Course Syllabus

Department: Science Technology

Date: 01/18/13

I. Course Prefix and Number: TECH 205

Course Name: Engineering Drawing III

Credit Hours and Contact Hours: 3 credit hours and 3 contact hours

Catalog Description including pre- and co-requisites: supporting data required for grade prerequisite of 'C' or higher.

This course includes advanced drafting skills required in a typical engineering design environment. Topics include drawing views, assembly drawings, threads and fasteners, dimensioning, tolerancing, bearings and shafts, gears, cams, springs, keys, sheet metal and weldments, and the design process. Students will use parametric solid modeling software. Prerequisite: TECH 106.

Relationship to Academic Programs and Curriculum including SUNY Gen Ed designation if applicable:

This course is a required course for the AAS Mechanical Technology program and a technical elective for the AAS Architectural Technology and Building Science program.

Students from other programs may also enroll in this course if they have the prerequisite.

II. Course Student Learning Outcomes: State the student learning outcome(s) for the course (e.g. Student will be able to identify…)

By the end of the course the student will have demonstrated knowledge of the following:

a) Selection and creation of the appropriate drawing views (orthographic, isometric, auxiliary, section, detail, broken, etc.)
b) Preparation of a set of working drawings including detail drawings, assembly drawing and bill of materials
c) Interpretation of thread notes in both the metric and imperial systems
d) Design and selection of fasteners
e) Application of ANSI dimensioning standards
f) Types of tolerances and calculation of hole and shaft sizes
g) Calculation of clearances for bearings and shafts and selection of bearings
h) Gear train calculations, gear terminology and formulas, and gear box design
i) Common types of cam follower motion, the development of the displacement diagram and construction of the cam profile layout for various types of follower configurations and constraints. These may include disk and cylindrical cams with roller, flat-face and pivoted roller cam follower designs.
j) Documentation of welding symbols indicating the size and type of welds applied to the basic types of welded joints in an assembly of welded parts.
k) Management of the design process
l) Use of parametric solid modeling software to design solid models of machine parts and assemblies with associated drawings.

**College Learning Outcomes Addressed by the Course:** *(check each College Learning Outcome addressed by the Student Learning Outcomes)*

- [ ] writing
- [ ] oral communications
- [ ] reading
- [ ] mathematics
- [X] critical thinking
- [X] computer literacy
- [ ] ethics/values
- [ ] citizenship
- [ ] global concerns
- [ ] information resources

### III. Assessment Measures (Summarize how the college and student learning outcomes will be assessed):

*For each identified outcome checked, please provide the specific assessment measure.*

<table>
<thead>
<tr>
<th>List identified College Learning Outcomes(s)</th>
<th>Specific assessment measure(s)</th>
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</thead>
<tbody>
<tr>
<td>eg: writing</td>
<td>eg: student will complete a research paper</td>
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<tr>
<td>Critical thinking</td>
<td>Students will complete design projects.</td>
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<tr>
<td>Computer literacy</td>
<td>Students will complete CAD generated models and drawings.</td>
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<tr>
<td>Ethics/values</td>
<td>Students will use professional organization/industry standards to create drawings.</td>
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### IV. Instructional Materials and Methods

**Types of Course Materials:**

Textbooks are required. Software is provided by the college.

**Methods of Instruction (e.g. Lecture, Lab, Seminar …):**

Lecture, Demonstration, and Applied Laboratory
V. General Outline of Topics Covered:
   Autodesk Inventor Training
   Threads & Fasteners
   Dimensioning
   Tolerancing
   Gears
   Cams, Springs & Keys
   Sheet Metal
   Weldments
   Rapid Prototyping
   Team Design Project