



MASTER COURSE OUTLINE

Prepared By: Carl Burton/Bill Autry

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COURSE TITLE

Mechanical Power Transmission

GENERAL COURSE INFORMATION

Dept.: IST

Course Num: 280

(Formerly:)

CIP Code: 47.0396

Intent Code: 21

Program Code: 770

Credits: 5

Total Contact Hrs Per Qtr.: 77

Lecture Hrs: 33

Lab Hrs: 44

Other Hrs:

Distribution Designation:

COURSE DESCRIPTION (as it will appear in the catalog)

Fundamentals of industrial mechanical power transmission. Includes lubrication, bearings, speed reducers, gears, couplings, drive components, brakes, clutches, and adjustable speed drives.

PREREQUISITES

IST 100, IST 102, and MAP 103/117
or Instructor Permission

TEXTBOOK GUIDELINES

Appropriate textbook as determined by faculty (Example: *Bearings series # 733 & Power Transmission Devices # 734.1*)

COURSE LEARNING OUTCOMES

Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills.

- 1) Demonstrate the proper safety techniques while working with power drive components
- 2) Demonstrate the identification of drive components and describe their respective functions
- 3) Relate the principals involved in power transmission
- 4) Troubleshoot common malfunctions and inspect for common wear associated with moving machinery.
- 5) Demonstrate sound maintenance procedures as they apply to installation, adjustment, monitoring, lubrication, and rebuilding of industrial machinery.

INSTITUTIONAL OUTCOMES

COURSE CONTENT OUTLINE

- 1) Lubrication
 - a) Principles of lubrication
 - b) Characteristics of lubricants
 - c) Types of Lubricants
 - d) Lubrication techniques
- 2) Bearings
 - a) Bearings classification

- b) Anti-friction Bearings
- c) Shaft and housing fits
- d) Bearing seals
- e) Bearing lubrication
- f) Bearing maintenance
- 3) Speed Reducers
 - a) Types of Reducers
 - b) Shaft mounted reducers
 - c) Right angle
 - d) Parallel
 - e) Reducer installation and maintenance
- 4) Gears
 - a) Gear drives
 - b) Gear definitions
 - c) Types of Gears
 - d) Maintenance
- 5) Couplings
 - a) Types of couplings
 - b) Coupling alignments.....feeler gage
 - c) Coupling alignments.....dial indicator
- 6) Drive Components
 - a) Roller chain
 - b) Maintenance of roller chain
 - c) Chain other than roller chain
 - d) Timing belts and flat belts
 - e) V-belts
 - f) Maintenance of V-belts
 - g) Alignment of drive components
- 7) Maintaining Brakes and Clutches
 - a) Types of brakes
 - b) Types of Clutches
 - c) Maintenance of brakes
 - d) Maintenance of clutches
 - e) Asbestos awareness
- 8) Adjustable Speed Drives
 - a) Belt types of drives
 - b) Disk and roller types of drives
 - c) Hydraulic drives
 - a) d) Electric drives
- 9. Preventive maintenance

DEPARTMENTAL GUIDELINES *(optional)*

DIVISION CHAIR APPROVAL

DATE

