

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

**MET 3310 (6)**

**THERMODYNAMICS II**

**Semester/year**

**Specific, Measurable Student Behavioral Learning Objectives:**

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

1. Apply the 1st and 2nd Laws of Thermodynamics to problems dealing with vapor cycles, combustion, gas compression, and refrigeration systems.
2. Perform laboratory tests which provide practical understanding of cycles (auto/diesel) and energy conversion.
3. Tabulate properties and use computer/software to produce results.
4. Relate the Carnot Cycle principle to other vapor cycles and combustion processes (heat engines).
5. Analyze gas flow and compute property, changes through nozzles and turbines.
6. Perform various calorimetry, gravimetric, and volumetric analysis.

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	
c	an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes	

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;

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 <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

ABET c: an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes				
	Unsatisfactory	Developing	Satisfactory	Exemplary
Select, set up, and use equipment for experiments	Unable to identify proper equipment	Unable to use most of the identified equipment	Able to use the equipment under supervision	Conduct test and measurement properly and safely
Select, set up, and use data collection and analysis software	Not understanding the needs of data collection	Unable to use most of the identified software	Able to use the software under supervision	Properly use of the identified software
Understand the results	Not understanding the results	Some understanding of the results	Understand the results with help	Properly interpret and present the results