Facilities Design

TECH 4113 | Summer 2026 Syllabus

Online Course via D2L | Course Dates: June 1 - August 6, 2026 | Credit Hours: 3

Welcome

Hello everyone. I am Dr. Salem Naeeri, and I will be your professor for Facilities Design TECH 4113. Facilities Design is a complete web or online course conducted in the D2L learning management system (LMS). Along with the recommended text, online lectures, summarized elaborations of the text, sample papers, and additional readings are provided to support your understanding of the subject matter. Students will complete homework assignments, projects, discussions, quizzes, a presentation, and a final exam. Completed work should be submitted in the specified D2L Dropbox by the stated deadlines. Late work is not accepted unless approved by the instructor in advance or due to a verified emergency. Your success in this course is my goal. Please reach out by email with questions or concerns.

Course Information

Item	Details
Course Number	TECH 4113
Course Title	Facilities Design
Course Term	Summer 2026
Modality	Online via D2L Learning Management System
Course Dates	June 1 - August 6, 2026
Credit Hours	3
Target Audience	Junior students; required for the Online BAAS in Technology
Prerequisite	Sophomore standing or consent of the instructor

Instructor Contact Information

Item	Information
Instructor	Dr. Salem Naeeri
Email	salem.naeeri@msutexas.edu
Phone	832-805-0985
Office Hours	By appointment via email or Zoom/D2L communication tools
Primary Communication	Use your university email and D2L course communication tools for official course communication.

Getting Started

1. Review this syllabus carefully and note all course expectations, grading policies, due dates, and technology requirements.
2. Log in to the TECH 4113 course shell in D2L and review the Start Here or Course Information area.
3. Complete the Student Information/Introductions activity at the beginning of the semester.
4. Read each assigned textbook chapter before reviewing the posted PowerPoint or lecture materials.
5. Submit all assignments through the designated D2L Dropbox before the posted deadline.

6. Check D2L announcements, email, and grades regularly throughout the course.

Course Description

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

Course Catalog Description: This course is a study of the techniques and procedures for developing efficient facilities layout. The material helps students understand routing sheets, assembly-line balancing, block diagrams for flow analysis, facilities needed to support employees such as parking and cafeteria areas, and the allocation of appropriate space and location for each function within the enterprise.

Purpose: Study of techniques and procedures for developing efficient facilities layout.

Overview/Outcomes: Students will develop the knowledge and applied skills needed to analyze, plan, and evaluate facilities layouts and material-handling systems using technical and managerial decision-making approaches.

Method of Instruction: Online PowerPoint lectures, textbook readings, D2L announcements, discussions, homework, quizzes, individual paper, presentation, and final exam.

General Topics: Introduction; sources of information; time study; process design; flow analysis; activity relationship analysis; ergonomics; auxiliary space; employee services space; material handling; office layout; area allocation; computer simulation and modeling; engineering cost estimating and analysis; selling the layout.

Required Text

Manufacturing Facilities Design & Material Handling by Stephens. Purdue University Press. ISBN: 9781557538598.
Publisher textbook page

Important Dates

Date/Item	Summer 2026 Information
Classes Begin	June 1, 2026
Deadline for August Graduates to File for Graduation	June 22, 2026
Last Day to Drop/Withdraw with a W (Summer Long/Summer II)	July 22, 2026, by 4:00 PM
Final Exam Period	August 6, 2026
Course End Date	August 6, 2026

Course Learning Objectives

Objective	Description
LO1	Explain the role of facilities design in improving productivity, flow, safety, space utilization, and organizational performance.
LO2	Identify and use key sources of information needed for facilities planning, including product, process, schedule, and personnel data.
LO3	Apply time study, process design, and flow analysis techniques to evaluate work systems and movement of materials.
LO4	Develop activity relationship analyses and layout alternatives that support efficient operations and service requirements.
LO5	Evaluate ergonomic, workstation, auxiliary, employee service, and office space requirements for safe and effective facility design.
LO6	Analyze material-handling systems and equipment choices to support flow, capacity, and cost objectives.
LO7	Use area allocation, layout planning, simulation/modeling concepts, and cost-estimating principles to support facility decisions.
LO8	Communicate facilities design recommendations professionally through written assignments, discussions, presentation, and final assessment.

Student Learning Outcomes and Activities

SLO	Student Learning Outcome	Tools / Activities
SLO1	Describe major facilities design concepts and terminology.	Readings, chapter homework, quizzes
SLO2	Analyze workflow, activity relationships, space requirements, and material-handling needs.	Homework, discussions, paper
SLO3	Apply layout planning and facilities design methods to practical workplace problems.	Projects, chapter assignments, presentation
SLO4	Evaluate facilities design alternatives using safety, productivity, cost, and operational criteria.	Quizzes, paper, final exam
SLO5	Communicate technical findings clearly using professional written and visual formats.	Discussions, individual paper, presentation

Module-Level Objectives

Module	Topics	Module-Level Objective	Assessment Method
Module 1	Orientation; Chapter 1 - Introduction	Identify course expectations and explain the purpose and scope of facilities design.	Student information/introduction; Homework Chapter 1
Module 2	Chapter 2 - Sources of Information	Identify key data sources used to plan and support facilities layout decisions.	Homework Chapter 2
Module 3	Chapter 3 - Time Study	Explain how time study supports process planning, staffing, and facility design decisions.	Homework Chapter 3
Module 4	Chapter 4 - Process Design	Analyze process design concepts and connect process decisions to layout requirements.	Homework Chapter 4
Module 5	Chapter 5 - Activity Relationship Analysis	Apply activity relationship analysis to evaluate closeness, flow, and layout priorities.	Homework Chapter 5; Discussion 1
Module 6	Chapter 6 - Flow Analysis Techniques; Quiz 1	Use flow analysis techniques to evaluate movement of people, materials, and information.	Homework Chapter 6; Quiz 1 (Chapters 1-6)
Module 7	Chapter 7 - Ergonomics and Workstation Design Space Requirements	Explain ergonomic and workstation design principles for safe and efficient workspaces.	Homework Chapter 7
Module 8	Chapter 8 - Auxiliary Services Requirement Space; Individual Paper	Evaluate auxiliary service space requirements and develop a short research-based paper.	Homework Chapter 8; Individual Paper
Module 9	Chapter 9 - Employee Services - Space Requirements	Describe employee service space needs and their role in supporting workplace productivity.	Homework Chapter 9
Module 10	Chapter 10 - Material Handling	Analyze material-handling needs and their impact on facility layout decisions.	Homework Chapter 10; Discussion 2
Module 11	Chapter 11 - Material Handling Equipment; Quiz 2	Compare material-handling equipment options and evaluate their proper use.	Homework Chapter 11; Quiz 2 (Chapters 7-11)
Module 12	Chapter 12 - Office Layout Techniques and Space Requirements; Chapter 13 - Area Allocation	Apply office layout and area allocation techniques to assign space effectively.	Homework Chapters 12-13
Module 13	Chapter 14 - Facilities Design - The Layout; Chapter 15 - Application of Computer Simulation and Modeling	Develop layout decisions and explain how simulation/modeling supports facility planning.	Homework Chapters 14-15
Module 14	Chapter 16 - Engineering Cost Estimating and Analysis; Presentation	Apply cost-estimating and analysis concepts and communicate a facilities design topic visually.	Homework Chapter 16; Presentation; Discussion 3
Module 15	Chapter 17 - Selling the Layout; Quiz 3	Explain how to present, justify, and sell a facilities layout recommendation.	Homework Chapter 17; Quiz 3 (Chapters 12-17)
Module 16	Final Exam Module - Comprehensive Final Exam, Chapters 1-17	Synthesize and demonstrate comprehensive understanding of the full course.	Final Exam

Course Requirements, Assessment, and Evaluation

Students will complete homework assignments, quizzes, discussion participation activities, an individual paper, a presentation, and a final exam. Quizzes and exams are completed online through D2L and may include time limits and one-attempt restrictions. Once an exam is opened, students must complete it before the timer expires.

Course Activity	Points	Percentage of Final Grade
Homework Assignments (Chapters 1-17)	100 each as posted in D2L	20%
Quiz 1: Chapters 1-6	100	10%
Quiz 2: Chapters 7-11	100	10%
Quiz 3: Chapters 12-17	100	10%
Final Exam: Chapters 1-17	100	10%
Individual Paper (2-3 pages with 2-4 references)	100	10%
Presentation (8-10 slides)	100	10%

Course Activity	Points	Percentage of Final Grade
Discussion Participation - Topic 1	10	5%
Discussion Participation - Topic 2	10	5%
Discussion Participation - Topic 3	10	5%
Discussion Participation - Topic 4	10	5%
Total		100%

Grading Scale

Percentage	Grade
90-100%	A
80-89%	B
70-79%	C
60-69%	D
Below 60%	F

Assignment and Discussion Rubrics

Assignment Criteria	Excellent (90-100%)	Proficient (80-89%)	Needs Improvement (<80%)
Accuracy of Content	Accurate, complete, and clearly connected to chapter concepts.	Mostly accurate with minor errors or missing details.	Multiple errors, incomplete explanation, or weak connection to course concepts.
Application and Analysis	Uses examples, evidence, and reasoning to apply course ideas.	Some application is present but may need more depth.	Limited analysis or mostly summary without application.
Organization and Professionalism	Well-organized, clear, professional, and easy to follow.	Generally organized with minor clarity or formatting issues.	Unclear, cluttered, incomplete, or difficult to follow.
Documentation and Sources	Required sources are used and cited appropriately when applicable.	Sources are present but may need stronger citation or integration.	Missing sources, weak documentation, or citation problems.

Discussion Criteria	Excellent	Proficient	Needs Improvement
Initial Post	Directly answers the prompt with thoughtful detail and course support.	Answers the prompt but needs more detail or stronger support.	Brief, incomplete, late, or unclear.
Peer Replies	Responds meaningfully to at least two classmates.	Responds to classmates but with limited depth.	Missing replies or replies are generic.
Tone and Netiquette	Respectful, professional, and grammatically clear.	Mostly professional with minor issues.	Unprofessional tone or unclear writing.

Assignment-Objective Alignment Table

Assignment	Course Objectives	Student Learning Outcomes
Homework Chapters 1-17	LO1, LO2, LO3, LO4, LO5, LO6, LO7	SLO1, SLO2, SLO3
Quiz 1	LO1, LO2, LO3, LO4	SLO1, SLO2
Quiz 2	LO4, LO5, LO6	SLO2, SLO3, SLO4
Quiz 3	LO6, LO7, LO8	SLO3, SLO4, SLO5
Discussion Participation	LO1, LO4, LO8	SLO1, SLO5
Individual Paper	LO2, LO4, LO5, LO6, LO8	SLO2, SLO4, SLO5
Presentation	LO7, LO8	SLO4, SLO5
Final Exam	LO1, LO2, LO3, LO4, LO5, LO6, LO7, LO8	SLO1, SLO2, SLO3, SLO4, SLO5

Assignment	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8
Homework Chapters 1-17	X	X	X	X	X	X	X	
Quiz 1	X	X	X	X				
Quiz 2				X	X	X		
Quiz 3						X	X	X
Discussion Participation	X			X				X
Individual Paper		X		X	X	X		X
Presentation							X	X
Final Exam	X	X	X	X	X	X	X	X

Instructional Materials and Technology

Instructional materials are provided through D2L. Students should review textbook readings, PowerPoints, assignment directions, discussion prompts, quiz instructions, and instructor announcements in each module.

Technology / Resource	Purpose
D2L Learning Management System	Access course materials, announcements, discussions, Dropbox submissions, quizzes, grades, and feedback.
Reliable Computer and Internet Access	Required for online course participation, submission of assignments, and completion of quizzes/exams.
Microsoft Office or Compatible Tools	Required for Word documents, PowerPoint presentations, and assignment preparation.
PDF Reader	Required for viewing posted handouts and course materials.
Speakers/Headphones	Required for any posted audio or video materials.
Anti-virus Software	Recommended because online courses involve file sharing and downloads.

Course Policies and Procedures

Student Email and Communication

All students are provided email accounts through the university server. Students must use university email or D2L communication tools for official student-instructor interaction. If an alternate email is used, it must clearly include the student's first and last name.

Course Content Structure

The course is divided into 16 modules. Each module includes assigned readings, posted lecture/PowerPoint materials, homework or other required activities, and, where applicable, discussion topics, quizzes, the individual paper, presentation, or final exam.

Submission and Naming Convention

7. Submit all assignments through the designated D2L Dropbox unless otherwise directed.
8. Use the following file naming convention: First Name + Last Name + Assignment Name. Example: Jane Doe Homework 1 or Jane Doe Paper.
9. Include your name at the top of each assignment or in the page header when possible.
10. Keep a copy of every submitted assignment in case resubmission is needed due to technical problems.

Make-Up and Late Submission Policy

All course activities must be submitted before or on the posted due dates. Late work will not be accepted unless an exception is approved by the instructor in advance or due to a verified emergency. Students should contact the instructor as soon as possible if an emergency affects coursework.

Grading and Feedback

Course activities are generally graded within one week after the set due date or module closing date. Students should check the D2L gradebook regularly and contact the instructor immediately if there is a discrepancy. Once a module closes, incomplete assignments may receive zeros in the gradebook.

Academic Integrity

Scholastic dishonesty includes cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, submitting work or materials attributable in whole or in part to another person, taking an examination for another person, submitting essentially the same assignment for two courses without permission, or attempting to commit such acts.

Plagiarism includes appropriating, buying, receiving as a gift, or obtaining by any means material from another source - including words, ideas, illustrations, structure, computer code, media, or other expression - and presenting that material

as one's own academic work for credit. Students found plagiarizing or cheating may receive a zero for the course activity and may be subject to further academic or institutional consequences.

Artificial Intelligence (AI) Use Policy

AI tools may be used only when permitted by the assignment instructions and must not replace the student's own understanding, analysis, or original work. Students must disclose meaningful use of AI tools when used to generate, revise, summarize, or analyze assignment content. Undisclosed or inappropriate AI use may be treated as an academic integrity concern.

Discussion Board Participation

For each discussion, students must respond directly to the prompt, read classmates' posts, and reply meaningfully to at least two classmates. Responses should be reflective, connected to course readings, and supported with examples or experience. Avoid posts that only say "I agree" or "Great idea."

Attendance and Class Participation

Regular and active participation is essential in this online course. Students are expected to log in to the course at least three times every seven days, review all course materials, participate in discussions, and complete assigned work on time. D2L tracking may record student access to course pages, materials, discussions, quizzes, and other tools.

Netiquette Guidelines

Area	Guideline
Respect	Use courteous, professional, and inclusive language in all posts, replies, emails, and messages.
Clarity	Use clear subject lines, complete sentences, and proper grammar. Re-read messages before posting.
Tone	Avoid all caps, sarcasm that may be misunderstood, offensive language, or personal attacks.
Engagement	Make posts meaningful, reflective, and connected to course content.
Privacy	Do not post private or overly personal information in public discussion areas.
Participation	Read posted messages and respond to classmates by name when appropriate.

Accessibility and ADA Accommodation

Midwestern State University is committed to providing equal access for qualified students with disabilities to all university courses and programs. Students seeking reasonable accommodations should contact Disability Support Services. 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.

Accessibility of Course Materials

- Course documents will use structured headings, readable fonts, and sufficient color contrast whenever possible.
- Tables will include clear header rows and descriptive labels.
- Images, charts, and diagrams will include alternative text or equivalent descriptions when they are instructional.
- Videos and audio materials should include captions, transcripts, or equivalent alternatives when available.
- Links will be descriptive so students understand the purpose of the link.
- Students should notify the instructor promptly if a course file, video, or activity creates an access barrier.

Learner Support Services

Support Area	Contact / Resource
Disability Support Services	Clark Student Center 168; (940) 397-4140; TDD (940) 397-4515
Technical Support	Use MSU Texas technology support resources and D2L help options as posted by the university.
Library and Research Support	Use MSU Texas library resources for research, citations, and databases.
Instructor Support	Contact Dr. Salem Naeeri by email for course-related questions or to schedule an appointment.

Computer and Technical Readiness

Students are responsible for maintaining access to a working computer, reliable internet connection, updated browser, Microsoft Office or compatible software, PDF reader, and speakers or headphones. Students should identify a backup computer before the course begins. A computer crash or loss of internet access is not automatically considered an acceptable reason for missing a deadline.

Students should save backup copies of all assignments. If a file is lost, corrupted, or does not upload correctly, the student may be asked to resubmit it promptly.

End-of-Course Evaluation and Instructor Evaluation

Every student is expected to complete the end-of-course evaluation provided by MSU Texas. Feedback helps improve course design, instructional materials, and student learning experiences.

Disclaimer and Rights

Information in this syllabus is considered correct and complete at the beginning of the semester. The instructor reserves the right, within the policies and procedures of MSU Texas, to revise course content, instructional techniques, due dates, or policies when necessary. Students will be informed of changes through D2L announcements or email.

Detailed Course Schedule

The schedule below organizes the course into 16 modules. Dates may be adjusted by the instructor if needed. Students should rely on D2L announcements and due dates for the most current deadline information.

Module	Timeline	Topic/Activity	Suggested Reading / Focus	Homework / Assessment	Due Date
1	June 1-7	Orientation; Chapter 1	Introduction to facilities design; syllabus review	Homework Chapter 1; Student Information/Introductions	June 7
2	June 1-7	Chapter 2	Sources of Information	Homework Chapter 2	June 7
3	June 8-14	Chapter 3	Time Study	Homework Chapter 3	June 14
4	June 8-14	Chapter 4	Process Design	Homework Chapter 4	June 14
5	June 15-21	Chapter 5; Discussion Topic 1	Activity Relationship Analysis; discussion on Chapters 1-6	Homework Chapter 5; Discussion Topic 1	June 21
6	June 15-21	Chapter 6; Quiz 1	Flow Analysis Techniques; review Chapters 1-6	Homework Chapter 6; Quiz 1	June 21
7	June 22-28	Chapter 7	Ergonomics and Workstation Design Space Requirements	Homework Chapter 7	June 28
8	June 22-28	Chapter 8; Individual Paper	Auxiliary Services Requirement Space	Homework Chapter 8; Individual 2-3 page paper with 2-4 references	June 28
9	June 29-July 5	Chapter 9	Employee Services - Space Requirements	Homework Chapter 9	July 5
10	June 29-July 5	Chapter 10; Discussion Topic 2	Material Handling; discussion on Chapters 7-11	Homework Chapter 10; Discussion Topic 2	July 5
11	July 6-12	Chapter 11; Quiz 2	Material Handling Equipment; review Chapters 7-11	Homework Chapter 11; Quiz 2	July 12
12	July 6-12	Chapters 12-13	Office Layout Techniques and Space Requirements; Area Allocation	Homework Chapters 12-13	July 12
13	July 13-19	Chapters 14-15	Facilities Design - The Layout; Application of Computer Simulation and Modeling	Homework Chapters 14-15	July 19
14	July 13-19	Chapter 16; Presentation; Discussion Topic 3	Engineering Cost Estimating and Analysis; presentation on a facilities design topic	Homework Chapter 16; Presentation 8-10 slides; Discussion Topic 3	July 19
15	July 20-25	Chapter 17; Quiz 3	Selling the Layout; review Chapters 12-17	Homework Chapter 17; Quiz 3	July 25
16	August 6	Final Exam Module	Comprehensive review of Chapters 1-17	Final Exam: 10 short-answer questions	August 6

Reminder for Grades

It is the student's responsibility to check grades frequently in D2L. If a grade is missing or appears incorrect after a module closes, contact the instructor promptly. Incomplete assignments may receive zeros after the module closes.