



Undergraduate Catalog 2017/2018

Addendum: December 19, 2017

The following lists modification of the 2017-2018 Undergraduate Catalog.

“**Departments and Degrees**” subsection, found on page 205 of the original document.

Departments and Degrees

The Clark School of Engineering consists of eight academic departments and offers the degree of Bachelor of Science in the following fields of study: Aerospace Engineering, Bioengineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Fire Protection Engineering, Materials Science and Engineering, and Mechanical Engineering. All of the above programs are accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

“**The Major**” subsection, found on page 294 of the original document:

The Bachelor of Science in Aerospace Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

“**The Major**” subsection, found on page 380 of the original document:

The Bachelor of Science degree in Bioengineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

“**The Major**” subsection, found on page 398 of the original document:

The Bachelor of Science degree in Chemical Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

“**The Major**” subsection, found on page 413 of the original document:

The Bachelor of Science degree in Civil Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

“**The Major**” subsection, found on page 522 of the original document:

The Bachelor of Science in Fire Protection Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

“**The Major**” subsection, found on page 645 of the original document:

The Bachelor of Science in Materials Science and Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

“**The Major**” subsection, found on page 667 of the original document:

The Bachelor of Science degree in Mechanical Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

“**The Program Learning Outcomes**” subsection, found on page 414-415 of the original document:

Student Outcomes

The Department of Civil Engineering is using the following ABET a-k learning outcomes.

- a. an ability to apply knowledge of mathematics, science and engineering

- b. an ability to design and conduct experiments, as well as to analyze and interpret data
- c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- d. an 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. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Additional Outcomes as per ASCE criteria are:

Breadth in civil engineering areas, Technical Specialization, Project Management, Public Policy, Business and Public Administration, Leadership, Attitudes

“Requirements for the Major” subsection, found on page 415 of the original document:

Requirements for the Major

The Department offers a program of study leading to an ABET-accredited Bachelor of Science in Civil Engineering (BSCE) degree. Each student specializes in one of three tracks: Infrastructure Engineering (Structural and Geotechnical), Environmental and Water Resources Engineering, or Transportation Systems and Project Management. A total of 122 credit hours are required for a BSCE degree with emphasis in basic science (mathematics, chemistry, and physics), engineering science (mechanics of materials, statics, and dynamics), basic civil and environmental engineering courses; required courses in the selected track; technical electives; and a senior capstone design course. The curriculum provides a sensible blend of required courses and electives, permitting students to pursue their interests without the risk of overspecialization.

“Program Objectives” subsection, found on page 437 of the original document:

Program Educational Objectives

Within 3 to 5 years from graduation, a graduate of computer engineering (CpE) will have engaged in life-long learning and will have attained any of the following program educational objectives:

- PEO #1. Advance to a leadership position in a reputable industry or government institution.
- PEO #2. Earn a graduate degree from a top ranked graduate program in CpE or related field.
- PEO #3. Have our graduates become an innovator and/or entrepreneur in a CpE or related space.

“Program Learning Outcomes” subsection, found on page 438 of the original document:

Program Learning Outcomes

A comprehensive set of Student Learning Outcomes (SLOs) has been derived from the Program Educational Objectives (PEOs). These SLOs comprise the knowledge and skills all Computer Engineering students are expected to possess by the time they graduate so the PEOs can be accomplished. The SLOs are:

- (a) An ability to apply knowledge of mathematics, science, and engineering
- (b) An ability to design and conduct experiments, as well as analyze and interpret data
- (c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) An ability to function on multi-disciplinary 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, life-long learning
- (j) A knowledge of contemporary issues
- (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- (l) Program specific outcome: an ability to apply knowledge of probability and statistics in electrical or computer engineering

“The Major” subsection, found on page 474 of the original document:

The Bachelor of Science degree in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

“Program Objectives” subsection, found on page 474 of the original document:

Program Educational Objectives

Within 3 to 5 years from graduation, a graduate of electrical engineering (EE) will have engaged in life-long learning and will have attained any of the following program educational objectives:

- PEO #1. Advance to a leadership position in a reputable industry or government institution.
- PEO #2. Earn a graduate degree from a top ranked graduate program in EE or related field.
- PEO #3. Have our graduates become an innovator and/or entrepreneur in an EE or related space.

“Program Learning Outcomes” subsection, found on page 474 of the original document:

Program Learning Outcomes

A comprehensive set of Student Learning Outcomes (SLOs) has been derived from the Program Educational Objectives (PEOs). These SLOs comprise the knowledge and skills all Electrical Engineering students are expected to possess by the time they graduate so the PEOs can be accomplished. The SLOs are:

- (a) An ability to apply knowledge of mathematics, science, and engineering
- (b) An ability to design and conduct experiments, as well as analyze and interpret data
- (c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) An ability to function on multi-disciplinary 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, life-long learning
- (j) A knowledge of contemporary issues
- (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

(l) Program specific outcome: an ability to apply knowledge of probability and statistics in electrical or computer engineering

“Program Learning Outcomes” subsection, found on page 523 of the original document:

Student Outcomes

1. An ability to apply knowledge of mathematics, science, and engineering.
2. An ability to design and conduct experiments, as well as to analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
4. An ability to function on multidisciplinary teams.
5. An ability to identify, formulate, and solve engineering problems.
6. An understanding of professional and ethical responsibility.
7. An ability to communicate effectively.
8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
9. A recognition of the need for, and an ability to engage in life-long learning.
10. A knowledge of contemporary issues.
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

“Requirements for the Major” subsection, found on page 524 and 525 of the original document:

ENFP101 Introduction to Fire Protection Engineering
ENFP410 Special Hazard Suppression Systems

Approved electives must include the following:

One MATH or STAT 300+

One ENFP 400+, and two ENXX 300+