

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-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.

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:	1	2	3	4	5	6	7
Pre-2018/19 ABET Learning Outcomes:	ae	ck	g	fhj	d	bk	i
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: Revit 3D (and **BIM** – Building Info Management) [Software Assignment 1](#)
- TASK 4: Revit 3D (and **BIM** – Building Info Management) [Software Assignment 2](#)
- TASK 5: LEED Design [Fieldtrip 1](#)
- TASK 6: LEED Design [Fieldtrip 2](#)
- TASK 7: [Guest Speakers](#) on Building & Neighborhood Design & Development
- TASK 8: [Final Exam](#)

Rationale for Choice of Task:

- TASK 1 to 8: Advanced expectations using professional standards, real-world case-studies, complex professional-level 3D modeling software with correlated **BIM** (Building Info Management) database for professional-level writing of specifications, plus lectures by real-world leaders on Building & Neighborhood Design & Development.
- TASK 1: Design
 - Judged by Elizabethtown College Vice President & Dean of Students Celestino Limas
- TASK 2: Design
 - 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 8: 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 to 8: 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](#).