
MIDDLESEX COUNTY COLLEGE

COURSE SYLLABUS

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| Department: | Engineering Technologies |
| Program: | Mechanical Engineering Technology |
| Course Number: | MEC 228 |
| Title of Course: | Kinematics Design |
| Curriculum Coordinator: | Rick Schieni |
| Designation: | Required Course |

Course Description:

A study of the displacements, synthesis, velocities, and accelerations associated with the motion of mechanisms including four bar linkages, gears, and sprockets. Problems and projects are solved using analytical and graphical methods that include CAD software.

Prerequisite:

MEC 123, MAT 129B

Co-requisite:

None

Textbooks and /or other required material:

Machines and Mechanisms, Applied Kinematic Analysis by Myszka, Pearson, 4rd Ed

Course Learning Outcomes and their relationships to Student Outcomes:

1. Determine the displacement, velocity and acceleration of mechanisms using manual and analytical methods, and software. **(SO e)**
2. Utilize software to solve problems and produce technical documents.
3. Present information developed in the process of carrying out the design project.
4. Utilize graphical techniques and word processing software to produce engineering drawings, specifications and design reports.
5. Design a mechanism based on two point and three point synthesis. **(SO e)**
6. Analyze, evaluate and discuss elements of the design project during the final oral presentation

Topics Covered:

- Kinematics drawing.
- Displacement analysis using direct and inverse kinematics.
- Mechanism design.
- Velocity analysis.
- Acceleration analysis.
- Gear train analysis.
- Belts and chains analysis.

Laboratory Topics Covered:

- Displacement
- Mechanisms Design
- Velocity
- Acceleration
- Gear Train Design
- Semester Project

Class/Laboratory schedule. Number of sessions each week and duration of each session:

2 lecture hour per week for 14 weeks

3 laboratory hours per week for 14 weeks

Criterion 5 Contribution:

Technical Content

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| Prepared By: | Joseph Misuraca | Date: | 9/10/2008 |
| Rev 1: | Thom Sabol Update mapping of course outcomes to student outcomes | Date: | 4/4/14 |
| Rev 2: | General Update | Date: | 3/15/21 |