resolved.
- e. The Chair will contact the Dean and try to resolve the conflict. In case the conflict deals with the student grade, she will forward the case to the Grade Appeals Committee if necessary.

Texas Tech University: Since writing, analytical, and critical thinking skills are part of the learning outcomes of this course, all writing assignments should be prepared by the student. Developing strong competencies in this area will prepare you for a competitive workplace. Therefore, AI-generated submissions are not permitted and will be treated as plagiarism.

- **Student Resources** https://msutexas.edu/academics/scienceandmath/student_resources.php