

Course Number and Title: EDD 272 Solid Modeling

Campus Location:

Georgetown, Stanton

Effective Date:

2021-51

Prerequisite:

(EDD 271 and (EDD 142 or EDT 152)) or (EDD 171, EDT 128)

Co-Requisites:

none

Course Credits and Hours:

3.00 credits

2.00 lecture hours/week

2.00 lab hours/week

Course Description:

In this course, students are introduced to the concepts and commands of parametric solid modeling. Students create and add relationships to sketches; extrude the sketches to create models; and add features such as fillets, cuts, chamfers, holes, drafts, shells, lofts, and sweeps. In addition, students extract two-dimensional (2D) documentation from the three-dimensional (3D) models, and add details to the drawings.

Required Text(s):

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:

None

Schedule Type:

Classroom Course

Hybrid Course

Disclaimer:

None

Core Course Performance Objectives (CCPOs):

1. Design 3D computer-aided design (CAD) drawings with appropriate values for all settings. (CCC 1, 2, 3, 4, 5, 6; PGC CAD 1, 3, 4, 5; DEM 1, 2, 3, 4, 5, 6)
2. Create a wire frame model. (CCC 1, 2, 3, 4, 5, 6; PGC CAD 1, 3, 4, 5; DEM 1, 2, 3, 4, 5, 6)
3. Create a surface model. (CCC 1, 2, 3, 4, 5, 6; PGC CAD 1, 3, 4, 5; DEM 1, 2, 3, 4, 5, 6)
4. Create solid models. (CCC 1, 2, 3, 4, 5, 6; PGC CAD 1, 3, 4, 5; DEM 1, 2, 3, 4, 5, 6)
5. Create various perspective views and render a drawing. (CCC 1, 2, 3, 4, 5, 6; PGC CAD 1, 3, 4, 5; DEM 1, 2, 3, 4, 5, 6)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Design 3D computer-aided design (CAD) drawings with appropriate values for all settings.
 1. Set up drawing files using the 3D coordinate system.
 2. Define the different model building and displaying options.
 3. Use the Vpoint command to manipulate the viewpoints.
2. Create a wireframe model.
 1. Use various methods to generate 3D polygon meshes.
 2. Construct surfaced models using polygon meshes.
3. Create a surface model.
 1. Create a variety of surface-modeled objects using surf commands.
 2. Construct a detailed surface model using multiple viewpoints.
4. Create solid models.
 1. Construct 3D solid primitives.
 2. Edit complex solids.
 3. Create a new solid from the intersection of two or more solids.
 4. Create regions that can be analyzed.
5. Create various perspective views and render a drawing.
 1. Create scenes using cameras, lights, and surface properties.
 2. Apply surface textures and materials to model.
 3. Create a background for the model.
 4. Map materials onto objects.

Evaluation Criteria/Policies:

The grade will be determined using the Delaware Tech grading system:

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
0	-	69	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Final Course Grade:

Calculated using the following weighted average

Evaluation Measure	Percentage of final grade
Individual Student Projects (Formative) (Equally Weighted)	40%
Exam (Summative)	30%
Student Portfolio (Summative)	30%
TOTAL	100%

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

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1. Prepare detailed mechanical, machine, architectural, structural, HVAC, industrial piping, and electrical/electronics drawings for light commercial, manufacturing, and industrial companies.
2. Perform routine structural design calculations required to size steel beams, columns, and decking materials in accordance to AISC standards and reinforced concrete slabs and foundation footings in accordance to ACI standards.
3. Support manufacturing office administration activities with the ability to read and interpret drawings and specifications, prepare technically accurate drawings using both manual and CAD techniques, perform quantity surveys and organize cost data for cost estimating functions, prepare or check shop drawings, assist in the planning or coordinating of manufacturing activities, assist designers, and coordinate the preparation and review of bid packages.
4. Provide meaningful and innovative assistance to supervising engineers or designers by developing layout design solutions to manufacturing problems, recommending alternate material substitutions or methods of production, and applying reference resources to collect, organize, and analyze required research data.
5. Collect, organize, and analyze data for manufacturing machine parts, and prepare plans for department and/or client approval.

DETAASDEM

1. Apply the skills, techniques, and modern tools of the discipline to narrowly defined engineering technology activities.
2. Apply mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge.
3. Identify, analyze, and solve narrowly defined engineering technology problems.
4. Demonstrate a commitment to quality, timeliness, professional development, and continuous improvement.
5. Demonstrate technical competency in engineering materials, applied mechanics, and manufacturing methods.
6. Apply in-depth technical competency in applied drafting practice emphasizing mechanical components and systems, as well as fundamentals of descriptive geometry, orthographic projection, sectioning, tolerancing and dimensioning, and computer aided drafting and design.

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.