# Biochemical Engineering

## *Contribution of Required ECH/ECM Courses to Student Outcomes*

| Program Outcomes | ECM 5 | ECM 6 | ECH 51 | ECH 80 | ECH 140 | ECH 141 | ECH 142 | ECH 143 | ECH 146 | ECH 152 A | ECH 152 B | ECH 155 A | ECH 157 | ECH 158 A | ECH 158 C | ECH 161 A | ECH 161 B | ECH 161 C | ECH 161 L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a. an ability to apply knowledge of mathematics, science, and engineering | X | X | X | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| b. an ability to design and conduct experiments, and to analyze and interpret data | | | | | | | | | | | | X | | | | | | | X |
| c. an ability to design processes to meet desired performance specifications | | | | | | | X | | X | | X | | X | X | X | X | X | X | X |
| d. an ability to function effectively on teams | | | | | | | | | | | | X | | | X | | | | X |
| e. an ability to use engineering methods to identify, formulate, and solve engineering problems | X | X | X | | X | X | X | | X | X | X | X | X | X | X | X | X | X | X |
| f. an ability to recognize their professional and ethical responsibilities | | | | X | | | | | | | | | | X | X | | | X | |
| g. an ability to communicate proficiently in written and oral form | | | | X | | | | | | | | X | | | X | | | | X |
| h. an ability to understand the impact of engineering solutions in a global and societal context | | | | X | | | | | | | | X | | X | X | | | X | X |
| i. an ability to engage in life-long learning | | | X | X | | X | X | | | | X | X | X | X | X | | | X | X |
| j. an ability to understand contemporary issues impacting the society and the profession | | | | X | | | | | | | X | | | X | X | | | X | X |
| k. an ability to use the techniques, skills, and modern engineering tools necessary engineering practice | X | X | X | | | X | X | | X | X | X | X | X | X | X | X | X | X | X |