



Design for Manufacturing TECH 5413 Fall 2025

Instructor: Dr. Mahmoud Elsharafi

Office: McCoy Hall 219F

Office Phone: (940) 397-4551

E-mail: mahmoud.elsharafi@msutexas.edu

Office Hours: Tuesday: 10:00 am – 12:00 noon

Wednesday: 09:00 am– 02:00 am

Thursday: 10:00 am – 12:00 noon

Course Dates: January 21 – May 9

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: (powerpoint lectures, audio files, Tegrity, 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:

Last Day to Drop or Withdraw with a 'W':

Deadline to file for graduation

Final Exams:

August 25

September 8

September 22

December 6

Course Assessment

Course Activity	Points	Percentage of Total Grade
Home Work 1 - 14	100 each	20%
Quiz1	100	10%
Quiz 2	100	10%
Quiz 3	100	10%
Final	100	10%
Individual Project (8- 10 page) Due (week 14)	100	10%
Presentation of Project (8 - 10 slides) Due by final (week 15)	100	10%
Discussion participation		
Topic # 1	10	5%
Topic # 2	10	5%
Topic # 3	10	5%
Topic # 4	10	5%
Total		100%

Grading Scale:

90 and above	A
80 to 89	B
70 to 79	C
60 to 69	D
Less than 59	F

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.

4. 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.

5. 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.

6. 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.

7. Make-Up/Late Submission Policy:

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

8. 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	Do home-work at end of power point for Chapter 5	<u>Post a discussion on any ONE and reply to any TWO:</u>	It is due on Sunday of week 5

		Power Point for Chapter 5		Any topic on: Chapters 1-5	
5	Quiz 1 – Chapters 1 - 5 10 short answer questions	Quiz 1			It is due on Sunday of week 6 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	Chapter 11: Design for Manufacturing Chapter 12 – Cost Evaluation	Chapter 11: Design for Manufacturing Chapter 12 – Cost Evaluation Power Point for Chapter 11, 12	Do home-work at end of power point for Chapter 11, 12		It is due on Sunday of Week 11
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				Individual 8 - 10 page paper due

	Senior Design Project				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.

