## THREE RIVERS COMMUNITY-TECHNICAL COLLEGE COURSE OUTLINE

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Course Number/Title: MEC K270 Introduction to Fluid Mechanics	
Lecture <u>3 hrs</u> Laboratory <u>0 hrs</u> Credit <u>3 hrs</u> Contact <u>3 hrs</u>	
Course Description: To investigate the behavior of fluids from a fl mechanics point of view.	.uid
Method: Lecture	
Text: Applied Fluid Mechanics, Mott, Merrill, 4 <sup>th</sup> Edition	
Prerequisites: <u>PHY K115, MATH K186</u> Co-Requisites: <u>MEC K275</u>	
COURSE TOPICS/CONTENT	
A. <u>FLUID PROPERTIES</u> HO Pressure head, buoyancy, flow velocity 8	)URS }
B. <u>CONSERVATION OF ENERGY</u> Bernoulli's equation, venturi, orifice, flow devices, head loss	1
C. <u>CONTINUITY EQUATION</u> Conservation of mass, velocity relationships 7	7
D. <u>REAL FLUIDS</u> Viscosity, Newtonian Fluid, velocity fields, boundary layer 7	,
E. <u>PIPE FLOW</u> Reynold's number, flow losses, branch pipes 7	1
F. <u>OPEN CHANNEL FLOW</u> Moody's Equation 3	}
G. <u>CONSERVATION OF MOMENTUM</u> Hydrodynamic, impingement forces 4	ŀ
H. <u>PUMPS</u> Features and Applications 2	) -
I. <u>VIDEO PRESENTATIONS</u>	
TOTAL HOURS 45	5
Date: <u>February 12, 2008</u>	
Prepared By: <u>Robert Lantz</u>	

Program Coordinator: <u>*Robert Lantz*</u>

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Department Chairperson: <u>Tony Benoit</u>

Continuation Sheet No 2 of 2

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<u>Measurable Objectives</u>

THE STUDENT WILL:

- Be able to determine pressures, forces and buoyancy of static fluids
- Be able to apply continuity and energy equations to a variety of flow situations
- 3. Be able to determine pipe head loss due to friction flow problems
- 4. Be able to determine viscosity and Reynold's number for various situations
- 5. Be able to calculate hydrodynamic forces due to mass flow and angles of flow