

ENCH 445 Course Goals as Related to ABET Outcomes

Course Goals	Supports ABET Outcomes	Activity	Basis for Assessment
By the end of this course, the student should be familiar with the basic concepts related to single-stage equilibrium contactors, distillation columns having binary or multicomponent feeds, liquid-liquid extractors, strippers, absorbers, membrane processes, and adsorption processes.	1.2,1.3,2.1, 2.2,2.4,5.1, 5.2,5.3,5.4	Lecture, in class examples, homework, exams	Student assessment, instructor assessment, graded homework and exams
By the end of the course, the student should be able to perform quantitative calculations related to the design and operation of single-stage equilibrium contactors, distillation columns having binary or multicomponent feeds, liquid-liquid extractors, strippers, absorbers, membrane processes, and adsorption processes.	1.1,1.2,1.3, 1.4,2.1,2.2, 2.4,4.1,5.1, 5.2,5.3,5.4	Lecture, in class examples, homework, exams	Student assessment, instructor assessment, graded homework and exams
By the end of this course, students should understand how to set up and numerically solve systems of algebraic equations and constrained optimization problems related to separation processes	1.1,1.3,1.4, 2.1,2.2,5.2	Lecture, in class examples, homework, exams	Student assessment, instructor assessment, graded homework and exams
By the end of this course, students should understand how knowledge of the physical properties of the substances to be separated can be used as a guide for selecting an appropriate separation process.	1.3,2.1,5.1, 5.2,5.3,5.4	Lecture, in class examples, homework, exams	Student assessment, instructor assessment, graded homework and exams

ABET Outcome Targets for ENCH 445

The following items are desired outcomes of the courses taught in the Department of Chemical and Biochemical Engineering. Beside each outcome is a numerical score which is the specific target for ENCH 445. This score indicates the relative amount this course is anticipated to contribute to your ability to perform each item, where 1 indicates “NOT AT ALL” , 5 indicates “A GREAT DEAL,” and “NA” indicates “not applicable.”

<u>Outcome</u>	<u>Score</u>
1.1 Ability to use mathematics, or physical or biological sciences.	4
1.2 Proficiency in core chemical engineering principles.	4
1.3 Ability to design processes using chemical engineering principles.	5
1.4 Ability to use the techniques, skills and modern engineering tools necessary for the practice of chemical or biochemical engineering.	4
1.5 Knowledge of the impact of engineering decisions on society, including aspects of safety, environmental impact, role of biotechnology in society, and ethics.	NA [†]
2.1 Ability to analyze/solve open ended problems in chemical engineering.	4
2.2 Ability to evaluate solutions or designs given constraints (economic or otherwise).	4
2.3 Ability to design and conduct experiments in order to obtain appropriate data for evaluation of an engineering problem.	NA
2.4 Ability to analyze and interpret data in order to solve engineering problems.	3
3.1 Ability to work effectively in teams with others having different backgrounds (ethnically or culturally).	NA
3.2 Ability to fill both leadership and supporting roles in a team.	NA
3.3 Ability to define rules for conflict resolution and practice those rules.	NA
4.1 Ability to communicate effectively in a written form.	2
4.2 Ability to communicate effectively in an oral form.	NA
5.1 Ability to define problem given an open-ended question or situation.	4
5.2 Ability to locate tools and information relevant to given problem.	3
5.3 Ability to assimilate information relevant to a problem.	4
5.4 Ability to assess your own ability/knowledge to solve a problem, and determine when to seek help.	3

[†]NA = not applicable