Prepared: Howard Gray Approved: Corey Meunier

Course Code: Title	MCH256: INTRODUCTORY THERMO DYNAMICS
Program Number: Name	4039: MECH. ENG. TN-MANUFA
Department:	MECHANICAL TECHNIQUES PS
Semester/Term:	18W
Course Description:	The general objective of this course is to give students destined for the mechanical trades an introduction to thermodynamics. The course covers temperature, pressure, volume relationships for gases, specific heat, the relationship between heat and work, heat engines and heat transfer
Total Credits:	3
Hours/Week:	3
Total Hours:	45
Substitutes:	MCH130
This course is a pre-requisite for:	MCH304
Course Evaluation:	Passing Grade: 50%, D
Other Course Evaluation & Assessment Requirements:	Grade Definition Grade Point Equivalent A+ 90 - 100% 4.00 A 80 - 89% B 70 - 79% 3.00 C 60 - 69% 2.00 D 50 - 59% 1.00 F (Fail) 49% and below 0.00 CR (Credit) Credit for diploma requirements has been awarded. S Satisfactory achievement in field /clinical placement or non-graded subject area. U Unsatisfactory achievement in field/clinical placement or non-graded subject area. X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course. NR Grade not reported to Registrar`s office.

	W Student has withdrawn from the course without academic penalty.
Evaluation Process and Grading System:	<table><tr><th>Evaluation Type</th><th>Evaluation Weight</th></tr><tr><td>Tests</td><td>100%</td></tr></table>
Books and Required Resources:	Hand outs Hand outs provided by instructor
Course Outcomes and Learning Objectives:	**Course Outcome 1.** Upon successful completion of this course, the student will demonstrate the ability to: **Learning Objectives 1.** Behavior of Gases Potential Elements of the Performance: Demonstrate an understanding of perfect gases under the following conditions: a. Constant temperature (Boyle`s Law) b. Constant volume (Charles`s Law) c. Constant pressure (Gay-Lussac`s Law) d. Varying temperature, volume and pressure (General Gas Law) e. Mixed gases (Dalton`s Law of Partial Pressures) **Course Outcome 2.** Upon successful completion of this course, the student will demonstrate the ability to: **Learning Objectives 2.** Specific Heat Potential Elements of the Performance: • Define and calculate specific heats under conditions of constant volume and constant pressure. **Course Outcome 3.** Upon successful completion of this course, the student will demonstrate the ability to: **Learning Objectives 3.** 1st and 2nd Laws of Thermodynamics Potential Elements of the Performance: • Explain the concept of heat • Explain the first and second law of thermodynamics to demonstrate an understanding of the relationship between heat, energy and work. **Course Outcome 4.**

	Upon successful completion of this course, the student will demonstrate the ability to: **Learning Objectives 4.** Work Potential Elements of the Performance: Calculate the work done under the following conditions: a. Constant pressure b. Constant Temperature c. Adiabatic expansion and compression d. Polytrophic Compression and expansion **Course Outcome 5.** Upon successful completion of this course, the student will demonstrate the ability to: **Learning Objectives 5.** Practical Thermodynamic Cycle - Heat Engines Potential Elements of the Performance: • Explain the concept of a heat engine. • Identify the application for each of the following thermodynamic cycles: a. Carnot b. Rankine c. Otto d. Diesel e. Brayton **Course Outcome 6.** Upon successful completion of this course, the student will demonstrate the ability to: **Learning Objectives 6.** Heat Transfer Potential Elements of the Performance: • Explain the concepts of heat transfer through conduction, convection and radiation. • Utilize the equations for heat transfer.
Date:	Monday, December 18, 2017
	Please refer to the course outline addendum on the Learning Management System for further information.