

Targeted Tasks in Contributing Courses Overview / Assessment

Instructors: Please complete one form for each highlighted outcome at the end of every semester for each course taught.

Course Name: Green Architectural Engineering	Course Number: EGR353
Number of students enrolled: 16 students	Course Date: Fall 2018

Targeted outcome: (e.g. 1 – 7)

ABET-1 Identify, formulate, and **solve complex engineering problems** by applying principles of engineering, science, and mathematics.

BS ENGINEERING Targeted Tasks Rubric by Engineering Department

Yellow / Highlighted = Graded student works collected in Binders for internal & external-ABET review

	Solve Problems	Design	Communication	Ethics & Impacts	Teamwork	Labs	How to learn
	1	2	3	4	5	6	7
2018/19 New ABET Learning Outcomes:							
Pre-2018/19 ABET Learning Outcomes: <small>ac ck g fhj d bk i</small>							
EGR 191 Introduction to Engineering I	M	M	H	M	M	H	H
EGR 192 Introduction to Engineering II	H	H	M	H	H	L	M
EGR 210 Circuit Analysis	H	H	M	L	L	H	L
EGR 255 Sustainable Resource Engineering & Design	H	H	M	H	M	L	M
EGR 260 Statics	H	M	L	L	L	L	M
EGR 291 Sophomore Project	H	H	M	H	H	L	L
EGR 310 Signals and Systems	H	M	M	L	L	H	L
EGR 360 Dynamics	H	H	L	L	M	L	M
EGR 391 Engineering Design and Junior Project	H	H	H	M	H	L	M
EGR 395 Fall Seminar	M	M	L	M	M	L	M
EGR 396 Spring Seminar	M	L	L	H	L	L	M
EGR 491 Senior Project in Engineering I	H	H	H	H	H	H	M
EGR 492 Senior Project in Engineering II	H	H	H	H	H	H	M

Civil Concentration

EGR 251 Introduction to Environmental Engineering	H	L	L	H	L	L	M
EGR 256 Environmental Site Engineering & Design	H	H	M	H	H	H	M
EGR 264 Strength of Materials	H	H	H	M	M	H	L
EGR 353 Green Architectural Engineering	H	H	M	M	L	M	M
EGR 364 Structural Engineering	H	H	M	M	M	M	L
EGR 366 Civil Engineering Materials	H	M	M	L	M	H	L

Environmental Concentration

EGR 251 Introduction to Environmental Engineering	H	L	L	H	L	L	M
EGR 256 Environmental Site Engineering & Design	H	H	M	H	H	H	M
EGR 351 Water and Wastewater Engineering	H	L	L	M	M	L	L
EGR 353 Green Architectural Engineering	H	H	M	M	L	M	M
EGR 368 Fluid Mechanics and Hydrology	H	M	L	L	L	M	L
EGR 467 Thermodynamics	H	L	L	M	L	L	M

2018/19 New ABET Learning Outcomes

An ability to:

- (ABET-1)** Identify, formulate, and **solve** complex engineering problems by applying principles of engineering, science, and mathematics.
- (ABET-2)** Apply engineering **design** to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- (ABET-3)** **Communicate** effectively with a range of audiences.
- (ABET-4)** Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the **impact** of engineering solutions in global, economic,
- (ABET-5)** Function effectively on a **team** whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- (ABET-6)** Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions (**LAB's**).
- (ABET-7)** Acquire and apply new knowledge as needed, using appropriate **learning** strategies.

Pre-2018/19 ABET Learning Outcomes

- (ABET-a): An ability to apply knowledge of mathematics, science, and engineering.
- (ABET-b): An ability to design and construct experiments, as well as to analyze and interpret data.
- (ABET-c): An ability to design a system, component, or process to meet desired needs.
- (ABET-d): An ability to function on multi-disciplinary teams *if possible, or to draw on the talents of others*
- (ABET-e): Identify, formulate, and solve engineering problems
- (ABET-f): An understanding of professional and ethical responsibility
- (ABET-g): Communicate effectively orally and in writing
- (ABET-h): A broad education necessary to understand the impact of engineering solutions in a global and societal context
- (ABET-i): Recognition of the need for, and an ability to engage in life-long learning
- (ABET-j): Knowledge of contemporary issues
- (ABET-k): An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Brief Description of Outcome Targeted Task:

- TASK 1: Project #1: [LEED-Platinum Neighborhood Deign](#) (ND)
- TASK 2: Project #2: [LEED-Platinum Building Deign](#) (BD+C)
- TASK 3: [Final Exam](#)

Rationale for Choice of Task:

- TASK 1: Design calculations & quantifying LEED Neighborhood Deign (ND) credits
 - Judged by Elizabethtown College Vice President & Dean of Students Celestino Limas
- TASK 2: Design calculations & quantifying LEED Building Deign (BD+C) credits
 - Judged by Elizabethtown College Trustee Nevin Cooley, retired CEO of all High Companies (High Development, High Construction, etc)
 - Judged by Professional Licensed Architect (AIA), and LEED-AP Accredited Senior Principle Architect Ross Ansel of Greenfield Architects
- TASK 3: Final Exam covering 500 page Textbook, and LEED Documentation

Results (Assessment):

- TASK 1: 13 of 15 students performed better than average 2012,14,&16 students
 - One of original 16 students dropped class
- TASK 2: 14 of 15 remaining students performed better than average 2012,14,&16 students
- TASK 3: Most students performed better than average 2012,14,&16 students

EVALUATION / RECOMMENDATION:

Course is only three credits and only meets for two ~90 minute lectures per week. Although course is very successful as is, if students wish more hands-on Lab time, a Lab section could be added in the future since course covers a 500 page textbook, plus LEED documentation, plus two field trips (see [1](#) & [2](#)), plus two [guest lectures](#) , in addition to the two Revit CAD software Lab-type assignments (see [1](#) & [2](#)) & [Tutorials](#).