THREE RIVERS COMMUNITY-TECHNICAL COLLEGE
COURSE OUTLINE
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Course Number/Title: MEC K241 Thermodynamics

Lecture 3 hrs   Laboratory 0 hrs   Credit 3 hrs   Contact 3 hrs

Course Description: To investigate the behavior of fluids from a fluid
mechanics and thermodynamics point of view.

Method: Lecture

Text: Introduction to Engineering Theryodynamics, Sonntag

Prerequisites: PHY K115, MATH K186 Co-Requisites: None

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COURSE TOPICS/CONTENT

A.   THERMODYNAMIC PROPERTIES   HOURS
            The system, properties & state, temperature,
            fluid pressure, conservation of mass   10

B.   CONSERVATION OF ENERGY
            Measuring energy, reversible & irreversible
            processes, steady flow energy eqn, specific heat,
            entropy, converging mass systems   9

C.   IDEAL GAS
            Equation of state, gas constants, const pressure,
            temperature & entropy processes, thermal efficiency   8

D.   ENTROPY & 2ND LAW
            Thermodynamic temperature, Clausius inequality,
            entropy   8

E.   BASIC ENGINE CYCLES
            Compressed air, internal combustion cycle, gas
            turbine, steam processes, refrigeration, Carnot
            cycle, jet engine & rocket cycles, thermal
            efficiency   8

F.   VIDEO PRESENTATIONS   2

                           TOTAL HOURS   45

Date: February 12, 2008

Prepared By: *Robert Lantz*

Program Coordinator: *Robert Lantz*

Department Chairperson: *Tony Benoit*

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Measurable Objectives

THE STUDENT WILL:

    1.   Be able to apply the energy equation to various fluid applications

    2.   Be able to apply the continuity equation to a variety of flow situations.

    3.   Be able to calculate situations involving the ideal gas

    4.   Be able to analyze engine cycles that involve constant pressure, temperature, volume or entropy. Also to understand the perfect gas laws in relation to cycles.