ME 4560: Mechanical Engineering Lab

2022 Fall Session	
Total Class Sessions: 5 **Class Sessions Per Week: 5** **Total Weeks: 5** **Class Session Length (Minutes): 145** **Credit Hours: 4**	**Instructor: Dr. Aminreza Karamoozian** **Office Hours: TBA** **Language: English**

Course Description:

This is a 4-credit senior-level course, composing of both lecture section and lab section. The lecture section will focus on developing students' understanding of the professional engineering skills necessary to practice as a engineer. In this section, students will understand the elements of engineering practice, the role of the engineer in industry and society, their legal responsibility, teamwork and leadership skills, professional responsibility of the engineers, the understanding of ethical consideration, workplace health and safety, as well as communication, presentation and report reading and writing competence.

The objectives of the lab sections is to provide students hands-on experience in properly operating various electronic instruments and conduct mechanical measurements. Students will work in teams of two or three. Each student team will conduct a series of experiments, analyze and interpret the results obtained, and present the results in written and/or oral format.

Learning Outcomes:

Upon completion, student will develop ability to:

1. Understand the roles and responsibilities of professional engineers in society;
2. Understand the economic, social, health, safety, legal, and cultural interactions of engineering with society, the uncertainty of predictions of such interactions, and the concepts of sustainable design and development and environmental management;
3. Identify and select alternative methods to mitigate or prevent adverse impacts of engineering on society, the environment, and human health and safety;
4. Develop the ability to apply professional ethics, responsibility, and equity;
5. Develop the ability to identify and address their own educational needs in a changing world to maintain their competence and enable them to contribute to the advancement of knowledge;
6. Develop the ability to communicate complex engineering concepts within the profession, including reading, writing, speaking, and listening. Understand and write effective reports and design documents and give and respond effectively to clear instructions;

7. Develop intuition in the operation and analysis of mechanical systems and instrumentation;
8. Gain practical skills to conduct mechanical engineering experiments;
9. Become familiar with conventional experimental techniques and equipment for power, flow, heat, strength measurements;
10. Develop a methodology to conduct and report experiments.

Course Format and Requirements:

Class time will be used for a combination of lectures, class discussions, and laboratory experiment.
Experienced engineers as guests and your industry mentors (unpaid volunteer) will also be invited and to speak.

Laboratory Experiments:

There are five scheduled labs, including: Pumps, Hydraulic Reaction Turbine, PD and PID Control, Microsystems and Mechanics and Measurement of Frequency and Loudness of sound.

Lab participation is mandatory. An absence should be discussed in advance with the instructor. There will be no provisions for making up missed lab sessions. Emergencies resulting in missing lab session(s) will be handled on a case-by-case basis.
More detailed information about lab section will be posted later on the course platform.

Grading Policy:

Participation: 5%
3 Quizzes: 15%
3 Individual Homework Assignments: 15%
Laboratory Report and Presentation(Group Assignment): 25%
Final Exam: 40%

Grading Scale (percentage):

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
98-100	93-97	90-92	88-89	83-87	80-82	78-79	73-77	70-72	68-69	63-67	60-62	<60

Academic Integrity:

Students are encouraged to study together, and to discuss lecture topics with one another, but

all other work should be completed independently.
Students are expected to adhere to the standards of academic honesty and integrity that are described in the Chengdu University of Technology's *Academic Conduct Code.* Any work suspected of violating the standards of the *Academic Conduct Code* will be reported to the Dean's Office. Penalties for violating the *Academic Conduct Code* may include dismissal from the program. All students have an individual responsibility to know and understand the provisions of the *Academic Conduct Code*.

Special Needs or Assistance:

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.