

Course Number and Title: MET 115 Intro to Mechanical Engineering Technology

Campus Location:

Stanton

Effective Date:

2021-52

Prerequisite:

SSC 100 or concurrent

Co-Requisites:

None

Course Credits and Hours:

3.00 credits

3.00 lecture hours/week

0.00 lab hours/week

Course Description:

This preparatory course incorporates design problems and study activities using engineering graphics, mathematics, and technical science to teach students how to conceptualize and communicate information. Special emphasis is placed on computer literacy and computer-aided design technology for engineering technology applications.

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. Apply logical problem solving techniques to simple engineering problems. (CCC 1, 2,3, 5, 6; PGC 1, 11)
2. Differentiate among the roles of engineers, engineering technicians, and other related personnel through the study of local industry personnel structures. (CCC 1, 3; PGC 1, 11)
3. Locate and access engineering reference materials for solving technical problems and conducting employment search. (CCC 1, 2, 5, 6; PGC 1, 3, 11)
4. Apply basic physical science and math concepts in the solution of technical problems. (CCC 1, 5; PGC 1, 6, 11)
5. Present and analyze technical data in an organized manner through the use of tables, graphs, and charts. (CCC 1, 2, 5, 6; PGC 1, 3, 6, 11)
6. Use a scientific calculator while solving technical problems. (CCC 2, 6; PGC 1, 11)

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. Apply logical problem solving techniques to simple engineering problems.
 1. Identify the units and conversion factors needed for solving engineering problems.
2. Differentiate among the roles of engineers, engineering technicians, and other related personnel through the study of local industry personnel structures.
 1. Identify and contrast the job functions of a mechanical engineer, technician, technologist, and designer.
 2. Identify and explain the five major branches of engineering technology.
 3. Formulate and define a list of engineering fields that have a working relationship with Mechanical Engineering Technology (MET) graduates in the industry.
 4. List, analyze, and discuss the steps necessary to bring a typical product from concept to the customer.
 5. Generate a résumé and portfolio to assist students with employment in the engineering technology field.
3. Locate and access engineering reference materials for solving technical problems and conducting an employment search.
 1. Locate and use specific technical information in the library and on the Internet.
 2. Compare and contrast the following degrees: an associate's of science and a bachelor's of science in engineering technology and a bachelor's of science and a master's of science in mechanical engineering.
 3. Discuss the importance of the co-operative program to both the student and industry.
 4. List the major components of a résumé; develop a personal résumé; conduct an Internet job search.
4. Apply basic physical science and math concepts in the solution of technical problems.
 1. Define basic concepts of solids, liquids and gases, and discuss the following properties of liquids: density, specific weight, specific gravity, viscosity, pressure, and incompressibility.
 2. Discuss the behavior of solids under external forces and stresses, as applied to the tensile test lab project and the hardness test lab project.
 3. Discuss the behavior of liquids under external forces and stresses, as applied to Pascal's law and a simple fluid power lab project.
5. Present and analyze technical data in an organized manner through the use of tables, graphs, and charts.
 1. Generate lab reports that include a title page, objective, procedure, calculations, answers to related questions, and a conclusion.
 2. Present data in graphical form using Excel graphing techniques to document basic physical science properties.
 3. Use simple correlation and regression techniques.
 4. Use basic units and dimensions and their applications to problem solving.
 5. Discuss a practical industrial process that embodies basic principles of mechanical engineering technology (e.g., injection molding).
6. Use a scientific calculator while solving technical problems.
 1. Use a scientific calculator to solve engineering problems involving the use of arithmetic and basic algebra.

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 Measures	Percentage of final grade
Exams (summative)	45%
Ethics (formative)	15%
Group Projects (formative)	10%
Written Reports (formative)	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):

1. Use effective problem-solving skills and make appropriate decisions relative to the technical field.
2. Design basic mechanical systems with the use of computer-aided drafting equipment.
3. Demonstrate basic computer literacy and knowledge of computer software applications in both the business and technical fields.
4. Use hand and power tools for standard manufacturing operations.
5. Conduct basic machining and welding operations; and perform basic programming of computer/numerically-controlled machines.
6. Calculate forces, properly size structures and mechanical components, and perform standard materials testing procedures.
7. Demonstrate an understanding of basic AC and DC electrical control circuits.
8. Select appropriate materials for basic mechanical applications.
9. Review and/or design basic hydraulic/pneumatic power systems.
10. Select basic machine components for mechanical systems.
11. Exhibit professional traits, including the ability to work with minimal supervision, willingness to learn new skills, and contributing to team project efforts.

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.