

Student Outcomes and Performance Indicators – **Faculty Assessment**
 Department of Engineering & Engineering Technology
 College of Professional Studies
 Metropolitan State University of Denver

MET 3110 (8)

THERMODYNAMICS

Semester/year

Specific, Measurable Student Behavioral Learning Objectives:

Upon completion of this course the student should be able to:

1. Interpret and apply the basic laws of thermodynamics.
2. Apply the First Law to closed systems.
3. Develop work and heat expressions and P-V. and T-S diagrams.
4. Apply the first and second laws of thermodynamics to closed and open systems.
5. Analyze flow processes and apply the continuity relationship to steady and unsteady flow systems.
6. Analyze a transient problems.
7. Apply the second law to the Carnot cycle.
8. Calculate entropy change for processes, systems, and the universe.

ABET	Competency Area	Data Collection
a	an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities	
b	an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies	
d	an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives	

ADDITIONAL COMMENTS:

PLEASE:

1. MAKE SURE ALL REFERENCES ARE IN Y DRIVE;
2. SAVE THIS FILE UNDER THE COURSE NUMBER, FOR EXAMPLE: CET1000 SPRING 2018.DOC;
3. SEND YOUR REPORT TO LINDA;

 <Name>

 <Date>

Following tables define the Performance Indicators for each of the Student Outcomes a through k

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ABET a: an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities				
	Unsatisfactory	Developing	Satisfactory	Exemplary
Identify, formulate, and solve engineering technology problems	Unable to identify the engineering problem	Able to identify and formulate but unable to obtain a solution	70% partial solutions or better	Proper solution and discussions for the solution
Use appropriate skills of the profession to conduct qualitative analysis	Unaware of needs for qualitative analysis	Working on the skills to properly use the identified tools	Use proper skills to obtain 70% partial solution or better	Proficient in using selected skills for qualitative analysis
Use appropriate tools of the profession to conduct quantitative analysis	Unable to identify tool for the needed analysis	Working on the skills to properly use the identified tools	Use proper tools to obtain 70% partial solution or better	Proficient in using selected tools for quantitative analysis

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ABET b: an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies				
	Unsatisfactory	Developing	Satisfactory	Exemplary
Use science, math, and engineering concepts to conduct qualitative analysis	Unaware of needs for qualitative analysis	Working on the knowledge and skills for qualitative analysis	Proper analysis with 70% partial solution or better	Proficient in using selected tools for qualitative analysis
Use science, math, and engineering concepts to conduct quantitative analysis	Unable to identify tool for the needed quantitative analysis	Working on the knowledge and skills for quantitative analysis	Proper analysis with 70% partial solution or better	Proficient in using selected tools for quantitative analysis
Develop designs of products, systems, or processes that respond to authentic needs	Unaware of or not understanding the needs	Knowledge or skill set not enough for solving the engineering technology problem	70% partial solution or better	Proper solutions obtained

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ABET d: an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives				
	Unsatisfactory	Developing	Satisfactory	Exemplary
Establish criteria for engineering technology design problems	Unable to develop or understand design criteria	Understand the design criteria but unable to develop	Understand and developed some criteria in assigned problem	Proper solutions obtained
Develop designs of products, systems, or processes that respond to authentic needs	Unaware of or not understanding the needs	Knowledge or skill set not enough for solving the engineering technology problem	70% partial solution or better	Proper solutions obtained
Take into account the social, economic, or environmental constraints on the design	Unaware of the impacts the issues	Some awareness, but not clear	Understand the issues but unable to incorporate into the design problem	Proper considerations discussed and planned ahead