

## Common Course Numbering System

Your current Institution is CCCS

### Searching Current Courses For Spring 2015

**Course:** IMA 100

**Title:** Intro Industrial Maintenance

**Long Title:** Intro Industrial Maintenance

**Course Description:** Provides an overall perspective and foundation for the person entering the industrial maintenance field. The fundamentals of machine operations commonly utilized in the process and energy industry will be presented. Maintenance personnel duties and responsibilities, general maintenance procedures, basic maintenance tools and equipment, basic fastening and securing and machine operating specifications will be covered. Emphasis will be placed upon the understanding of machine documentation. The student will be introduced to the logical process utilized in the diagnosis machinery and control system troubleshooting. Workplace safety will be stressed throughout the course.

**Min Credit:** 3

**Max Credit:**

**Course Notes:** Entered new course 7/3/07 s@

**Origin Notes:** RRCC

#### STANDARD COMPETENCIES:

- I. Understand the role and function of maintenance organization within an industrial environment.
- II. Describe the roles, responsibilities, and expectations of the maintenance technician.
- III. Describe the different types of teams encountered within the process and energy Industry.
- IV. Identify the type and function of common equipment found within the process and energy industry.
- V. Describe the common mechanical drive systems and their components.
- VI. Define and demonstrate the use of measurement and dimension systems.
- VII. Understand the function and limitations of basic hand tools, power tools and machine shop operations.
- VIII. Identify and describe the function and limitations of common fastening systems and components.
- IX. Understand of technical documentation associated with production equipment, including manufacturer's literature, engineering drawings and in-house procedures and methods.
- X. Describe the primary failure modes for machinery and systems.
- XI. Describe the elements of a successful preventative maintenance program.
- XII. Describe the elements and application of predictive maintenance technologies.
- XIII. Define and demonstrate the development of a logical, progressive, troubleshooting process.

TOPICAL OUTLINE:

- I. Importance of maintenance
  - A. Mission and goals of the maintenance team
  - B. Success factors for maintenance teams
  - C. Intro to the financial impact of maintenance on an organization
  - D. Why machines fail
- II. Role of the maintenance technician
  - A. Essential skill requirements
  - B. Role and responsibilities of the maintenance technician
- III. Overview of industrial process equipment and systems
  - A. Pumps and compressors
  - B. Tanks and vessels
  - C. Pipe, tubing and valve systems
  - D. Conveyers and other stationary material movers
  - E. Electrical equipment
  - F. Control systems
- IV. Maintenance tools
  - A. Hand tools
  - B. Small power tools
  - C. Shop tools
- V. Measurement systems and tools
  - A. Metric
  - B. US standard
- VI. Common fasteners
  - A. Nuts and bolts
  - B. Screws
  - C. Rivets and non-conventional fastening systems
- VII. Welds and welding
  - A. Overview and applications
  - B. Standards, codes and symbols
- VIII. Technical documentation
  - A. Manufacturers literature
  - B. Engineering drawings
  - C. Process and instrumentation diagrams
  - D. In-house procedures and methods

- IX. Preventative maintenance
  - A. Lubrication
  - B. Importance of housekeeping
  - C. Record keeping
  - D. MTBF and MTTR
  - E. Scheduled PM
- X Predictive maintenance technology
  - A. Lubricant analysis
  - B. Vibration analysis
  - C. Infrared
  - D. Ultrasonic
- XI. Troubleshooting methodologies overview
  - A. Root cause analysis
  - B. Cause mapping
  - C. Persistent versus single point failures

**Course Offered At:**

**Northeastern Junior College NJC**

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