SYLLABUS
PART I
EDISON COMMUNITY COLLEGE
MET 214S APPLIED FLUID MECHANICS
3 CREDIT HOURS

COURSE DESCRIPTION
Basic properties of fluid and the topics of pressure forces, fluids in motion, and viscosity. Prerequisites: MTH 122S, MTH 123S, and PHY 121S.

COURSE GOALS
The student will:

1.	Recognize units for various fluids properties in both the English and Metric systems and convert between the two systems.
2.	Define the various properties of fluids and give examples of each.
3.	Calculate pressures and forces in static fluids.
4.	Explain the concept of a control volume as applied to fluid mechanics problems.
5.	Apply the continuity equation, Bernoulli equation, and the energy equation to a variety of fluid mechanics problems.
6.	Calculate power requirements for basic fluid circuits.
7.	Analyze losses in turbulent and laminar flow systems.
8.	Apply basic principles of fluid mechanics to select and size pumps, fans, blowers, compressors, and cylinders.
9.	Identify open channel flow and its parameters.
10.	Categorize the measurement principles of venturi tubes, pitot tubes, and nozzles.
11.	Explain the concept of drag and lift on air foils.

CORE VALUES
The Core Values are a set of principles which guide in creating educational programs and environments at Edison. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will introduce/reinforce these Core Values whenever appropriate.

TOPIC OUTLINE
1. Units of measure in fluid mechanics
2. Properties of fluids; temperature, density, specific weight, specific volume, specific gravity, gauge pressure, absolute pressure, and viscosity
3. Absolute temperature scales; Kelvin and Rankine
4. Fluid statics
5. Control volume concepts
6. The Continuity Equation (conservation of mass)
7. Types of energy and the Conservation of Energy (The Bernoulli Equation)
8. The energy equation
9. Power
10. Laminar and turbulent flow in pipes
11. Forces in fluids
12. Pressure measurements in static and moving fluids
13. Pump performance

14. Lift and drag
15. Flow in open channels