I. **OVERVIEW**
The following information will appear in the 2011 - 2012 catalog

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>MFGA 202</td>
<td>Fundamentals of Industrial Technology</td>
<td>2</td>
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</table>

**Also offered as:** INTEC - 202: Fundamentals of Industrial Technology

**Formerly listed as:** INTEC - 202: Fundamentals of Industrial Technology

Students will explore common industrial production, manufacturing, and fabrication processes.
Field trips might be required. (A-F Only) Lecture / Lab
Transfer: (CSU)

II. **LEARNING CONTEXT**
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

   a. Principles of Industrial Technology
      i. Purpose of technology
      ii. Purpose of industry
      iii. Types of industrial technology careers
      iv. Basic skills needed in industrial technology careers

   b. Problem Solving
      i. Man-made and naturally formed objects
      ii. Design processes
      iii. Problem solutions through elements of design
      iv. Pre-production prototypes

   c. Production Technology
      i. Major parts of production technology
      ii. Main inputs of systems
      iii. Outputs of systems
      iv. Transportation support
      v. Communication support
vi. Primary production technologies: manufacturing and fabrication

vii. Fabrication cycle: planning, fabrication, and servicing

d. Primary Manufacturing Technology
   i. Primary manufacturing concepts
   ii. Natural resources
   iii. Standard industrial stock
   iv. Careers and occupations

e. Secondary Manufacturing Concepts
   i. Casting processes
   ii. Separating processes
   iii. Conditioning processes
   iv. Assembling processes
   v. Finishing processes
   vi. Forming processes
   vii. Careers and occupations

f. General Hand Tools
   i. Identification
   ii. Safe usage
   iii. Safety devices for usage
   iv. Proper application
   v. Proper care and maintenance

g. General Power Tools
   i. Identification
   ii. Proper care and maintenance
   iii. Safe usage
   iv. Safety devices for usage
   v. Proper application

h. Linear Measurement: English and Metric
   i. Basic units of measurement
   ii. Standard measuring devices
iii. Measuring exercises: standard systems
iv. Precision measuring devices
v. Measuring exercises: precision systems

i. Interpreting Drawings and Schematics
   i. Purpose and usage
   ii. Drawing and layout tools
   iii. Sketching
   iv. Multi-view projection
   v. Isometrics and obliques drawing

2. Required Lab Content:
   a. Proper Use of Common Industrial Hand and Power tools
   b. Proper Use of Common Industrial Measurement tools
   c. Interpretation of rudimentary industrial drawing and/or schematics

B. HOURS AND UNITS

<table>
<thead>
<tr>
<th>INST METHOD</th>
<th>TERM HOURS</th>
<th>UNITS</th>
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</thead>
<tbody>
<tr>
<td>Lect</td>
<td>18</td>
<td>1.00</td>
</tr>
<tr>
<td>Lab</td>
<td>54</td>
<td>1.00</td>
</tr>
<tr>
<td>Disc</td>
<td>0</td>
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C. METHODS OF INSTRUCTION (TYPICAL)
Instructors of the course might conduct the course using the following method:

1. Classroom lecture
2. Computer-based tutorials
3. Equipment and technology demonstrations
4. Laboratory demonstrations and exercises
5. Video presentations
6. Guest speakers

D. ASSIGNMENTS (TYPICAL)

1. EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS
Time spent on coursework in addition to hours of instruction (lecture hours)
   a. Weekly Chapter Reading Assignments
b. Weekly Homework Assignments

c. Per term Preparation for Laboratory Assignments

d. Per term preparation for Midterm

e. Per term Preparation for Final exam

2. **EVIDENCE OF CRITICAL THINKING**

   *Assignments require the appropriate level of critical thinking*

   a. Lab exercise: Calculate the linear measure, surface measure, and volume (cubic feet and board feet) of each of the designated lab stations.

   b. Typical exam question: What is meant by precision measurement?

   c. Prepare a presentation on the various types of form and show products made by each type of process.

   d. Make a sketch of a dado joint and a miter joint.

   e. Describe what is meant by (1) designing for function, (2) designing for manufacturing, and (3) designing for selling.

E. **TEXTS AND OTHER READINGS (TYPICAL)**


III. **DESIRED LEARNING**

A. **COURSE GOAL**

   *As a result of satisfactory completion of this course, the student should be prepared to:*

   identify and describe the fundamental principles of secondary manufacturing processes, and demonstrate the safe and correct operation of industrial power tools.

B. **STUDENT LEARNING GOALS**

   *Mastery of the following learning goals will enable the student to achieve the overall course goal.*

   1. **Required Learning Goals**

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

      a. Practice safe shop habits in an industrial environment.

      b. Use problem-solving processes of contemporary technology to solve simulated work problems.

      c. Describe the basic principles of industrial and production technology.

      d. Perform basic tasks using primary and secondary manufacturing concepts.

      e. Perform basic tasks using both hand and power tools employed in the industrial workplace.

      f. Use both standard and precision measuring devices.

      g. Read and interpret drawings and schematics generic to industry.

      h. Build and evaluate prototypes.

   2. **Lab Learning Goals**
Upon satisfactory completion of the lab portion of this course, the student will be able to:

a. Practice safe shop habits in an industrial environment.

b. Perform basic tasks using both hand and power tools employed in the industrial workplace.

c. Use both standard and precision measuring devices.

d. Read and interpret drawings and schematics generic to industry.

e. Build and evaluate prototypes.

IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT

1. Written exercises and/or problems that demonstrate and reinforce the fundamental principles of each course topic.

2. Laboratory exercises and/or problems that demonstrate and reinforce the fundamental principles of each course topic.

B. SUMMATIVE ASSESSMENT

1. Written examinations including problems and tasks that require the students to demonstrate mastery of mechanical fundamentals and their application to mechanical systems.