COMPUTER AIDED DESIGN (ENGINEERING) TECHNOLOGY AREA OF CONCENTRATION WITHIN STEM TECHNOLOGY A.A.S. (CAREER)

Program website (https://www.frederick.edu/programs/science,-technology,-engineering,-and-math-(stem)/computer-aided-design.aspx)

Program Description

Teaches a full array of industry standard design skills and technologies including Computer Aided Drafting and Solid Modeling, enabling students to assist and work with engineers and related professionals. Prepares students to pursue paraprofessional positions in engineering industries.

Program Learning Outcomes

- Employ CAD-integrated simulation tools to perform stress analysis, motion studies, and other virtual tests to optimize product performance.
- Apply foundational principles of engineering, including mechanics, materials science, and design analysis, to create and evaluate CAD designs for engineering applications.
- Utilize industry-standard Computer Aided Design (CAD) software to create detailed 2D drawings and 3D models that meet engineering and manufacturing specifications.
- Analyze engineering problems and develop effective CAD-based solutions.

Program Requirements

- Students must complete their credit **English and Mathematics** within the first 24 credits.
- One course must meet the cultural competence graduation requirement **(**https://frederick-public.courseleaf.com/general-education-core/#cultural**).**
- **CORE: The General Education CORE** is that foundation of the higher education curriculum providing a coherent intellectual experience for all students. Students should check with an advisor or the transfer institution (ARTSYS) before selecting General Education CORE requirements. http://artsys.usmd.edu/
- In some General Education categories (Mathematics, Biological & Physical Sciences), a 4-credit course selected from the GenEd course list will satisfy the requirement in place of a 3-credit course. Students should check with an advisor before selecting these courses.
- For the Physical Education, Health, or Nutrition requirement, a 3-credit PHED, HLTH, or NUTR course may satisfy the requirement in place of a 1-credit course. Students should check with an advisor before selecting this course.
- Students must earn a grade of "C" or better in ENGL 101 English Composition.
- Students must complete a minimum of nine credits at the 200-level.

Code	Title	Credits
English		
ENGL 101	English Composition	3
Mathematics		
MATH 165	Precalculus	4
Social & Behavioral Sciences		
Social & Behavioral Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#social-behavioral)		3
Arts & Humanities		
Arts Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#arts)		3
Humanities Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#humanities) - Recommended course(s) below:		3
PHIL 208	Business Ethics	
Communication Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#communication) - Recommended course(s) below:		3
COMM 107	Career Communication	
Biological & Physical Sciences		
Biological & Physical Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#biological-physical) - Recommended course(s) below:		3
PHYS 101	Survey of Physics (Spring)	
PHSC 101	Survey of Physical Science	
PHSC 121	Physical Geology (Fall)	
Physical Education, Health, or Nutrition Requirement		
Select one PHED, HLTH, or NUTR course		1
Concentration Courses		
CADT 101	AutoCAD I	3
CADT 102	AutoCAD II	3
CADT 110	Introduction to SolidWorks	3
CADT 250	Statics and Strength of Materials	4
CADT 255	Dynamics	4
CMSC 105	Introduction to Programming with Python	3
CMTE 100	Occupational Safety & Health	2
ENGR 100	Introduction to Engineering Design	3
Electives		
Select 12 credits of the following:		12
Any BLDT, CADT, CMIS, CMTE, ENGR, GISA, MATH, or SPAN courses		
INTR 103	Internship	
Total Credits		60

Transfer Note

For more information on careers and transfer, contact the Career and Academic Planning Services office at 301.846.2471 or visit Transfer Services (https://www.frederick.edu/student-resources/counseling-advising/transfer-services.aspx).

Guided Pathway to Success (GPS)

Suggested schedules map your path to degree completion.

Students should meet with an advisor each semester to carefully select and sequence courses based on their specific academic goals and interests. Visit Jefferson Hall or call 301.846.2471 for advising.

Recommended First Semester		Credits
ENGL 101	English Composition	3
MATH 165	Precalculus	4
CADT 101	AutoCAD I (1st 7 1/2 week)	3
CADT 102	AutoCAD II (2nd 7 1/2 week)	3
CMSC 105	Introduction to Programming with Python	3
	Credits	16

Recommended Second Semester		
Social & Behavioral Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#social-behavioral)		3
Biological & Physical Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#biological-physical) - Recommended course(s) below:		3-4
PHYS 101	Survey of Physics (Spring)	
PHSC 101	Survey of Physical Science	
PHSC 121	Physical Geology (Fall)	
CADT 110	Introduction to SolidWorks (7 1/2 week)	3
ENGR 100	Introduction to Engineering Design [1]	3
Any BLDT, CADT, CMIS, CMTE, ENGR, GISA, MATH, or SPAN course		3
	Credits	15-16
Recommended Third Semester		
Communication Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#communication) - Recommended course(s) below:		3
COMM 107	Career Communication	
CMTE 100	Occupational Safety & Health	2
CADT 250	Statics and Strength of Materials (15-week) [2]	4
Physical Education, Health, or Nutrition Requirement		1,3
Any BLDT, CADT, CMIS, CMTE, ENGR, GISA, MATH, or SPAN course		3
	Credits	13-15
Recommended Fourth Semester		
Humanities Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#humanities) - Recommended course(s) below:		3
PHIL 208	Business Ethics	
Arts Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#arts)		3
CADT 255	Dynamics (15-week) [3]	4
Select from the following:		6
Any BLDT, CADT, CMIS, CMTE, ENGR, GISA, MATH, or SPAN course		
INTR 103	Internship	
	Credits	16
	Total Credits	60-63

1

Prerequisite: MATH 165 Precalculus

2

Prerequisite: ENGR 100 Introduction to Engineering Design

3

Prerequisite: CADT 250 Statics and Strength of Materials

Part-time Students

Part-time students should complete courses in the order listed on the pathway. Please contact program manager for questions about part-time status.

Students who take fewer than 15 credits each semester or who require developmental English or Math coursework will need additional semesters to complete their degrees. Summer term and January session classes may help students to make faster progress.

Pathway Legend

Milestone - courses with the Milestone notation should be taken within the recommend credit range to stay on track for program completion.

Fall, Spring, Summer - courses with a Fall, Spring, or Summer notation indicate the course is offered in the specified semester only.