

## 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

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### 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