COURSE OUTLINE: MCH244 - MANUFACT. PROCESS

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Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	MCH244: MANUFACTURING PROCESS
Program Number: Name	4039: MECH. ENG. TN-MANUFA 4040: MACHINE SHOP 5082: MECH.TECH.IND.MAINT.
Department:	MECHANICAL TECHNIQUES PS
Semesters/Terms:	19W, 19S
Course Description:	The general objective of this course is to give students a basic introduction to manufacturing processes, process sequences and an introduction to the 5Ms of industrial processing. The course centers on the steel production and steel manufacturing industries, but the concepts introduced are applicable to most manufacturing environments.
Total Credits:	4
Hours/Week:	3
Total Hours:	45
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
General Education Themes:	Science and Technology
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 W Student has withdrawn from the course without academic penalty.
Books and Required Resources:	Handout provided
Course Outcomes and Learning Objectives:	See table below

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Upon successful completion of this course,	1.1 Give the definitions of process and process sequence.

the student will distinguish the various processes:	1.2 Describe linear processes. 1.3 Describe parallel processes.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Upon successful completion of this course, the student will be able Explain The 5Ms of Manufacturing Systems:	2.1 Describe each of the 5M elements in manufacturing processes and how they interrelate in a total quality management system. i. Man ii. Material iii. Machines iv. Methods v. Measurement 2.2 Relationship to Quality Management System
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Upon successful completion of this course, the student will be able to describe the Steel Production processes:	3.1 Describe the production flow through an integrated steel plant from incoming raw materials to shipped product. 3.2 Describe the various steel production processes work. 3.3 Explain how the various processes work. 3.4 Where alternate processes are available, explain the technical and economic advantages and disadvantage of each alternate i. Cokemaking ii. Ironmaking iii. Steelmaking iv. Casting v. Hot Rolling vi. Pickling vii. Cold Rolling viii. Annealing 3.5 Shipping
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Upon successful completion of this course, the student will be able to describe the Steel Manufacturing processes	4.1 Recognize and describe various manufacturing processes used for the production of goods made from steel. 4.2 Describe the demands made on the material in each of the various processes covered. 4.3 Explain in technical and economic terms why one process may be used as opposed to a possible alternate process i. Cutting: a. Shearing b. Flame cutting c. Plasma Cutting d. Laser cutting ii. Metal forming: a. Punching b. Blanking c. Bending d. Press forming e. Roll forming f. Drawing g. Hydroforming iii. Joining: a. Bolting b. Riveting

	c. Arc welding d. Resistant spot welding e. Seam welding f. Friction Welding g. Laser welding h. Brazing i. Soldiering iv. Machining: a. Milling and Drilling b. Turning c. Grinding v. Casting: a. Sand casting b. Permanent mould casting c. Lost wax casting

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight	Course Outcome Assessed
Assignments/Reports	30%	
Attendance	10%	
Tests	60%	

Date: August 28, 2018

Please refer to the course outline addendum on the Learning Management System for further information.