

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

SSE 4280 (5)

Energy and Power

Semester/year

Course Category and Related Student Learning Outcomes:

1. Identify emerging techniques for energy generation, based on physical principles involved.
2. Compare energy choices using current economic and geographic limitations.
3. Make objective estimates of the trends in their development and user in the future.
4. Conduct a parametric computer study to identify the preferred energy design or approach to satisfy a particular application.
5. Write a concise technical report on the computer study and present the work, including the results and recommendations, orally.

| ABET | Competency Area | Data Collection |
|------|---|-----------------|
| a | an ability to apply knowledge of mathematics, science, and engineering | |
| c | an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability | |
| h | the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context | |

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 |
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| ABET c: an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability | | | | |
|---|---|--|---|---|
| | 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 |
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| ABET h: the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context | | | | |
|--|-----------------------------------|-------------------------------|---|---|
| | Unsatisfactory | Developing | Satisfactory | Exemplary |
| Take into account the social, economic, or environmental constraints on the engineering technology problem solving | 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 |
| Be familiar with national and international research/publications that describe the impact of technology on society | Unaware of such ongoing research | Some understanding | Understand the impact of technology on society | Participating the research and publications |
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