

**Outcome E.** An ability to identify, formulate, and solve engineering problems.

Course	Performance indicators
CE 321, CE 332, CE 351, CE 361, CE 411, CE 415, CE 431, CE 447, CE 451, CE 453, CE 462, CE 463, CE 464, CE 479	Use knowledge, information and skills to identify and formulate a solution to an engineering problem.
	Solve a problem using engineering methods, tools and instruments.

Tools used: Course assessment rubrics by faculty, graduating student survey

Data Collection: The data are collected every semester based on the course offerings.

Frequency of data collection: The data are collected every time courses are taught.

Data Analysis: The data obtained are analyzed every year.

Closing the loop: This outcome is subject to review every year based on performance criteria and metrics and specific action items are developed, if necessary, to revise the content of the courses. The analyzed data are presented separately to the following groups in meetings.

- a) Faculty
- b) Advisory Board

*Performance criteria:*

Student performance was evaluated at three levels with associated criteria:

- Below expectation – student’s mastery of subject matter was insufficient. A student performing at this level should not be allowed to take a course that has the evaluated course as a prerequisite.
- Meets expectation – student showed sufficient mastery of the subject that he/she met the prerequisite expectations for any follow on course.
- Exceeds expectation – student mastery of the subject exceeded the minimum expectations for the course.

*Metrics:*

- a) Sophomore Classes, 200 level classes, at least 70 percent of the students should meet or exceed expectations.
- b) Junior classes, 300 level classes, at least 80 percent of the students should meet or exceed expectations.
- c) Senior Classes, 400 level classes, at least 90 percent of the students should meet or exceed expectations.

**Assessment Tool:**

**Course Assessment Rubric by Faculty**

Used for Fall 2013 and subsequent semesters

West Virginia University  
Statler College of Engineering and Mineral Resources  
Department of Civil and Environmental Engineering

### Assessment Rubric for Homework Assignments, Reports, Projects, and Exams

Use one form for each student outcome being evaluated for a class.

Course Name: \_\_\_\_\_ Course Number: \_\_\_\_\_ Date \_\_\_\_\_

Instructor: \_\_\_\_\_ Semester: \_\_\_\_\_ Class Size: \_\_\_\_\_

Brief Description of Assignment: \_\_\_\_\_

Circle Student Outcome Being Assessed: a b c d e f g h i j k

Indicate an overall class performance for the performance indicator based on the percent of students performing below, meeting or exceeding expectations for each performance indicator. The overall class performance identifies the percent of students meeting or exceeding expectations for the student outcomes.

Performance Indicator	Below Expectation	Meets Expectation	Exceeds Expectation	N/A
PI-1				
PI-2				
Overall Class Performance				

Comments: *(use additional sheets if needed)*

*Areas for Continuous Program Improvement (use additional sheets if needed)*

**Assessment Tool:**

**Graduating Student Survey**

# WVU Benjamin M. Statler College of Engineering and Mineral Resources Graduating Senior Survey 2014/15

This portion of the survey asks for contact information regarding alumni events and news.  
Information from this part will be kept separate from the rest of the survey.

*Personal Information:*

Name \_\_\_\_\_

New Mailing Address \_\_\_\_\_

\_\_\_\_\_

Permanent Address (if different) \_\_\_\_\_

\_\_\_\_\_

Email address (permanent) \_\_\_\_\_

Phone number \_\_\_\_\_

Degree Earned \_\_\_\_\_

Department \_\_\_\_\_

*Employer Information:*

Name of Employer \_\_\_\_\_

Job Title \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Country \_\_\_\_\_

Phone Number \_\_\_\_\_

Additional Information \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# WVU Benjamin M. Statler College of Engineering and Mineral Resources Graduating Senior Survey 2014/15

Please provide the following information. **All responses in this part of the survey will be kept confidential**, and only aggregate data is used in reporting.

Graduation Month: Dec / May / Aug

Major (check all that apply):

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Aerospace Engineering | <input type="checkbox"/> Computer Science       | <input type="checkbox"/> Petroleum and Natural Gas Engineering |
| <input type="checkbox"/> Biometric Systems     | <input type="checkbox"/> Electrical Engineering | <input type="checkbox"/> Biomedical Engineering                |
| <input type="checkbox"/> Chemical Engineering  | <input type="checkbox"/> Industrial Engineering | <input type="checkbox"/> Geology                               |
| <input type="checkbox"/> Civil Engineering     | <input type="checkbox"/> Mechanical Engineering | <input type="checkbox"/> Other: _____                          |
| <input type="checkbox"/> Computer Engineering  | <input type="checkbox"/> Mining Engineering     |  |

Overall GPA: \_\_\_\_\_ / 4.0      Gender:    M / F                      Home State/Country: \_\_\_\_\_

Race/Ethnicity:     African-American       Hispanic                       Caucasian                       Other  
                           Asian-American               Native American       Foreign National

*For Race/Ethnicity, please select all that apply. If you are an international student, please select Foreign National.*

1. Please mark each program(s) that you participated in during you undergraduate studies.  
    a.  Co-op; b.  Internship; c.  Study abroad; d.  Service Learning; e.  Undergraduate Research
2. If you've participated in any of the above activities in question 1, please list the organization(s) and location(s):  
    \_\_\_\_\_  
    \_\_\_\_\_  
    \_\_\_\_\_
3. How long ago did you begin the job/graduate school search process?  
     <3 months;     3-6 months;     6-9 months;     >9 months
4. Which of the following best describes your immediate employment/education status following graduation?  
     a. I do not plan to work in my field or continue my education. **(Please complete the other side of this form)**  
     b. I am still interviewing/searching for a job or graduate school. **(Please complete the other side of this form)**  
     c. I have a job offer(s) but have not yet accepted. **(Please complete the other side of this form)**  
     d. I have been accepted into graduate school. **(Please go to question 5)**  
     e. I have accepted a job position in my professional area. **(Please go to questions 6 through 10)**

5. University Name: \_\_\_\_\_;
- a. Program:  MS ;  Ph.D.; Professional Degree  MBA;  MD;  DDS;  Law
- b. Were you offered an assistantship/fellowship/etc?  Yes;  No;
- c. If you have an assistantship, my monthly stipend is:  < \$1,000     \$1,000-1,500     \$ 1,500-2,000  
     \$ 2,000-2,500     \$ 2,500+

**Please complete the other side of this form**

6. My employer's name is \_\_\_\_\_
7. My employer's business is best described as \_\_\_\_\_  
    **A.** Academia                      **B.** Construction      **C.** Consulting                      **D.** Energy & Mineral Extraction      **E.** Financial  
    **F.** Government/military      **G.** Healthcare              **H.** Manufacturing              **I.** Service                              **J.** Other
8. My employment is located in:  WV;  MD;  NJ;  NC;  OH;  PA;  VA;  Other  
    If other, please specify where: \_\_\_\_\_
9. My starting annual salary is approximately (in units rounded to the nearest \$1000):  
     < \$30k;  \$30-34k;  \$35-39k;  \$40-44k;  \$45-49k;  \$50-54k;  \$55-59k;  \$60-64k;  
     \$65-69k;  \$70-74k;  \$75-79k;  \$80-84k;  \$85-89k;  \$90-94k;  \$95-99k;  \$100k+

**Please complete the other side of this form**

To help the assessment activities of the college and your major we ask that you take a few minutes to provide us feedback on your perception of how your undergraduate program prepared you in a number of important educational outcome areas. **All entries will be treated as confidential.**

Please give your assessment for items “a” through “q” and “r”, if it applies, using the following rating scale.

5 -strongly agree; 4 -agree; 3 -neutral; 2 -disagree; 1 -strongly disagree; N/A –not applicable (for r. i. & ii.)

10. Through the education and training I attained with my baccalaureate degree I have acquired the knowledge, skill or ability to:

- a. \_\_\_ Use the basic principles and practices of my engineering discipline
- b. \_\_\_ Recognize available opportunities and need to pursue continuing education and lifelong learning
- c. \_\_\_ Apply knowledge of mathematics to solve equations or systems of equations necessary for the solution of engineering problems
- d. \_\_\_ Apply knowledge of chemistry and physics effectively in solution of engineering problems
- e. \_\_\_ Design and conduct experiments relevant to the needs of my engineering discipline
- f. \_\_\_ Acquire, analyze and interpret data and information relevant to the needs of my engineering discipline
- g. \_\_\_ Design a component, system, or process to meet desired engineering outcomes and needs
- h. \_\_\_ Function on multidisciplinary teams to manage engineering projects
- i. \_\_\_ Translate a general problem description into a specific engineering approach
- j. \_\_\_ Understand professional and ethical responsibilities of a professional engineer
- k. \_\_\_ Effectively communicate my ideas, recommendations, etc. to others verbally
- l. \_\_\_ Effectively communicate my ideas, recommendations, etc. in memos, reports, etc.
- m. \_\_\_ Appreciate the impact of engineering from multi-cultural and global perspectives
- n. \_\_\_ Appreciate my engineering discipline’s impact on contemporary environmental and societal issues
- o. \_\_\_ Conduct economic evaluation of importance cost factors in engineering designs
- p. \_\_\_ Recognize the impact of engineering design on worker or public safety
- q. \_\_\_ Utilize software to solve problems relevant to the needs of engineers practicing my discipline in industry
- r. \_\_\_ If you transferred to WVU from another institution or department how would you agree with the following statements:
  - i. \_\_\_ The procedure for accepting my transfer was relatively seamless and straight forward
  - ii. \_\_\_ The procedure for validating credit for courses taken elsewhere was efficient

**COMMENTS:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Note: If you’ve indicated that you are still searching for a job or graduate school, would you be willing to participate in a follow up survey? If so, could you please provide an email address we may use to contact you with the survey? Thanks!*

e-mail: \_\_\_\_\_