

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

SSE 4160

Geotechnical Engineering

Semester/year

Course Category and Related Student Learning Outcomes:

1. apply knowledge of mathematics and science to solve fundamental soil mechanics and geotechnical engineering problems.
2. interpret geotechnical experiment data and select appropriate parameters for geotechnical engineering designs
3. identify, formulate, and solve mechanical properties of soil based on weight-volume relationship.
4. classify soil by AASHTO and USCS system.
5. identify, formulate, and solve seepage problems, soil compaction problems, in-situ stresses and stress increases in soil mass, consolidation and settlement problems.
6. identify and select shear strength of a given soil based on experimental data and field observation
7. identify, formulate, and analysis slope stability lateral earth problems.
8. design basic traditional retaining structures, soil reinforced retaining structures, shallow foundations and pile foundations.
9. demonstrate understanding of the impact of engineering solutions of geotechnical engineering in an economic, environmental, and societal context.
10. demonstrate understanding of a knowledge of contemporary methods used in subsurface explorations

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	
d	an ability to function on multidisciplinary teams	
e	an ability to identify, formulate, and solve engineering problems	

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 d: an ability to function on multidisciplinary teams				
	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.

ABET e: an ability to identify, formulate, and solve engineering problems				
	Unsatisfactory	Developing	Satisfactory	Exemplary
Identify and describe technical problems	Unable to understand problem	Understand the problem but unable to provide solutions	Some solutions or ideas in solving the problem	Proper solution obtained
Recognize standard procedures in solving specific technical problem	Unaware of standard procedures	Realize standard solution procedures but unable to implement	Some solutions are obtained	Properly use standard solution procedure or provide alternate ways of solutions
Manage information and solve technical problems	Unable to gather information needed	Unaware of the importance of managing and documenting information	Some management and documentation of information	Proper documentation and management of information