- **Course Number and Title:** M E 338 Fluid Mechanics
- **Catalog Description:** Properties of fluids. Fluid statics and fluid dynamics. Applications of the conservation equations continuity, energy, and momentum to fluid systems.
- **Credit Hours:** 3 Credits (3)
- **Prerequisite(s) / Corequisite(s)** Prerequisite(s): ENGR 234 and (M E 228 or MATH 392)
  Corequisite(s): None
- **Required:** Required for BSME Degree
- **Course Availability:** Fall and Spring Semesters (+Summer)
- **Instructor (Usual):** Dr. Yanxing Wang (See https://mae.nmsu.edu/people/faculty.html)
- **Textbook:** Gerhar, A.L., Hochstein, J.I., and Gerhar, P.M., *Munson, Young, Okiishi's Fundamentals of Fluid Mechanics*, 9th Ed., John Wiley, 2020 (ISBN-10: 1119597307 or ISBE-13: 978-1119597308)
- **Course Learning Objectives:** After completing this course, a student should be able to:
  1) Understand the various properties of fluids and their influence on fluid motion and analyze a variety of problems in fluid statics and dynamics;
  2) Calculate the forces that act on submerged planes and curves;
  3) Identify and analyze various types of fluid flows;
  4) Apply the integral forms of three fundamental laws of fluid mechanics to turbulent and laminar flow through pipes and ducts in order to predict relevant pressures, velocities, and forces.
- **Topics Covered:**
  - Fluid statics
  - The Bernoulli equations
  - Fluid kinematics
  - Conservation laws in the fluid mechanics
  - Solving fluid dynamics problems using integral and differential analysis
  - Dimensional analysis and similitude
  - Boundary layer theory
  - Internal and external flows.