

SUBJECT: Mechanical, Electrical and Plumbing Systems

1. Welcome to CMGT 3365 (Mechanical, Electrical and Plumbing Systems) - Mechanical and electrical systems with a major emphasis on the estimate and installation, design and control of the electrical, heating, ventilation and cooling system, site planning and acoustical treatments.

Lecture: meet every *Mon and Wen* from 8 to 8:55 AM in room RBN 3040 (See Class Syllabus)

Lab: *Monday* from 2:30 to 5:15 in Room RBS 2019 CM Lab (**See Lab Schedule**)

Welding Class: *Every Monday* from 2:30 to 5:15 – **See schedule & team assignment**

2. This is a course in critical construction building “design” focused on mechanical, electrical, water, and power systems for buildings. This course focuses on:
 - a. The proper application of water, electrical, heating, ventilation and cooling systems in construction.
 - b. The use of acoustic, date, lighting, and fire protection systems.
 - c. You will also be introduced to the principles of sustainable building design and construction
 - d. the basic principles associated with high performance (“green”) building design and construction. These principles include energy efficient building envelope design; optimum use of passive heating, cooling and daylighting; and the installation of the most energy efficient mechanical and electrical systems.
 - e. You will become familiar with the concept of “cost of ownership and maintenance” for systems in your structures and you will develop a skill on minimizing the life cycle costs for these systems.
 - f. You will acquire a basic level of “professional practice” thru the various “topic” labs in the course.
 - g. You will participate in a familiarization with basic welding techniques.
 - h. You will be required to build a “GREEN” college of engineering cart storage shed as a practicum for the course.

Taken in combination these basic building blocks will broaden your construction management knowledge into the domain of the architect and engineer.

3. LABS require lab safety dress (pants, shirts, closed toe shoes, get dirty) and you will be using safety glasses and ear protection (***bring your own***) for every lab!
4. Class Room Procedures:
 - a. Bring study notes, textbook, note-taking material, and calculator to every class. Class preparation is your individual responsibility.

Note: Just like a real job –showing up to class is a real-world obligation – there are no free classes. Anything not turned in by start of class is late. It is possible in extenuating circumstances to have a “COORDINATED LATE” submission that can occur when you contact me in advance. (That means 24 hours in advance except for real emergencies).

Note: I will often pick someone at random at the start of class to show how they accomplished the homework due that day – so be ready and be prepared.

5. Mandatory Textbook: *Mechanical and Electrical Systems for Construction Managers - 3rd Edition* (ISBN 978-0-8269-9663-2)

I will check for the text at next class!!

6. Grade Breakout and Cutoffs:

<u>Course Points</u>	<u>Grade Scale</u>
Exams (3 at 100 pts each)	(50%)
Labs	(30%)
Welding (ALL)	(10%)
Dean's CE/CM Shed Project (ALL)	<u>(10%)</u>
	<i>100%</i>
<i>Cardboard Canoe</i>	<i>10% (from Lab) IF not in 3305</i>

Dean's Welding Shed Legacy project

Grades Scale: A = 90% of more
B = 80 to 89%
C = 70 to 79%
D = 65 to 69%
F = anything less than 65%

If you get less than a C (70%) as your final combined grade you will fail the course. Note that final grades are only A, B, C, D, F. *I will return all graded exercise to you – keep track of them – with them you know what your cumulative grade looks like.*

You will always know where you stand for your grade. *I will return all graded exercise to you quickly – keep track of them – I will also post grades in Canvas so can see what your cumulative grade looks like. If you do not agree with a posted grade see me ASAP –right after they are posted. DO NOT bring a disputed grade to me if that grade has been posted for more than 14 days. DO NOT wait till the last week of the course to talk about how to improve or salvage a poor grade. This is a cumulative process – not a single event.*

Note: There is no way to ADD to your grade once an exercise is graded –the cumulative grade is the FINAL grade – there are NO adjustments made at end of course

7. Exams:

- The dates for Exams are included in the course schedule. (Usually in lab period on Friday)
Official reasons for missing an exam include official University participation, family emergency or other unforeseen circumstance. Regardless of the reason you are required to notify the

instructor prior to the exam and as early as feasible. You are required to take a make-up Exam, regardless of your reason for missing the scheduled Exam. Report any conflict to me as soon as possible prior to the Exam.

- b. All the Exams and the Final are **closed book and notes**.
- c. **The ONLY electronic device allowed in an exam is an approved calculator**. Your exam will be collected and your grade will be a zero if you are caught using a non-approved electronic device/calculators.

8. Students Rights and Responsibilities. To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link:
<http://www.uttyler.edu/wellness/StudentRightsandResponsibilities.html>

9. Grade Replacement/Forgiveness. If you are repeating this course for a grade replacement, you must file an intent to receive grade forgiveness with the registrar by the 12th day of class. Failure to do so will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates will receive grade forgiveness (grade replacement) for only three course repeats; graduates, for two course repeats during his/her career at UT Tyler.

10. State-Mandated Course Drop Policy. Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the 12th day of class (See Schedule of Classes for the specific date). Exceptions to the 6-drop rule include, but are not limited to, the following: totally withdrawing from the university; being administratively dropped from a course; dropping a course for a personal emergency; dropping a course for documented change of work schedule; or dropping a course for active duty service with the U.S. armed forces or Texas National Guard. Petitions for exemptions must be submitted to the Registrar's Office and must be accompanied by documentation of the extenuating circumstance. Please contact the Registrar's Office if you have any questions.

11. Disability Services. In accordance with federal law, a student requesting accommodation must provide documentation of his/her disability to the Disability Support Services counselor. If you have a disability, including a learning disability, for which you request an accommodation, please contact Ida MacDonald in the Disability Support Services office in UC 282, or call (903) 566-7079. **You MUST contact me for accommodation needs. I will not contact you first.**

12. Student Absence due to Religious Observance. Students who anticipate being absent from class due to a religious observance are requested to inform the instructor in advance for an excused absence and late submission of work.

13. Student Absence for University-Sponsored Events and Activities. If you intend to be absent for a university-sponsored event or activity, you and the event sponsor request must notify me at least two weeks prior to the date of the planned absence.

14. Social Security and FERPA Statement. It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail)

risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

15. Emergency Exits and Evacuation. Everyone is required to exit the building when a fire alarm goes off. Follow your instructor’s directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do Not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

Joe Boylan

Initial LECTURE Course Schedule *(Subject to change as needed throughout the semester)*

	Lesson #	Materials Covered	Assigned Reading	PS/Project Assignments
8/21/2023	1	Course Syllabus & What is MEP?	READ CH 1	
8/23	2	Water PART 1 Where does it come from? What does it look like?	Canvas slides	Canvas Module UT Tyler safety EXAM and department lab statements
8/28	3	Water PART 2 - “Sourcing” and Management	Canvas slides	
8/30	4	CM Plumbing / Water	Ch 1 & 2	
9/6	5	Sanitary Drainage	Ch 3	
9/11	6	Design & Sizing Sanitary Drainage	CH 4	
9/13	7	Design & Sizing Water Supply Systems	CH 5	
9/18	8	Water Systems	CH 6	
9/20	9	Fixtures and Testing	CH 7	
9/25	10	EXAM 1 – Water Systems	Ch 1-7	
9/27	11	Finish Water Mgmt		
10/2	12	Ch 1-3		
10/4	13	Ch 4-5		
10/9	14	CH 6-7		
10/11	15	EXAM #1		
10/16	16	Comfort	Ch 8	
10/18	17	Psychometrics 1	Ch 9	
10/23	18	Psychometrics 2	CH9	
10/25	19	Heating Systems	CH 10 &11	
10/30	20	Refrigeration Principles	CH 12	
11/1	21	AC Systems /Heat Pumps	CH 13	
11/6	22	EXAM #2		

11/8	23	Electrical Principles	CH 21 & 22	
11/13	24	Ohm's Law - Series and Parallel Circuits	CH 23	
11/15	25	“		
11/27	26	Plans and Transformers	CH 24/28	
11/29	27	Test # 3 Electrical System /Survey		

MEP Lab Schedule: 14 Labs

Date	Lesson #	Materials Covered	PS/Project Assignments
9/11	1	Water Filtration Lab How do we “clean it”?	
9/18	2	Water - How can we treat water to spec?	
9/25	3	Water - How to build a filter water system?	Treat water Exercise
10/2	4	Circuit AC and DC/ Serial and Parallel	Robotics Lab
10/9	5	Circuit AC and DC/ Serial and Parallel	Circuits Lab
10/16	6	Solar Power	
10/23	7	Wind Power	
10/30	8	Controls	
11/6	9	Robot Control	

Welding Class and Certification Schedule

Date	Lesson #	Materials Covered	PS/Project Assignments
8/21	1 Team 1		
8/28	2 Team 1		
9/11	3 Team 2		
9/18	4 Team 2		
9/25	5 Team 3		
10/2	6 Team 3		
10/9	7 Team 4		
10/16	8 Team 4		
10/23	9 Team 5		
10/30	10 Team 5		

CMGT 3365 MEP Systems

Course Objectives:

1. List and define the major components of the electrical and mechanical systems of a building.
2. Explain how Indoor Environmental Quality is affected by the electrical and mechanical systems
3. Identify the fundamental considerations for building illumination
4. Analyze an illumination plan for adequacy and feasibility
5. Describe the basic consideration of building acoustics
6. Apply proper design considerations to the control of noise in a building
7. Prepare a plan for water use and recovery for a residential and commercial building
8. Organize water resources into a priority for efficient building design and construction
9. Describe basic fire control measures in a building
10. Describe the electrical systems and service for a building
11. Apply design specifications to the overall electrical system
12. Identify new technologies for the reduction of energy usage (energy efficiency) for a building
13. Describe devices for providing thermal control within a building
14. Describe and illustrate the heat flow within and throughout a building
15. Describe the necessary mechanical equipment for thermal control of an occupied space