



COURSE OUTLINE: MCH141 - PWR TRANSMISSION SYS

Prepared: Howard Gray

Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	MCH141: POWER TRANSMISSION SYSTEMS							
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:	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							
Prerequisites:	There are no pre-requisites for this course.							
Corequisites:	There are no co-requisites for this course.							
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 W Student has withdrawn from the course without academic penalty.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:	<table border="1"> <thead> <tr> <th>Course Outcome 1</th> <th>Learning Objectives for Course Outcome 1</th> </tr> </thead> <tbody> <tr> <td>1. Explain and calculate Belt Drive Systems theory and practices.</td> <td>1.1 Calculate Area of Contact 1.2 Classify materials of belts and pulleys 1.3 Calculate belt tension 1.4 Calculate sheave and pulley speed and ratio's 1.5 Explain the difference between Slip and Creep in belt drives</td> </tr> <tr> <th>Course Outcome 2</th> <th>Learning Objectives for Course Outcome 2</th> </tr> </tbody> </table>	Course Outcome 1	Learning Objectives for Course Outcome 1	1. Explain and calculate Belt Drive Systems theory and practices.	1.1 Calculate Area of Contact 1.2 Classify materials of belts and pulleys 1.3 Calculate belt tension 1.4 Calculate sheave and pulley speed and ratio's 1.5 Explain the difference between Slip and Creep in belt drives	Course Outcome 2	Learning Objectives for Course Outcome 2	
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Course Outcome 2	Learning Objectives for Course Outcome 2							



2. Identify Flat belt construction and their applications.	2.1 Identify flat belt materials 2.2 Understand flat belt construction 2.3 Describe the various Flat belt joining systems 2.4 Classify flat belt applications
Course Outcome 3	Learning Objectives for Course Outcome 3
3. Identify V- belt construction and their applications.	3.1 Explain the advantages of using V-belts 3.2 Understand V-belt construction 3.3 Explain V-belt sizes, and codes 3.4 Classify V- belt applications
Course Outcome 4	Learning Objectives for Course Outcome 4
4. Explore Belt Drive systems, assemblies and their applications.	4.1 Explain the difference between Pulleys and Sheaves 4.2 Identify the components used in a drive system 4.3 Assess drives and Pulleys for Flat belts 4.4 Assess drives and Sheaves for V-belts 4.5 Demonstrate the proper tension and alignment of pulleys and sheaves
Course Outcome 5	Learning Objectives for Course Outcome 5
5. Classify the various types of chain and sprockets used in Chain Drives.	5.1 Identify various links and construction 5.2 Explain Chain sizes, and codes 5.3 Describe components used in pin and roller Chain 5.4 Identify various Sprocket styles and their applications
Course Outcome 6	Learning Objectives for Course Outcome 6
6. Explore Chain Drive systems, assemblies and their applications.	6.1 Identify the components used in a chain drive system 6.2 Calculate sprocket ratio`s and shaft speeds 6.3 Select the correct size and style of chain to be used 6.4 Demonstrate the proper tension and alignment of shafts and sprockets
Course Outcome 7	Learning Objectives for Course Outcome 7
7. Establish recognized Chain Drive maintenance procedures.	7.1 Select the correct Lubrication method for that chain 7.2 Explain the need for Routine Maintenance inspections 7.3 Demonstrate Basic Troubleshooting techniques 7.4 Analyze chain drive failures.
Course Outcome 8	Learning Objectives for Course Outcome 8
8. Explore various types of materials, Gear types, and shaft arrangements used in Gear Drives.	8.1 Explain Gear tooth terminology 8.2 Classify Gear Materials and their applications 8.3 Identify the various Gear types and their applications 8.4 Identify the different Shaft arrangements and the corresponding gear type. 8.5 Calculate gear ratio`s and shaft speeds for any given gear drive
Course Outcome 9	Learning Objectives for Course Outcome 9
9. Differentiate between Overdrive, Reduction, Worm and Planetary gear units	9.1 Describe Overdrive Units and their applications 9.2 Describe Reduction Units and their applications 9.3 Describe Worm Gear reduction Units and their applications 9.4 Describe Planetary Gears and their applications
Course Outcome 10	Learning Objectives for Course Outcome 10
10. Establish Installation	10.1 Describe various installation and mounting styles



	and maintenance procedures for gear drives assemblies.	10.2 Explain the various Lubrication systems 10.3 Demonstrate motor to gearbox alignment 10.4 Demonstrate gearbox to drive alignment 10.5 Explain Basic Troubleshooting techniques
	Course Outcome 11	Learning Objectives for Course Outcome 11
	11. Classify the difference between various Couplings and Clutches	11.1 Describe the different alignment options 11.2 Explain the operating parameters and styles of Rigid couplings 11.3 Explain the operating parameters and styles of Flexible couplings 11.4 Explain the main function of both couplings and brakes

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight	Course Outcome Assessed
Assignments	30%	
Tests	70%	

Date:

August 28, 2018

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

