

Master Syllabus

MET 2401 - Machine Design

Division: Science, Mathematics and Engineering

Department: Mechanical Engineering Technology

Credit Hour Total: 3.0

Lecture Hrs: 2.0 **Lab Hrs:** 3.0

Prerequisite(s): MET 2251 AND PHY 1131

Date Revised: July 2016

Course Description:

Design and evaluation of machine elements, design for safety, strength, stability and wear. Analysis and design of gears, shafts, drive systems, mechanical fasteners, permanent connections, roller and journal bearings and springs. A design project including an oral presentation and written report is required. Two classroom, three lab hours per week.

General Education Outcomes:

- ❑ Oral Communication Competency
- ❑ Written Communication Competency
- ❑ Critical Thinking/Problem Solving Competency
- ❑ Computer Literacy Competency
- ❑ Information Literacy Competency

Course Outcomes:

Specifications

Prepare written, graphic and quality specifications for a finished design.

Assessment Method: Portfolios

Performance Criteria: 70% or more of available points

Project presentation

Present the project concepts, design parameters and results in a small group setting.

Assessment Method: Portfolios

Performance Criteria: 70% or more of available points

Mechanical system design

Determine the design, manufacturing and quality requirements for a basic mechanical system.

Assessment Method: Portfolios

Performance Criteria: 70% or more of available points on assignments

Mechanical component design

Identify and design various mechanical components.

Assessment Method: Locally developed exams

Performance Criteria: 70% or more of available points on exams

Components

Separate components into "select" or "design" categories.

Assessment Method: Locally developed exams

Performance Criteria: 70% or more of available points on exams

Outline:

Design philosophy
Design considerations
Procedures in machine design
Connections
Fasteners
Bearings
Shaft design