Ohio Articulation Number (OAN)
Course Submission Form
2005-2006

College/Univ  Stark State College of Technology

Ohio Articulation Number (OAN)  Course Submission Form
2005-2006

Course(s) Submitted (Title & Course #)  DET 125 – Basic AutoCad
Ohio Articulation Number  OET 012 – Computer Aided Design

Date  8-22-06 Course  one___ of a  one___ Course OAN mapping.

Name and title of individual submitting on behalf of the college/university

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Credit Hours  3  qtr  ___  sem  x___
Lecture Hours  1
Laboratory Hours  4 (if applicable)
Pre-Requisites(s)  Course work (if applicable)

Placement Score (if applicable)
(Name of test)  
(Domain)  
(Score)

Catalog/Course Description (Includes Course Title and Course #)

DET 125 – Basic AutoCad
This course begins with the basics and gives students hands-on experience using personal computers to create engineering drawings with AutoCAD software. The student will be required to complete a number of assigned projects on the system. Topics include: basic
components of a CAD system, an overview of Windows, input methods, drawing setup, drawing, display, edit, dimensioning, text, symbol libraries, crosshatching, and isomode. Also, an introduction to three-dimensional drawings using AutoCAD including wireframe, surface and solid modeling, 3D viewing commands to view the object from different viewing directions, creating orthographic drawings from solid models, and object analysis (to find volume, mass, etc.). No prior experience with computers or CAD is required.

Texts/Outside Readings/Ancillary Materials


One 3-1/2” double-sided, high-density disk or CD-R or CD-RW used to store drawings

Course Objectives and/or Plan of Work

Upon completion of this course, the student will have the knowledge to use Windows commands to FORMAT a diskette, list files, delete files, rename files, and copy files. Using AutoCAD, the student will be able to start a drawing from scratch, create accurate geometry, dimension, add text and leaders, and perform display commands such as ZOOM when needed. The student will also be able to modify items, crosshatch, and create “blocks” to increase drawing productivity.

Description of Assessment and/or Evaluation of Student Learning

The student will demonstrate the following skills:

• Students will make professional drawings using a personal computer and the current release of AutoCAD software in class.

• These skills will demonstrate the ability to accurately create geometry of a variety of 2-dimensional orthographic and isometric objects using the AutoCAD software in the lab.

• Students will demonstrate the ability to produce a basic AutoCAD engineering drawing which complies with accepted drafting standards of line weight, lettering style, orthographic or isometric projection, and dimensioning.

• Good file management skills will be practiced.

• Students will create, revise, dimension and crosshatch objects, store them on disk or network drive, and plot or print the object(s) which will make up the majority of the grade. Accuracy of the geometry is heavily stressed.
Master Syllabi and Working Syllabi (if both are used)

Additional Documentation
See attached.

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STARK STATE COLLEGE OF TECHNOLOGY
DESIGN ENGINEERING TECHNOLOGY
COURSE SYLLABUS

COURSE DESCRIPTION:
This course begins with the basics and gives students hands-on experience using personal computers to create engineering drawings with AutoCAD software. The student will be required to complete a number of assigned projects on the system. Topics include: basic components of a CAD system, an overview of Windows, input methods, drawing setup, drawing, display, edit, dimensioning, text, symbol libraries, crosshatching, and isomode. Also, an introduction to three-dimensional drawings using AutoCAD including wireframe, surface and solid modeling, 3D viewing commands to view the object from different viewing directions, creating orthographic drawings from solid models, and object analysis (to find volume, mass, etc.). No prior experience with computers or CAD is required.

COURSE OBJECTIVES:
Upon completion of this course, the student will have the knowledge to use Windows commands to FORMAT a diskette, list files, delete files, rename files, and copy files. Using AutoCAD, the student will be able to start a drawing from scratch, create accurate geometry, dimension, add text and leaders, and perform display commands such as ZOOM when needed. The student will also be able to modify items, crosshatch, and create “blocks” to increase drawing productivity.

CRITICAL THINKING AND COMPUTATIONAL SKILLS:
• These skills should be demonstrated by the student’s ability to accurately create geometry of a variety of 2-dimensional orthographic and isometric objects using the AutoCAD software in the lab.
• Students will demonstrate the ability to produce a basic AutoCAD engineering drawing which complies with accepted drafting standards of line weight, lettering style, orthographic or isometric projection, and dimensioning.
• Good file management skills will be emphasized.

COMPUTER APPLICATIONS SKILLS:
• Students will operate a personal computer using the current release of AutoCAD software in class.
• This course requires no previous knowledge of computers or CAD software but does require previous knowledge of basic drafting, dimensioning and section view practices, including the ability to convert a pictorial drawing into standard orthographic views.

PROJECTS/COMMUNICATION SKILLS:
• Students will create, revise, dimension and crosshatch objects, store them on disk or network drive, and plot or print the object(s) which will make up the majority of the grade. Accuracy of the geometry is heavily stressed.
• Promote cooperative learning within the classroom to produce individual projects.

REQUIRED TEXTBOOK:

REQUIRED MATERIALS:
One 3-1/2" double-sided, high-density disk or CD-R or CD-RW used to store drawings

**NOTE:** Student is responsible for lecture materials and material in the text relating to the lecture. No make-up work will be allowed without prior arrangement. The course content, syllabus, and calendar are subject to change based on the individual needs of the class.

**AutoCAD Certificate of Completion**

A certificate of completion is awarded to students who successfully complete all three AutoCAD courses (DET125 Basic AutoCAD, DET126 Customizing AutoCAD and DET230 Advanced AutoCAD). Applications are available in the Information Technology and Engineering Technology Division office or see your instructor.

Rev 1/17/06
Supporting Documents

The following is a detailed cross-reference of how Stark State addresses the essential learning outcomes as listed by in the Ohio TAGS.

Essential Outcomes:

1. Demonstrate an in-depth proficiency of a commercial CAD system.
   1.1 The student will have access to the latest available version of commercial AutoCad by AutoDesk
   1.2 Through various projects the student will develop real-world engineering drawings in a variety of applications. Proficiency will be shown in 2-d working drawings.

2. Draw a variety of components utilizing orthographic drawings.
   2.1 The student will demonstrate advanced spatial visualization using the 3rd angle projection and orthographic projection.
   2.2 Students will show an understanding of the entire orthographic projection process including terms such as folding lines, projection lines, projection planes, principle views and the ‘glass box’ concept.
   2.3 Students will use standard ANSI nomenclature when discussing orthographic projections.

3. Detail, dimension and specify tolerances on engineering drawings.
   3.1 The student will use the ANSI Y14.5M ‘Dimensioning and Tolerancing’ standard for all drawings.
   3.2 The student will show an understanding of comprehensive dimensioning practices including unidirectional, aligned, tabular, ordinate, polar (radial) and other standard methods. The student will also dimension circles, arcs, irregular curves, angles and various engineering entities such as counterbores, countersinks, threads, fasteners, weldments, etc.
   3.2 The student will show an understanding of comprehensive tolerancing practices including plus/minus, limits, max/min, unidirectional, bidirectional. The student will also show an understanding of tolerancing concepts such as design intent, datums, chain dimensions, MMC, LMC, size features, locational and positional tolerances.

4. Utilize and apply the principles of sections to draw sectional views.
   4.1 The student will show an understanding of practices necessary for sectioning parts with hidden (interior) details including full, half, removed, revolved, aligned sections and conventional breaks.
   4.2 CAD libraries will be used to access existing material cross-sections.
   4.3 ANSI standard practices for sectioning will be utilized for such issues as thin parts, ribs in section, aligned of bolt-circles and in determining when hidden lines will be omitted.
5. Understand the principles of primary auxiliary views.
5.1 Drawings will be made with three standard orthographic views and a primary auxiliary view.
5.2 Standard ANSI practices will be adhered to for all auxiliary views including dimensions, hidden lines, partial/full views and part layout. The student will demonstrate an understanding of auxiliary views with a special emphasis on part construction.

6. Prepare an assembly drawing, details of the assembly, and a bill of materials.
6.1 Student projects include both individual detail drawings and assembly drawings.
6.2 Assembly drawings reference the correct detail drawings and a bill of materials is included as in actual production.

7. Draw a multiple sheet/multiple part working drawing.
7.1 The assembly/detail drawings (see section 6 above) will be arranged on ordered, sequential sheets and will constitute a complete set of working drawings.

8. Use PC based CAD programs to create 3D solid models
8.1 The student will demonstrate a basic understanding of 3-d part generation including the different imaging types available, creating surfaces, user coordinate systems, and basic 3-d drawing practices.

Optional Outcomes:
1. Gain an appreciation of the ANSI Y14.5M-1982 graphics standard by identifying and understanding the symbols and terminology.
   1.1 See Section 3 of Essential Outcomes above.
2. Understand the standard engineering symbols and prepare engineering diagrams.
   2.1 The student will make blocks of the following basic engineering symbols: electrical schematic components, counterbores, countersinks, weld symbols, surface finishes and others.
3. Prepare electrical connection wiring diagrams.
   3.1 A drawing is made of a circuit via the use of the block command and with the aid of existing CAD libraries. (Also see above in Optional Outcomes section 2.1
4. Introduce Geometric Dimension & Tolerancing (GD&T)
   4.1 See Section 3 of Essential Outcomes above.