

Outcome 7. Students have an ability to communicate effectively.

The faculty assessment is performed with respect to the Performance Indicators for the students in the specific courses that have been identified to assess this outcome.

Faculty Assessment for Technical Writing

Course	Performance indicators
MinE 471, 483, 484	Structure and organization.
	Content.
	Mechanics and language.

Faculty Assessment for Technical Presentations

Course	Performance indicators
MinE 471, 483, 484	Effective use of visual aids.
	Presentation organization.
	Group synergy and dynamics.
	Presentation mechanics.
	Response to questions.

Tools used:	Scheduled course assessments by faculty, student course assessments, and senior exit survey.
Data Collection:	The data for the course assessments by the faculty are collected on a planned multi-year schedule. The individual faculty select specific class activities in the specific courses upon which to perform the assessment. The faculty may choose to assess student performance in: homework, examinations, projects, presentations, etc.
Frequency of data collection:	The faculty course assessments are performed on a planned tri-annual schedule for each outcome. The student course assessments are collected for every course, for every semester that the course is offered. The senior exit surveys are given to the seniors at the end of their final term.
Data Analysis:	The collected data are analyzed in the academic year they are obtained, and in longitudinal analyses after that.
Closing the loop:	The faculty outcome assessments, student outcome assessments and senior exit surveys are reviewed on both a term and annual basis with the faculty and visiting committee. As needed, the courses and curriculum are revised to update and improve student outcomes. Metrics for successful fulfillment of the outcome in course assessments are determined by the individual faculty for that course, in conjunction with the outcome grading rubric and their individual grading technique.

Performance criteria and metrics:

- a) The student performance assessments provide the rating of student performance on a scale of 1 to 5 for each Performance Indicator. A score of 5 indicates “Exceeds Expectations” of performance, a score of 3 indicates “Meets Expectations” of performance, and a score of 1 indicates “Unsatisfactory” performance.
- b) The student course assessments rate each of the 13 outcomes on a scale of 1 to 4: 1 indicates “little or none” contribution, 2 indicates “low” contribution, 3 indicates “medium” contribution, and 4 indicates “high” contribution.
- c) The senior exit surveys are given to the seniors at the end of their final term. The survey contains questions that ask the students to rate their abilities in each of the 13 Mining Engineering outcome areas. These student abilities are rated on a scale of 1 to 5, with a score of 5 indicates the highest level of ability while 1 indicates the lowest.

Assessment Tool:

Scheduled Course Assessment by Faculty

Grading Rubric for Technical Writing (Outcome 7)

Performance Indicators	1	3	5
	Unsatisfactory	Meets Expectations	Exceeds Expectations
Structure / Organization	Organizational structure and paragraphing have serious and persistent errors. Absence of clear introduction/beginning, development and conclusion/summary. Writing is rambling and unfocused	Written work has weak introduction/beginning, development and conclusion/summary. Paragraphing and transitions are also deficient. Writing is sometimes rambling and unfocused	Written work has clear and appropriate introduction/beginning, development and conclusion/summary. Paragraphing and transitions are also clear and appropriate. Writing is clear and to the point.
Content	The length of the written work does not provide adequate development/coverage of the topic. The constraints, input parameters, assumptions, and/or methodologies are not given or not explained. The final assertions are not supported by the given material.	The length of the written work is a little too short to not provide adequate development/coverage of the topic, or the writing contains too much useless filler. Some constraints, input parameters, assumptions, and/or methodologies are missing or vague. The final assertions are only weakly supported by the given material.	The length of the written work provides in-depth development/coverage of the topic but not filler. The given constraints, input parameters, assumptions, and methodologies are very clear. The final assertions are strongly supported by the given material.
Mechanics / Language	Written work has serious and persistent errors in word selection and use, sentence structure, spelling, punctuation, and capitalization. Format of section headings, references, Figures and/or Tables is incorrect	Written work has some errors in word selection and use, sentence structure, spelling, punctuation, and capitalization. Some errors in format of section headings, references, Figures and Tables.	Written work has no major errors in word selection and use, sentence structure, spelling, punctuation, and capitalization. Format of section headings, references, Figures and Tables is correct

Presentation Grading Rubric (Outcome 7)			
Performance Indicators	1	3	5
	Unsatisfactory	Meets Expectations	Exceeds Expectations
Effective Use of Visual Aids	wording is too small to see. Too much information on the slide. Too many or too few bullets. Colors do not complement each other, areas too dark or too light to see. Graphics are too small and/or detailed.	Some slides have too small wording or too much wording. Some slides have too much or too little bullets/information. Some colors work together and some do not. Some slides have graphics that are too small or too detailed.	Size and amount of wording on the slides is appropriate. Can be read from the back of the room. 3 to 5 bullets. Good use of complimentary colors. Nothing is too dark or too light to read. Graphics fill slide without running off the screen. Details on graphics can be seen.
Presentation Organization	Topics are not ordered logically. The introduction or problem statement is not given. For engineering designs, the constraints, input, assumptions and methodology of solutions are not explained. The problem results are not given. No conclusions or summary given. Presentation was considerable too short or too long.	Some topics seem out of order. The introduction or problem statement was unclear or incomplete. Some problem constraints, inputs, assumptions and methodologies are missing or incorrect. Some problem results are missing or unclear. Summary and/or conclusion is incomplete or unclear. Presentation was a little too short or too long.	Presentation topics are ordered logically. The Introduction to the problem was clearly stated. For the engineering problems, the constraints, inputs assumptions and methodology of the solution are clearly explained. The problem results are clearly explained. Concluding and/or summary remarks are clearly given. Presentation ended a few minutes before allotted time was up.
Group Synergism / Dynamics	Some members of the group do most, or little, of the presentation. The transition between group members is disconcerting and lengthy. The different members of the group do not know the other members details.	This is some inequality in the participation by members of the group. The transition between group members is a little noticeable and takes some time. There is some lack of knowledge of other members of the groups details.	All members of the group equally participate in the presentation. The transition between group members are smooth and seamless. All members of the group know all of the details of the presentation.
Presentation Mechanics	Speaking too softly, or too fast. Annoying speech characteristics such as: mumbling, "ah", reading the slides or is difficult to understand. Does not address the audience and maintain eye contact. Poorly dressed. Poor body language: slouching, facing the screen	Some speech is too soft, or too fast, or difficult to understand. Some poor speech characteristics. Does not always maintain eye contact and address the audience. Occasionally talks to the slides. Could be dressed better, and body language is not always appropriate.	Speaks is clear and strong with inflection. No annoying speech characteristics. Maintains eye contact and addresses the audience. Professionally dressed and with good posture and body language.
Response to Questions	Is unable or reluctant to answer questions. Does not answer the question asked. Does not know answer to question and is not clear in answering. Drags on explanation of the answer. Members of the group do not know answers to some important questions.	Some hesitation or lack of knowledge in answering questions. Length of answer is either a little too short or too long. Some answers are not entirely clear. Some group members do not appear to know answers to some of the questions.	Answers the questions clearly, and succinctly. Appropriate length of answer given. All members of the group know the answers.

Grading Sheet

Presentation Area	Ranking 1-5
Effective Use of Visual Aids	
Clarity and Readability	
Use of Space	
Use of Color	
Wording Concise	
Appropriate Amount of Information	
Presentation Organization	
Logical Order or topics	
Introduction - Problem Stated	
Constraints Explained	
Theoretical Development Appropriately Covered	
Results Methodology Clear	
Problem Solved	
Discussion - Physical Explanation Provided	
Conclusions/Recommendations - Significance Explained	
Complete Story	
Appropriate Use of Time	
Group Synergism / Dynamics	
Even Division of Effort	
Interaction Between Team Members	
All Members of Group Understand Solution	
Presentation Mechanics	
Voice Volume, Enunciation, Speed	
Hesitations, other voice habits	
Distracting Mannerisms	
Maintains Eye Contact	
Poise	
Response to Questions	
Direct or Evasive?	
Complete	
Appropriate Participation (for Groups)	

Assessment Tool:

Student Course Assessment

**Department of Mining Engineering
Student Course Assessment
MinE _____**

_____ **Semester, 20** _____

Students: Please rate the level of this course's contribution to your educational development with regard to the following educational objectives. Rate the course as: 1) little or none, 2) low, 3) medium, or 4) high. Fill in the rating on the line provided. Space is provided for comments.

This course contributed to my educational objectives to...	Rating			
	1	2	3	4
"This course's contribution was _____ to my educational development."				
1. become well prepared in the application of mathematics, science, and engineering				
2. become well prepared to design and conduct experiments, as well as to analyze and interpret data				
3. become well prepared to design a system, component, or process to meet desired needs.				
4. become functional on multidisciplinary teams				
5. identify, formulate, and solve engineering problems.				
6. have an understanding of professional and ethical responsibility.				
7. communicate effectively.				
8. have the broad education necessary to understand the impact of engineering solutions in a global and societal context.				
9. have a recognition of the need for, and a desire to engage in life-long learning.				
10. have a knowledge of contemporary issues.				
11. use the techniques, skills, and modern engineering tools necessary for engineering practice.				
12. understand the importance of economics, environmental, health, and safety issues in the operations of modern mines.				
13. learn independently.				

Comments:

Assessment Tool:

Senior Exit Survey

College of Engineering and Mineral Resources
Department of Mining Engineering
Undergraduate Program

Outcomes Assessment

Assessment Questionnaire – MinE Graduating Seniors

As part of our educational objectives, we strive to continuously improve the quality and quantity of education we provide for our graduates. Therefore, the Department of Mining Engineering needs to gather information regarding the education received by WVU Mining Engineering students. As a WVU Mining Engineering graduating senior, you are in a unique position to provide critical feedback to the Department of Mining Engineering on the quality of your educational experience. Your feedback will be used to improve the future quality of education provided to WVU Mining Engineering students. All responses to this questionnaire are anonymous and will be held in the strictest of confidence. We sincerely thank you for your time and effort in this matter, and greatly appreciate your assistance.

WVU Mining Engineering Graduating Seniors Exit Survey (Confidential)

Semester (circle one): Fall Spring Summer Year: 20_____

1. From 1 to 5, rate your understanding of the following modern and classical Mining Engineering topics as a result of the BS MinE degree that you are about to obtain at WVU. A score of 5 indicates the highest ability and 1 the lowest.

Topics	Score
Mine Surveying	
Underground Mining Systems	
Computer Programming and CAD	
Mineral Property Evaluation	
Surface Mining Systems	
Mine Power Systems	
Rock Mechanics and Ground Control	
Mine and Safety Management	
Ventilation	
Coal and Mineral Processing	
Mine Design	

Comments:

2. Rate the abilities that you have obtained as a result of the BS MinE degree that you are about to complete at WVU. A score of 5 indicates the highest level of ability while 1 indicates the lowest.

Abilities	Score
Design and conduct experiments	
Analyze and interpret data	
Develop implementation strategies	
Shape recommendations	
Apply math, science, and engineering to solve problems	
Computer Usage	
Oral communication	
Written communication	
Ability to work individually	
Ability to work on teams	
Formulate and solve problems	
Ability to work on multi-disciplinary teams	
Design, implement and improve integrated systems	
Ability to work on systems that include people, materials, information, equipment and energy	
Develop and maintain Professional Ethics	
Health and Safety Considerations	
Impact of engineering solutions on individuals and the society	

Comments:

3. On a scale of one to 5, indicate the possibility of you pursuing life long learning in your career, for example, attending conferences, professional development workshops, or attaining a graduate degree. A score of 5 indicates highest possibility while 1 indicates the lowest.

Ability	Score
Pursuit of life long learning	

4. To which degree do you think you have obtained the professional characteristics expected of a successful Mining Engineer as a result of the BS MinE degree you are about to complete at WVU? Give your answer on a scale of 1 to 5. A score of 5 indicates highest level while 1 indicates the lowest level.

Ability	Score
Professional and Ethical characteristics expected of a successful Mining Engineer	

5. Summer / Co-op / Internship Employment

If you have had an internship in mining engineering, please specify the dates, the companies, the job positions, and the amount of experience and knowledge gained in that particular position on a scale of 1 to 5.

	Period 1	Period 2	Period 3	Period 4
Dates?				
Company?				
Position Held?				
Experience Gained	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Knowledge Gained	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

Comments:

