

Master Syllabus

MET 2301 - Fluid Mechanics

Division: Science, Mathematics and Engineering

Department: Mechanical Engineering Technology

Credit Hour Total: 3.0

Lecture Hrs: 2.0 **Lab Hrs:** 2.0

Prerequisite(s): MET 2201 OR MEE 2101

Date Revised: June 2014

Course Description:

Essentials of fluid properties, fluid statics, flow measurements, force of a fluid jet, open channel flow and losses through flow in pipes. Two classroom, two lab hours per week.

General Education Outcomes:

- Critical Thinking/Problem Solving Competency
- Computer Literacy Competency
- Information Literacy Competency

Course Outcomes:

Force of a fluid jet

Using the concepts of applied physics, determine the force of a fluid stream on flat plates and on pipe bends.

Assessment Method: Locally developed exams

Performance Criteria: 70% or higher correct score on exams

Open channel flow

Apply basic fluid concepts to determine the flow of water through an open channel.

Assessment Method: Locally developed exams

Performance Criteria: 70% or higher correct score on exams

Buoyancy, stability, and forces on submerged surfaces

Develop free body diagrams and apply the concepts of statics to illustrate force equilibrium in a fluid medium.

Assessment Method: Locally developed exams

Performance Criteria: 70% or higher correct score on exams

Drag and lift of a body moving through a fluid medium

Use existing data to determine aerodynamic effects of moving a body through a fluid medium.

Assessment Method: Locally developed exams

Performance Criteria: 70% or higher correct score on exams

Fluid properties

Look up and apply basic fluid properties, use properties in the solution of fluid problems, and use instrumentation to measure viscosity, density and specific gravity.

Assessment Method: Behavioral observations

Performance Criteria: Score at least "7" out of 10 points on a rubric

Assessment Method: Locally developed exams

Performance Criteria: 70% or higher correct score on exams

Bernoulli's equation

Apply Bernoulli's equation to solve fundamental fluid problems including the measurement of fluid flow.

Assessment Method: Locally developed exams

Performance Criteria: 70% or higher correct score on exams

Frictional losses

Calculate the frictional losses of a piping system.

Assessment Method: Locally developed exams

Performance Criteria: 70% or higher correct score on exams

Outline:

Fluid properties Fluid statics Fluid friction and flow in pipe Pump characteristics and selection Open channel flow Force of a fluid jet Drag and lift