

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

SSE 3135

Strength of Materials with Laboratory

Semester/year

Course Category and Related Student Learning Outcomes:

1. apply knowledge of mathematics and science to solve fundamental material strength and deformation problems
2. design and conduct experiments to measure engineering properties of materials, as well as to analyze and interpret the experiment data
3. solve class projects problems and conduct laboratory experiments in a team environment
4. identify, formulate, and solve material strength-deformation and stress-strain problems under different individual loading conditions, such as axial loading, torsion, shear and bending, as well as combined loading conditions for beams, columns, pressured vessels and other common engineering structural members
5. use failure criteria for ductile and brittle materials
6. write laboratory reports and present class project effectively

demonstrate knowledge of fundamental constitutive laws and recognition of the development of the theories of different of man-made materials, and be able to engage in life-long learning

ABET	Competency Area	Data Collection
a	an ability to apply knowledge of mathematics, science, and engineering	
b	an ability to design and conduct experiments, as well as to analyze and interpret data	
e	an ability to function effectively as a member or leader on a technical team	

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 apply knowledge of mathematics, science, and engineering				
	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 b: an ability to design and conduct experiments, as well as to analyze and interpret data				
	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

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ABET e: an ability to function effectively as a member or leader on a technical team				
	Unsatisfactory	Developing	Satisfactory	Exemplary
Fulfill Team Role's Duties	Does not perform any duties of assigned team role.	Performs very little duties.	Performs nearly all duties.	Performs all duties of assigned team role.
Share in work of team	Always relies on others to do the work.	Rarely does the assigned work-- often needs reminding.	Usually does the assigned work-- rarely needs reminding.	Always does the assigned work without having to be reminded.
Listen to Other Teammates	Is always talking-- never allows anyone else to speak.	Usually doing most of the talking— rarely allows others to speak.	Listens, but sometimes talks too much.	Listens and speaks a fair amount.