



**TRINITY VALLEY COMMUNITY COLLEGE
ADMINISTRATIVE-MASTER SYLLABUS**

The Administrative- Master Syllabus is an administrative tool; it is **not intended to be distributed to students.** It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of TVCC, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction. The Administrative-Master Syllabus will demonstrate that there is consistency and comparability in course offerings.

Course Title

Solid Modeling

Course Prefix and Number

DFTG 2340

Department – Division

Drafting – Vocational/Technical

Course Type – select from one of the following categories.

- Academic General Education Course (from ACGM – but not in TVCC Core)
- Academic TVCC Core Course
- WECM Courses

Semester Credit Hours: Lecture Hours: Lab/other hours

| Semester Credit Hours | Lecture Hours | Lab/Other* Hours |
|-----------------------|---------------|------------------|
| 3 | 2 | 4 |

Other hours include practicum, clinical or other types of non-lecture instruction. *If other, please specify: _____

Course Catalog Description

A computer-aided modeling course. Development of three-dimensional drawings and models from engineering sketches and orthographic drawings and utilization of three-dimensional models in design work. The student will apply the concepts necessary to create the three-dimensional solid model objects; create isometric, oblique, and perspective drawings; and draw manually or by computer.

Prerequisites/co requisites

Sophomore standing or consent of instructor

Topical Outline

- 1) Introduction to Autodesk Inventor
- 2) Explore the User Interface
- 3) Sketching, Constraints, and the Base Feature
 - a) Sketching
 - i) Constraints
 - ii) Dimensions
 - b) Base Feature
 - i) Extruding
 - ii) Revolving
- 4) Complex Sketching
 - a) Complex profiles
 - b) Formulas
 - c) Construction Geometry
 - d) Secondary Sketches
 - e) Work planes
- 5) Non Sketch Features
 - a) Hole Tool
 - b) Thread Tool
 - c) Fillets
 - d) Rounds
 - e) Chamfers
 - f) Rectangular patterns
 - g) Circular Patterns
 - h) Mirror Tool
 - i) Shell Tool
 - j) Rib Tool
 - k) Face Drafts
- 6) Creating Drawings from Parts
 - a) Base view
 - b) Projection views
 - c) Auxiliary views
 - d) Section views

- e) Dimensioning
- f) Text
- 7) Building Assemblies
 - a) Projects and Folders
 - b) Inserting Parts
 - c) Creating Parts
 - d) Content Library
 - e) Assembly Constraints
 - f) Motion Constraints
- 8) Assembly Drawings
 - a) Views
 - b) Annotations
 - c) Printing
- 9) Presentation Files
 - a) Exploded views
 - b) Tweaks
 - c) Animate tool
- 10) Weldments
- 11) Sheet Metal Parts

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| Course Learning Outcomes |
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The student will apply the concepts necessary to create the three-dimensional solid model objects; create isometric, oblique, and perspective drawings.

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

- 1) Demonstrate an understanding of three-dimensional creation concepts.
- 2) Demonstrate an understanding of building three-dimensional models.
- 3) Demonstrate an understanding of two-dimensional sketching methods as they relate to the three-dimensional model.
- 4) Demonstrate an understanding of basic procedures dimensioning and constraining geometry of sketches.
- 5) Demonstrate an understanding of assembly production where-by two or more models are connected to form a separate system.
- 6) Demonstrate an understanding of the concept of editing part models from within the assembly in order to achieve proper fit.
- 7) Demonstrate an understanding of the creation orthographic working drawings from the models and assembly files.
- 8) Demonstrate an understanding of the proper dimensioning techniques associated with various dimensioning styles for working drawings.
- 9) Demonstrate an understanding and produce adaptive model parts.
- 10) Demonstrate an understanding and produce mechanical design presentations.
- 11) Demonstrate an understanding of sheet metal construction methods as they relate to the design process.
- 12) Demonstrate an understanding of weldment construction methods as they relate to the design process.

Relationship to General Education Outcomes – In addition to the core competencies, Trinity Valley Community College has established ten general education goals which specify knowledge and skills that students should gain from completing courses in the various component areas of the core curriculum. Information regarding curriculum and assessment as a means for the improvement of student learning through the general education component. (Select all that apply.)

| Mark with an "X" | General Education Outcome |
|------------------|---|
| | A. To communicate clearly and effectively in both oral and written English. |
| | B. To improve reading skills focused on comprehending, analyzing, interpreting, and evaluating printed materials. |
| | C. To understand mathematical information and utilize mathematical skills. |
| X | D. To demonstrate qualitative and quantitative critical thinking skills. |
| | E. To understand and appreciate cultural and ethnic diversity. |
| X | F. To utilize computer based technology in accessing information, solving problems, and communicating. |
| | G. To recognize and evaluate artistic achievements in the visual and performing arts. |
| | H. To improve basic understanding of political, economic, and social systems. |
| | I. To demonstrate knowledge of the physical universe and living systems. |
| | J. To develop skills and strategies to become an engaged learner. |

Required Text(s)

NONE, Instructor Handouts

Optional Text(s)

Learning Autodesk Inventor 2008
 Thomas Short, Anthony Dudek
Goodheart-Wilcox, Inc.
 ISBN: 978-1-59070-764-4

Material/Technology to be supplied by the student.

Optional USB Flash drive for back ups

Course Requirements/Grading System – describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course; not intended to restrict the individual nature by which each faculty member who teaches the course determines course requirements and final student performance, but should offer consistency within reason for all sections taught for those departments without a standardized format.

Lab Assignments 80%
Final Project 10%
Final Exam 10%
 100%

Approvals – the contents of this document have been reviewed and are found to be accurate.

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|-----------------|-----------|------|
| Prepared by | Signature | Date |
| Department Head | Signature | Date |
| Division Chair | Signature | Date |
| Vice President | Signature | Date |