Sinclair Community College
444 E. Third St.
Dayton, OH 45402

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
- Computer Literacy
- Information Literacy

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 viscocity, 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 propertiesFluid staticsFluid friction and flow in pipePump characteristics and selectionOpen channel flowForce of a fluid jetDrag and lift