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###### COURSE SYLLABUS

###### Semester: Year: 2013

**Mission Statement:**

Richard J. Daley College provides high-quality education which leads to academic success, career development, and personal enrichment that fulfill diverse community needs.

###### Course (Discipline): Manufacturing Technology Number: 292 Section:       IAI#:

**Course Title:** Principles of Mechanisms  **Length of Course (Weeks):** 16

**Credit Hours:** 3 **Lecture Hours:** 2 **Lab Hours:** 2 **Contact Hours:** 4

**Meeting Day(s):**       **Times:**       **Building:**       **Classroom #:**

**Syllabus can be found on Blackboard website at** [**https://ccc.blackboard.com/webapps/login/**](https://ccc.blackboard.com/webapps/login/)**.**

###### Dean, College to Careers in Advanced Manufacturing \_\_Ray Prendergast\_\_\_\_\_\_\_

###### E-mail Address: rprendergast@ccc.edu Phone #: 773-838-7786

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#### Office hours:

**Course Description**:

This course covers the basic principles of industrial mechanisms. The motion characteristics of drive mechanisms, bearings, lubricants, cams, gears, pulleys are covered in the context of manufacturing processes and factory automation. Troubleshooting and maintenance procedures used in industrial settings are stressed throughout. Students completing the course will be prepared to earn the Manufacturing Skill Standard Council’s Maintenance Awareness module of the Certified Production Technician credential.

**Course Prerequisites**:

Eligibility for Math 99, or Consent of Department Chairperson.

**Students Course is Expected to Serve:**

Students in the manufacturing program and engineering students interested in applied mechanics.

**Course Objectives**: Upon completion of the course, the student will be able to:

* Read, understand, and apply simple instructions and installation procedures.
* Understand basic mechanical elements used in manufacturing production mechanisms such as bearings, cams, pulleys, gears, etc.
* Troubleshoot mechanical drive systems.
* Pass the Maintenance Awareness exam module of the Manufacturing Skill Standard Council’s Certified Production Technician credential.

**Student Learning Outcomes:**

Upon completion of the course, the student will be able to:

* Perform fault detection, fault isolation and fault analysis on simple mechanisms.
* Perform preventive maintenance on simple mechanisms by applying a given set of instructions.
* Replace faulty mechanisms with new ones.
* Locate, recognize, and troubleshoot several drive mechanisms by applying a given set of instructions.

**Recommended Texts and Course Materials:**

Power Transmission Distributors Association. (2000). *Power Transmission Handbook, 4th Edition*. Chicago, IL: Author. ISBN: N/A.

***Materials:***

Amatrol mechanical drive system trainers and other mechanical apparatus.

**Recommended Methods of Instruction**:

The methods of instruction will include:

Lecture, classroom discussion, small group work in mechanical lab, and project-based learning.

**Recommended Methods of Evaluation:**

Midterm and final course grades will be based on the following evaluation methods:

Class Participation

Lab and Class Projects

Quizzes

Midterm examination

Final examination

Attendance

Grading Scale:

90-100% = A

80-89 = B

70-79 = C

60-69 = D

Below 60 = F

See the Policy on grade designations and grade appeals at:

<http://www.ccc.edu/colleges/daley/departments/Pages/Grade-Appeal-Policy-and-Procedure.aspx>

**NOTE:** Type or copy and paste the link above into a web browser to view its content.

### Topical Outline / Course Calendar:

1. Study of Motion
2. Motion Characteristics
3. Drive mechanisms
4. Bearings, Gears
5. Principle of lubrication, lubricants
6. Midterm 1, and lesson on pulleys
7. Laboratory Project
8. Principles of metrology
9. Popular industrial mechanisms
10. Case study and analysis
11. Midterm 2, and lesson on metric and blueprint reading
12. Math and physics behind mechanisms
13. Industrial tour
14. Preventive and Corrective Maintenance Procedures for mechanisms
15. Review and Project analysis
16. Final examination

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