

MECHANICAL ENGINEERING PROGRAM
ABET COURSE SYLLABUS

ME 130 Introduction to Mechanical Engineering III (1) Required

Course Description: (2013-15 Catalog) Use of computer-aided design to communicate parts and assemblies Dimensioned drawings for part fabrication. Introduction to fits and tolerances. Layout drawings and functional assemblies. Conclusion cornerstone learning project. 1 Laboratory. Formerly ME 152

Prerequisite Courses: ME 129; Mechanical Engineering Student; Third Quarter of Freshman Year

Prerequisites by Topic: Orthographic Drawings
 Sectional Views
 Auxiliary Views
 Pictorial Views
 Descriptive Geometry

Textbook: (and/or other required material) Technical Graphics Communication, 4th Edition, Bertoline

References: Any specified by Instructor

Course Coordinator/Instructor: John Larson, ME Lecturer

- Course Learning Outcomes:**
1. Ability to construct engineering communication documents describing mechanical devices and systems by using points, vectors and surfaces.
 2. Selection of appropriate orthographic, sectional, auxiliary and pictorial views to convey engineering design concepts to fabricators.
 3. Construct appropriate dimensions and geometric tolerances to convey a part's functional design requirements to fabricators.
 4. Calculate size tolerances necessary to ensure the functional relationship of multi-part assemblies.
 5. Ability to create and define a conceptual solution to an engineering problem.
 6. Ability to use a common industrial CAD package to create engineering documentation.

Relationship of Course to MECHANICAL ENGINEERING Program Outcomes:												
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>	<i>l</i>	<i>m</i>
M	L	M	M	H	L	L	L	L	L	H	M	L

Topics Covered:

1. Detail Drawings, Size Tolerances, Notes
2. Clearance, Interference & Transition Fit Calculations
3. Fundamental Geometric Dimensioning & Tolerancing (ASME-Y14.5M)
4. Design of Functional Layouts
5. Assembly Drawings & Bill of Materials
6. Threads & Fasteners
7. Weld Symbology
8. Cornerstone Project
9. CAD Skills: Parametric Modeling, Dimensioning, Tolerance Specification, Assembly Mates, Functional Assemblies

Laboratory Activities:

Individual and group assignments and projects that require students to use industrial CAD software to:

Create Part Models encompassing:

Extrusions, revolves, and lofts

Patterns, holes, and common features

Construct multi-view detail drawings including:

Dimensions, size tolerances, and notes

Datums, basic dimensions, and geometric tolerances

Produce functional multi-part assemblies

Prepare assembly drawings including bill of materials

Instructor gives group and individual assistance as needed.

Class/Lab Schedule:

One 170 minute lab per week

Contribution of Course to Meeting the Professional Component:

- | | |
|--|-----------|
| (a) College-level math & basic sciences: | 0 credits |
| (b) Engineering Topics | 1 credits |
| Design - Yes | |
| (c) General Education: | 0 credits |
| (d) Other: | 0 credits |

Prepared by: John Larson

Date: 11/1/13
