

Course Number and Title: EDD 249 Engineering Design Process

Campus Location:

Stanton

Effective Date:

2021-51

Prerequisite:

EDD 142 and EDD 272

Co-Requisites:

none

Course Credits and Hours:

3.00 credits

2.00 lecture hours/week

2.00 lab hours/week

Course Description:

This is an advanced design course familiarizes the student with the various stages of the engineering process using parametric modeling.

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

Disclaimer:

None

Core Course Performance Objectives (CCPOs):

1. Describe and apply the adaptive assembly approach. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 3, 4, 5)
2. Interpret and apply the basic parametric modeling process. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 3, 4, 5)
3. Produce a simple parametric model. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 3, 4, 5)
4. Create drawing layouts from a parametric model. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 3, 4, 5)

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. Describe and apply the adaptive assembly approach.
 1. Update an entire system after changing one parameter.
 2. Explore and evaluate different design variations and alternatives to determine the best design.
2. Interpret and apply the basic parametric modeling process.
 1. Explain and apply constructive solid geometry concepts.
 2. Explain and apply Boolean operations.
 3. Create placed features.
 4. Use the different extrusion options.
3. Produce a simple parametric model.
 1. Create parametric relations.
 2. Use dimensional variables.
 3. Display, add, and delete geometric constraints.
 4. Display and modify parametric relations.
 5. Create constrained sketches.
4. Create drawing layouts from a parametric model.
 1. Add borders and title block.
 2. Arrange and manage 2D views.
 3. Create sectioned orthogonal views.
 4. Create reference dimensions.

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 Project (Formative)	20%
Exam (Summative)	10%
Group Capstone Project (Summative)	60%
Student Portfolio (Summative)	10%
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):

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.

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.