



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:	<p>A trades course designed to provide students with knowledge of power transmission systems such as belt drives, chains, gears, shafts and couplings.</p> <p>This course uses the Millwright Manual and Study Guide used in semester one.</p>
Total Credits:	3
Hours/Week:	3
Total Hours:	45
Course Evaluation:	Passing Grade: 50%, D
Other Course Evaluation & Assessment Requirements:	<p>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</p> <p>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 W Student has withdrawn from the course without academic penalty.</p>
Course Outcomes and Learning Objectives:	<p>Course Outcome 1.</p> <p>Explain and calculate Belt Drive Systems theory and practices.</p>

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.