

College: **Engineering** Department: **Civil and Environmental Engineering** Program: **Civil Engineering**

Code
MUIP13

Student Learning Outcomes to Courses Matrix (I,R,E Matrix) **ABET**

| | | Student Learning Outcomes | | | | | | | | | | | | | |
|----------------|----|--|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | a | b | c | d | e | f | g | h | i | j | k | | | |
| COURSES | 1 | Differential Calculus (Math 105) | I | | | | | | | | | | | | |
| | 2 | Physics-1 (Phy 103) | I | | | | | | | | | | | | |
| | 3 | Fundamental of Eng. Technology (GE 101) | | I | I | | | | | | | | | | |
| | 4 | Fundamental Engineering Drawing (GE102) | | | I | | | | | | | | | | |
| | 5 | Engineering Mechanics (GE 103) | I | | | | | | | | | | | | |
| | 6 | Integral Calculus (Math 106) | R | | | | | | | | | | | | |
| | 7 | Algebra and Analytical Geometry (Math 107) | R | | | | | | | | | | | | |
| | 8 | Engineering Mechanics (Dynamics) (GE 108) | I | | | | I | | | | | | | | |
| | 9 | Engineering Chemistry (GE 105) | I | | | | | | | | | | | | |
| | 10 | Engineering Geology (CE 101) | | R | | | | I | | | | | | | |
| | 11 | Civil Engineering Drawing (CE 102) | | | R | | I | | | | | | | | |
| | 12 | Differential Equations (Math 204) | E | | | | | | | | | | | | |
| | 13 | Soil Mechanics and Foundation Eng. 1 (CE 210) | I | I | | | R | I | I | | | | | | I |
| | 14 | Structural Analysis 1 (CE 214) | I | I | | | R | I | | | | | | | |
| | 15 | Hydraulics 1 (CE 240) | I | I | | | I | | | | | | I | I | |
| | 16 | Surveying 1 (CE 370) | I | I | | I | R | R | | I | | | | | R |
| | 17 | Statistics and Probability (Stat 201) | R | | | | | | | | | | | I | |
| | 18 | Computer programming for Civil (CEN209) | R | | | R | I | | I | | | | | | R |
| | 19 | Reinforced Concrete Design 1 (CE 217) | I | | I | | R | I | I | I | | | | | I |
| | 20 | Properties and Strength of Materials 1 (CE212) | R | R | | | R | | R | I | | | | | E |

| | | <i>Student Learning Outcomes</i> | | | | | | | | | | |
|----|---|----------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | a | b | c | d | e | f | g | h | i | j | k |
| 21 | Structural Analysis 2 (CE 215) | R | | | | E | I | | | I | | I |
| 22 | Hydraulics 2 (CE 241) | R | R | R | | R | | | | | E | R |
| 23 | Engineering Report Writing (GE 306) | R | | | | | E | R | | I | | |
| 24 | Soil Mechanics and Foundation Eng. 2 (CE 311) | R | R | E | | | R | R | | | | R |
| 25 | Environmental Engineering 1 (CE 360) | I | R | | | I | R | R | R | | E | R |
| 26 | Water Supply and Sewage Eng. (CE c362) | R | E | R | | R | E | E | | | R | E |
| 27 | Surveying 2 (CE 371) | R | R | I | E | R | | | | | | I |
| 28 | Highway Engineering-1 (CE 380) | E | I | | | | E | | | | | R |
| 29 | Numerical Methods (Math 254) | R | | | | R | | | | | | |
| 30 | Properties & Strength of Materials 2 (CE 313) | E | E | R | | R | I | I | | | | E |
| 31 | Structural Analysis 3 (CE 316) | E | | | | E | I | R | | | | R |
| 32 | Reinforced Concrete Design 2 (CE 318) | R | | E | | R | R | R | R | | | R |
| 33 | Steel Structures Design (1) (CE 320) | E | E | | | | R | E | | | | E |
| 34 | Engineering Economics (GE 407) | | | | | E | E | | E | R | E | |
| 35 | Computer Application in Structure (CE 425) | E | R | | | R | | E | R | R | | R |
| 36 | Reinforced Concrete (3) (CE 419) | E | | E | | E | E | E | E | R | | R |
| 37 | Steel Structures Design (2) (CE 421) | E | I | | | E | E | R | | E | | E |
| 38 | Senior Design Project (1) (CE 498) | E | E | E | R | | R | R | R | R | E | R |
| 39 | Engineering Project Management (GE 408) | | | | | E | E | E | E | R | E | R |
| 40 | Methods and Equipments (CE 422) | R | R | R | | E | E | E | | | | E |
| 41 | Contracts & Specifications (CE 423) | | | E | | R | E | E | E | E | | |
| 42 | Buildings Construction (CE 424) | E | I | E | | E | E | E | R | | E | E |
| 43 | Senior Design Project (2) (CE 499) | E | E | E | E | E | E | E | E | E | E | E |

(I) Introduce

(R) Reinforce

(E) Emphasize

CE Student Learning Outcomes: a-k

| Domain | <i>Student Learning Outcomes</i> |
|----------|---|
| a | An ability to apply Knowledge of mathematics, science and engineering |
| b | An ability to design and conduct experiments, analyze and interpret data |
| C | An ability to design a system, component or process to meet desired needs within realistic constraints |
| d | The ability to function on multidisciplinary teams |
| e | An ability to identify, formulate, and solve engineering problems |
| f | An understanding of professional and ethical responsibility |
| g | An ability to communicate effectively |
| h | The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context |
| i | A recognition of the need for and an ability to engage in lifelong learning |
| j | A knowledge of contemporary issues |
| k | Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice |

Note: College of Engineering is following ABET