



COURSE OUTLINE

MCH141

Prepared: Howard Gray Approved: Corey Munier

Course Code: Title	MCH141: POWER TRANSMISSION SYSTEMS
Program Number: Name	4039: MECH. ENG. TN-MANUFA
Department:	MECHANICAL TECHNIQUES PS
Semester/Term:	18S
Course Description:	A trades course designed to provide students with knowledge of power transmission systems such as belt drives, chains, gears, shafts and couplings. This course uses the Millwright Manual and Study Guide used in semester one.
Total Credits:	3
Hours/Week:	3
Total Hours:	45
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 W Student has withdrawn from the course without academic penalty.
Course Outcomes and Learning Objectives:	Course Outcome 1. Explain and calculate Belt Drive Systems theory and practices.

Learning Objectives 1.

- Calculate Area of Contact
- Classify materials of belts and pulleys
- Calculate belt tension
- Calculate sheave and pulley speed and ratio's
- Explain the difference between Slip and Creep in belt drives

Course Outcome 2.

Identify Flat belt construction and their applications.

Learning Objectives 2.

- Identify flat belt materials
- Understand flat belt construction
- Describe the various Flat belt joining systems
- Classify flat belt applications

Course Outcome 3.

Identify V- belt construction and their applications.

Learning Objectives 3.

- Explain the advantages of using V-belts
- Understand V-belt construction
- Explain V-belt sizes, and codes
- Classify V- belt applications

Course Outcome 4.

Explore Belt Drive systems, assemblies and their applications.

Learning Objectives 4.

- Explain the difference between Pulleys and Sheaves
- Identify the components used in a drive system
- Assess drives and Pulleys for Flat belts
- Assess drives and Sheaves for V-belts
- Demonstrate the proper tension and alignment of pulleys and sheaves

Course Outcome 5.

Classify the various types of chain and sprockets used in Chain Drives.

Learning Objectives 5.

- Identify various links and construction
- Explain Chain sizes, and codes
- Describe components used in pin and roller Chain
- Identify various Sprocket styles and their applications

Course Outcome 6.

Explore Chain Drive systems, assemblies and their applications.

Learning Objectives 6.

- Identify the components used in a chain drive system
- Calculate sprocket ratio's and shaft speeds
- Select the correct size and style of chain to be used
- Demonstrate the proper tension and alignment of shafts and sprockets

Course Outcome 7.

Establish recognized Chain Drive maintenance procedures.

Learning Objectives 7.

- Select the correct Lubrication method for that chain
- Explain the need for Routine Maintenance inspections
- Demonstrate Basic Troubleshooting techniques
- Analyze chain drive failures.

Course Outcome 8.

Explore various types of materials, Gear types, and shaft arrangements used in Gear Drives.

Learning Objectives 8.

- Explain Gear tooth terminology
- Classify Gear Materials and their applications
- Identify the various Gear types and their applications
- Identify the different Shaft arrangements and the corresponding gear type.
- Calculate gear ratio's and shaft speeds for any given gear drive

Course Outcome 9.

Differentiate between Overdrive, Reduction, Worm and Planetary gear units

Learning Objectives 9.

- Describe Overdrive Units and their applications
- Describe Reduction Units and their applications
- Describe Worm Gear reduction Units and their applications
- Describe Planetary Gears and their applications

Course Outcome 10.

Establish Installation and maintenance procedures for gear drives assemblies.

Learning Objectives 10.

- Describe various installation and mounting styles
- Explain the various Lubrication systems
- Demonstrate motor to gearbox alignment
- Demonstrate gearbox to drive alignment
- Explain Basic Troubleshooting techniques

Course Outcome 11.

Classify the difference between various Couplings and Clutches

Learning Objectives 11.

- Describe the different alignment options
- Explain the operating parameters and styles of Rigid couplings
- Explain the operating parameters and styles of Flexible couplings
- Explain the main function of both couplings and brakes

Date:

Monday, April 23, 2018

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