

# Course Syllabus – CNST 2321 Mechanical and Electrical Systems

**Course Description:**

This course introduces students to the basic principles of mechanical, electrical, and piping (MEP) systems common to construction projects. It involves basic science principles of MEP systems, basic design principles of MEP systems, and understanding of the MEP components and installation.

**Course Prerequisites:**

C or better in CNST 1301 or CNST 1325.

**Textbook:**

**Required:** Mechanical and Electrical Systems in Buildings, by Tao and Janis, Prentice Hall 6th Edition ISBN-13: 9780134701189 (note: the 5<sup>th</sup> edition is a valid option).

**Course Learning Outcomes:**

Upon the completion of the course students will demonstrate the ability to:

1. Understand the basic science principles with MEP systems
2. Understand the operation and installation of MEP systems
3. Understand the construction manager’s role with MEP systems
4. Understand the basic design principles of mechanical and electrical systems.
5. Understand selected installation methods for basic mechanical and electrical systems.
6. Understand related building codes and standards.

In addition to the learning objectives above, this course emphasizes Ethics, Safety, and Oral/Written Communication.

**Student Learning Outcomes:**

20. Understand the basic principles of mechanical, electrical, and piping systems.

**Course and Student Learning Outcome Mapping:**

Student Learning Outcome	Course Learning Outcomes
20	1, 2, 3, 4, 5, 6

**Student Learning Assessment and Assessment Target:**

Assessment	SLO#10	Assessment Target
Assess(S)	X	At least 70% of students receive a grade of 70 or better

**Class Grading:**

- Test 1 15%
- Test 2 15%
- Test 3 15%
- Final Exam 30%

- Homework/Assignments 10%
- Journals 5%
- Class Attendance & Participation 10%
- Total 100%

**Grading Scale:**

Letter Grade	Score
A	900-1000 points
B	800-900 points
C	700-800 points
D	600-700 points
F	Below 600

**Class Schedule:**

**FALL SEMESTER 2020**

<b>WEEK#</b>	<b>TOPIC</b>	<b>Text Chapter</b>
Week 1 August 24	Mechanical and Electrical Systems Overview Sustainable Design and Construction	1
Week 2 September 1	HVAC Fundamentals HAVC Load Estimating	2 & 3
Week 3 September 8	HVAC Load Management HVAC Systems Types (e.g., rooftop, air-cooling, etc.)	4 & 5
Week 4 September 15	Cooling Systems Design and Installation	6
Week 5 September 22	Heating Systems Design and Installation	7
Week 6 September 29	Air Handling Systems Design and Installation <b>Test #1 – Mechanical Systems</b>	8
Week 7 October 6	Plumbing Systems & Fire Protection System Overview	9
Week 8 October 13	Plumbing Systems Design and Installation	10
Week 9 October 20	Fire Protection Systems Design and installation <b>Test #2 – Piping Systems</b>	11
Week 10 October 27	Field Visit – New Technology Building Sugarland Campus	
Week 11 November 3	Electrical Systems Overview	12,13,14
Week 12 November 10	Electrical Systems Installation	16, 17, 18, 19
Week 13 November 17	Communication Systems Design and Installation <b>Test #3 – Electrical Systems</b>	15
Week 14	Noise/Vibration	20, 21

November 24	FINAL REVIEW	
Week 15	<b>Final Examination</b>	
December 1	<i>Journal Review</i>	
December 8	<i>Semester Assignment due in Blackboard</i>	

The instructor reserves the right to change the order of the schedule as the semester progresses. Sometimes guest speakers or field trips need to be rescheduled for various reasons.

### **Class Rules:**

- No electronic devices (cell phones, iPods, cameras, or recorders) are allowed in class. **You will be asked to leave if you insist on using any electronic devices during class time.**
- Be prompt to class. We will start promptly at 7:00PM. A 10-minute break will be given when convenient.
- No make-up tests will be allowed for the tests or the final exam without a university approved excuse.
- The final assignment will be due on the date listed. A reduction in grade will be assessed for a late assignment.
- One field trip is planned. Attendance is mandatory, and your participation grade will be deducted by 50% if you miss this field trip.

### **In Class:**

- Each class will begin with an HSE topic to be given by different students each week. Instructor will assign the topics to volunteers the second week of class. A current weather report should also be given.
  - Extra Credit (10 points) will be given for those who volunteer to present a topic.
  - Presentations should NOT be read from your notes – hit the high points.
- Lecture

### **Participation/Attendance/Chapter Reviews/HSE Topics:**

- Participation/Attendance: You are responsible to attend and for the information presented in class and meeting all due dates regardless of absences. This class requires good note taking since the PowerPoint presentations are only an outline of the lecture. **DO NOT** come into class when a student is giving their HSE presentation. Wait until they are finished before finding your seat. Participation in the lecture is expected.
  - **NOTE:**
    - Attendance to class is a requirement. If you cannot make it to class, it is your responsibility to email the instructor to let him know.
    - Lecture presentations will be posted on Blackboard after each class.

### **Journals:**

- Each student is to maintain a journal using a three-ring binder or electronic. At **each class meeting** the student is to enter the following information onto the daily report for each session (template is available in blackboard):
  - Date
  - Weather

- HSE Topic discussed
- Class notes
- Journals will include the daily reports, notes, and assignments. They will be checked during/after the final exam by the instructor. You will be graded on the neatness of your book including printing and note taking abilities (blank pages or missing notes will be a deduct). You will be able to use your journal during the tests and final exam.

**Tests:**

- Three Multiple Choice/True-False/Matching Tests will be given during the semester in Blackboard. The student will be given 30 minutes to take the tests. No make-ups are allowed without a university approved excuse.
- Test will include the review of drawings provided in the shared OneDrive folder.

**Semester Assignment:**

- An assignment will be given through Blackboard towards the end of the semester and will be done outside of the classroom and will be turned in through Blackboard by the due date.

**Final Exam:**

- The final exam will be comprehensive Multiple Choice/True-False exam and will be administered through Blackboard. Questions will be from lectures and the textbook. You will be allowed to use your journals as aids for taking the final. No make-ups are allowed without a university approved excuse.

**Questions:**

Each student should review the syllabus and email the instructor any questions that need to be clarified. It is important that each student understand the class structure and requirements. Adjustments to the class may be made during the semester.

**Academic Honesty:**

Each student is responsible for maintaining high standards of academic honesty and ethical behavior. Students are expected to take their exams, tests, and reports on their own, based on their individual effort. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the University (See Student Handbook for a detailed description of the UH Academic Honesty Policy).

**Students with Disabilities:**

University of Houston provides, upon request, appropriate academic adjustments for qualified students with disabilities. Any student with a documented disability (physical or cognitive) who requires academic accommodations should contact the Center for Students with Disabilities (713-743-5400) for more assistance.

**University Counseling and Psychological Services**

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (UH main campus [www.uh.edu/caps](http://www.uh.edu/caps), or UH Sugar Land campus <http://www.uh.edu/dsaes/uhsugarland/>)

by calling [713-743-5454](tel:713-743-5454) during and after business hours for routine appointments or if you or someone you know is in crisis. No appointment is necessary for the “Let’s Talk” program, a drop-in consultation service at convenient locations and hours around campus.

UH main campus: [http://www.uh.edu/caps/outreach/lets\\_talk.html](http://www.uh.edu/caps/outreach/lets_talk.html)

UH Sugar Land campus: <http://www.uh.edu/dsaes/uhsugarland/>

**Exam Policy:**

Exams and tests will include material covered in the class discussions, textbook material, and homework assignments. Exam make-up’s will be given only in the event of a verified university excuse. The student is responsible for all reading assignments and class handouts whether or not covered in class or listed on the syllabus.

**Course/Instructor Evaluation:**

A Start-Stop-Continue survey and a course/instructor evaluation will be conducted at the middle and the end of the semester. Any suggestions you have on improving the course, however, are welcome through the semester.

For detailed information Academic Honesty Policy, UH Academic Calendar, students with disabilities, and other information, please visit the following website:

[http://www.uh.edu/provost/stu/stu\\_syllabsuppl.html](http://www.uh.edu/provost/stu/stu_syllabsuppl.html)