OFFICE OF THE FACULTY COUNCIL
THE UNIVERSITY OF TEXAS AT AUSTIN
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December 13, 2017

Provost Maurie McInnis
The University of Texas at Austin MAI 4005
Campus Mail Code: G3400 Dear Provost McInnis:

Dear Provost McInnis,

Enclosed for your consideration and action are proposals to change the Cockrell School of Engineering chapter of the *Undergraduate Catalog, 2018-2020*. The items are classified as being of *exclusive* interest to one college or school and were approved by the Faculty Council on a no-protest basis on December 12, 2017. The authority to grant final approval on of this legislation resides the Texas Higher Education Coordinating Board.

- Proposed Changes to the Aerospace Engineering Degree Program (D 15704-15711)
- Proposed Changes to the Civil Engineering Degree Program (D 15712-15719)

Please let me know if you have questions or if I can provide other information concerning these items.

Sincerely,

Alan W. Friedman

Alan W. Friedman, Secretary
General Faculty and Faculty Council
The University of Texas at Austin
Arthur J. Thaman and Wilhelmina Doré Thaman Professor of English and Comparative Literature

AWF:dlr Enclosures

ec: Lydia A. Cornell, Administrative Program Coordinator, Provost's Office
Michelle K. George, Administrative Manager for Faculty Affairs, Provost's Office
Gerald E. Speitel, Associate Dean for Academic Affairs, Cockrell School of Engineering
Sonya D. Shaffer, Executive Assistant, Cockrell School of Engineering

DOCUMENTS OF THE GENERAL FACULTY

PROPOSED CHANGES TO THE AEROSPACE ENGINEERING DEGREE PROGRAM IN THE COCKRELL SCHOOL OF ENGINEERING CHAPTER IN THE *UNDERGRADUATE CATALOG 2018-2020*

Dean Sharon L. Wood in the Cockrell School of Engineering has filed with the Secretary of the Faculty Council the following proposal to change the Aerospace Engineering Degree Program in the Cockrell School of Engineering chapter in the *Undergraduate Catalog, 2018-2020*. The Aerospace Engineering faculty approved the proposal on May 11, 2017; the Degrees and Courses Committee approved it on May 24, 2017; the Dean and the College faculty approved it on September 18, 2017. The Secretary has classified this proposal as legislation of exclusive interest to one college or school.

The Committee on Undergraduate Degree Program Review recommended approval of the proposal on December 5, 2017, and forwarded it to the Office of the General Faculty. The Faculty Council has the authority to approve this legislation on behalf of the General Faculty. The authority to grant final approval on this legislation resides with the Texas Higher Education Coordinating Board.

If no objection is filed with the Office of the General Faculty by the date specified below, the legislation will be held to have been approved by the Faculty Council. If an objection is filed within the prescribed period, the legislation will be presented to the Faculty Council at its next meeting. The objection, with reasons, must be signed by a member of the Faculty Council.

To be counted, a protest must be received in the Office of the General Faculty by December 12, 2017.

Alan W. Friedman, Secretary of the General Faculty and Faculty Council
The University of Texas at Austin
Arthur J. Thaman and Wilhelmina Doré Thaman Professor of English and Comparative Literature

Distributed through the Faculty Council Wiki site https://wikis.utexas.edu/display/facultycouncil/Wiki+Home on December 6, 2017.

15705

PROPOSED CHANGES TO THE AEROSPACE ENGINEERING DEGREE PROGRAM IN THE COCKRELL SCHOOL OF ENGINEERING CHAPTER IN THE *UNDERGRADUATE CATALOG 2018-2020*

TYPE OF CHANGE: ☐ Academic Change
☒ Degree Program Change (THECB form required)

PROPOSED CLASSIFICATION: ☒ Exclusive ☐ General ☐ Major

1. IF THE ANSWER TO ANY OF THE FOLLOWING QUESTIONS IS YES, THE COLLEGE MUST CONSULT LINDA DICKENS, DIRECTOR OF ACCREDITATION AND ASSESSMENT, TO DETERMINE IF SACSCOC APPROVAL IS REQUIRED.

- Is this a new degree program? Yes ☐ No ☒
- Is this program being deleted? Yes ☐ No ☒
- Does the program offer courses that will be taught off campus? Yes ☐ No ☒
- Will courses in this program be delivered electronically? Yes ☐ No ☒

2. EXPLAIN CHANGE TO DEGREE PROGRAM AND GIVE A DETAILED RATIONALE FOR EACH INDIVIDUAL CHANGE:

Updated the 'Portable Computing Devices' section: 1) changed listed software to reflect the proper capitalization of the name of the software, 2) added additional software that is now a component of a required class, 3) added information about the need to access a remote server, and 4) updated the information about where to find minimum and required computing specifications.

Inventory updates (reflected in the 'Requirements' section, the 'Technical Area Options', and the 'Suggested Arrangement of Courses') already submitted for fall 2017 and spring 2018: 1) changed ASE 301 to COE 301 to reflect the content of the coursework that is actually Computational and not Aerospace-related; 2) changed the course title, and subsequently the course number, for ASE 370L, Flight Control Systems, to become ASE 370C, Feedback Control Systems, to reflect the content of the course that does not focus on 'flight', but more on 'feedback control'; 3) changed ME 320 to ME 310T to reflect the inventory change that was completed by the Department of Mechanical Engineering in Fall 2016; 4) changed ASE 321K to COE 321K (in Area 1, Atmospheric Flight) to reflect the content of the coursework that is more Computational than Aerospace- related.

Inventory update (reflected in the 'Requirements' section, the 'Technical Area Options', and the 'Suggested Arrangement of Courses') to be submitted for fall 2018: 1) Change COE 211K (previously ASE 211K) to 311K (two-hour to three-hour) in order to reflect the actual coursework and teaching hours needed for the course content. This class establishes the foundation on numerical/mathematical methods for engineers. Many parts of the class are important prerequisite for other classes. Unfortunately, two-hour setting is not enough to cover all the subjects with sufficient depth. As a result, many of the import subjects such as cubic spline interpolation, or introductory numerical methods for ordinary differential equations and partial differential equations are left out or hardly covered. This becomes a burden for many students and instructors of future classes dependent on this content.

Removed ASE 365 and added 'Structures elective'. After review by the undergraduate curriculum committee, taking into consideration various feedback from students and alumni of the program over the years, it was decided that ASE 365 (Structural Dynamics) is only necessary for students pursuing the Atmospheric flight technical area. For students pursuing the Space flight technical area, there was still a need for some instruction in structures, so these students will be given a choice of four different classes

(ASE 365, ASE 357, ASE or EM 339, or COE 321K) to fulfill this requirement. This change will allow a reduction in the frequency of offering ASE 365 and thus reduce the need for adjunct faculty to cover teaching load.

3. THIS PROPOSAL INVOLVES: (Please check all that apply)

- ☐ Courses in other colleges
- ☐ Courses in proposer's college that are frequently taken by students in other colleges
- ☐ Flags
- ☐ Course in the core curriculum
- ☐ Change in course sequencing for an existing program
- ☒ Courses that have to be added to the inventory
- ☐ Change in admission requirements (external or internal)
- ☐ Requirements not explicit in the catalog language (e.g., lists of acceptable courses maintained by department office)

4. SCOPE OF PROPOSED CHANGE:

a. Does this proposal impact other colleges/schools? Yes ☐ No ☒
If yes, then how would you do so?

b. Do you anticipate a net change in the number of students in your college? Yes ☐ No ☒
If yes, how many more (or fewer) students do you expect?

c. Do you anticipate a net increase (or decrease) in the number of students from outside of your college taking classes in your college? Yes ☐ No ☒
If yes, please indicate the number of students and/or class seats involved.

d. Do you anticipate a net increase (or decrease) in the number of students from your college taking courses in other colleges? Yes ☐ No ☒
If yes, please indicate the number of students and/or class seats involved.

If 4 a, b, c, or d was answered with yes, please answer the following questions:
If the proposal has potential budgetary impacts for another college/school, such as requiring new sections or a non-negligible increase in the number of seats offered, at least one contact must be at the college-level.

How many students do you expect to be impacted?

Impacted schools must be contacted and their response(s) included:

Person communicated with:

Date of communication:

Response:

e. Does this proposal involve changes to the core curriculum or other basic education requirements (42-hour core, signature courses, flags)? If yes, explain: **No**
If yes, Undergraduate Studies must be informed of the proposed changes and their response included:

Person communicated with:

Date of communication:

Response:

f. Will this proposal change the number of hours required for degree completion? **Yes; from 126 to 127.**
Note: THECB Semester Credit Hour Change Form required, download from URL:
http://www.thecb.state.tx.us/reports/DocFetch.cfm?DocID=2419&format=doc
If yes, explain:

5. COLLEGE/SCHOOL APPROVAL PROCESS

Department approval date: May 12, 2017 Dr. Noel Clemens, Chair

	May 11, 2017	ASE/EM Faculty
	April 27, 2017	COE Undergraduate Curriculum Committee (section regarding change from COE 211K to COE 311K)
	April 20, 2017	ASE/EM Undergraduate Curriculum Committee
College approval date:	May 24, 2017	CSE Degrees & Courses Committee
Dean approval date:	Sept. 18, 2017	CSE Faculty; Sharon L. Wood, Dean

PROPOSED NEW CATALOG TEXT:

BACHELOR OF SCIENCE IN AEROSPACE ENGINEERING

{No change up to this point}

Portable Computing Devices

Students entering aerospace engineering are required to have access to a portable computing device capable of running the software tools required for undergraduate engineering analyses ([~~MatLab~~] MATLAB, SOLIDWORKS, Word, Excel, etc.) and accessing to the remote server for the department. This device does not need to be brought to campus on a daily basis, but individual courses may require that the device be brought to certain lectures, labs, and/or exams. [~~Once admitted, students will be informed by the Aerospace Engineering and Engineering Mechanics Department office about specific device requirements.~~] Minimum and recommended specifications may be found on the department website.

Curriculum

Course requirements include courses within the Cockrell School of Engineering and other required courses. In addition, each student must complete the University's Core Curriculum. In some cases, a course that fulfills one of the following requirements may also be counted toward Core Curriculum or flag requirements; these courses are identified below.

In the process of fulfilling engineering degree requirements, students must also complete coursework to satisfy the following flag requirements: one independent inquiry flag, one quantitative reasoning flag, one ethics and leadership flag, one global cultures flag, one cultural diversity in the United States flag, and two writing flags. The independent inquiry flag, the quantitative reasoning flag, the ethics and leadership flag, and both writing flags are carried by courses specifically required for the degree; these courses are identified below. Courses that may be used to
fulfill flag requirements are identified in the *Course Schedule*.

Courses used to fulfill technical elective requirements must be approved by the aerospace engineering faculty before the student enrolls in them.

The student must take all courses required for the degree on the letter-grade basis and must earn a grade of at least *C-* in each course, except for those listed as Remaining Core Curriculum courses. He or she must also maintain grade point averages of at least 2.00 in the major area of study and in required technical courses as described
in Academic Standards, and a cumulative University grade point average of at least 2.00 as described in *General Information*.

Requirements		**Hours**
Aerospace Engineering Courses		
ASE 120K	Low-Speed Aerodynamics Laboratory	1
[~~ASE 211K~~	~~Engineering Computation~~	~~2~~]
[~~ASE 301~~	~~Introduction to Computer Programming~~	~~3~~]
ASE 320	Low-Speed Aerodynamics	3

ASE 324L	Aerospace Materials Laboratory	3
ASE 330M	Linear System Analysis	3
ASE 333T	Engineering Communication (writing flag and ethics and leadership flag)	3
ASE 362K	Compressible Flow	3
[~~ASE 365~~	~~Structural Dynamics~~	~~3~~]
E M 306	Statics	3
E M 311M	Dynamics	3
E M 319	Mechanics of Solids	3
Mathematics		
M 408C	Differential and Integral Calculus (mathematics; quantitative reasoning flag)	4
M 408D	Sequences, Series, and Multivariable Calculus	4
M 427J	Differential Equations with Linear Algebra (quantitative reasoning flag)	4
or M 427K	Advanced Calculus for Applications I	
M 427L	Advanced Calculus for Applications II	4
Physics		
PHY 103M	Laboratory for Physics 303K	1
PHY 103N	Laboratory for Physics 303L	1
PHY 303K	Engineering Physics I (part I science and technology; quantitative reasoning flag)	3
PHY 303L	Engineering Physics II (part I science and technology; quantitative reasoning flag)	3
Rhetoric and Writing		
RHE 306	Rhetoric and Writing (English composition)	3
Other required courses		
Technical area courses		13
Approved technical electives		6
Structures elective		3
M E 210	Engineering Design Graphics	2
M E [~~320~~] 310T	Applied Thermodynamics	3
Remaining Core Curriculum Courses		
E 316L	British Literature (humanities; ~~in E 316L, 316M, 316N, and 316P~~ some sections carry a global cultures or cultural diversity flag)	3
or E 316M	American Literature (humanities; some sections carry a global cultures or cultural diversity flag)	
or E 316N	World Literature (humanities; some sections carry a global cultures or cultural diversity flag)	
or E 316P	Masterworks of Literature (humanities; some sections carry a global cultures or cultural diversity flag)	
American and Texas government (some sections carry a cultural diversity flag)		6
American history (some sections carry a cultural diversity flag)		6

Social and behavioral sciences (some sections carry a cultural diversity flag)		3
Visual and performing arts (some sections carry a cultural diversity flag)		3
UGS 302	First-Year Signature Course (in UGS 302 all sections carry writing flag[~~; in UGS 303 some sections carry a writing flag~~])	3
or UGS 303	First-Year Signature Course (in UGS 303 some sections carry a writing flag)	
Total Hours		127[~~126~~]

Technical Area Options

The technical area option allows the student to choose thirteen [~~13~~] semester hours of technical area courses in either atmospheric flight or space flight. Each student should choose a technical area by the end of the first semester of the junior year and plan an academic program to meet the area requirements in the next three semesters. Many students choose technical electives that will strengthen their backgrounds in one specialty area, but this is not required. It should be noted that a student may choose the technical area courses in the other technical area as technical electives.

Area 1, Atmospheric Flight

Also called aeronautics, this area provides the student with a well-rounded program of study emphasizing the major disciplines of aerodynamics, propulsion, structures, design, performance, and control of aircraft. These subjects are treated at a fundamental level that lays a foundation for work in a broad variety of specialties in the aircraft industry. This option is intended for the undergraduate student whose primary interest is aircraft.

[~~Aerospace~~] Computational Engineering 321K, *Computational Methods for Structural Analysis*
Aerospace Engineering 361K, *Aircraft Design I* (carries an independent inquiry flag)
Aerospace Engineering 361L, *Aircraft Design II* (carries a writing flag)
Aerospace Engineering 162M, *High-Speed Aerodynamics Laboratory*
Aerospace Engineering 364, *Applied Aerodynamics*

Area 2, Space Flight

Also called astronautics, this area offers a well-rounded program of study that provides a background in the traditional areas of fluid mechanics, materials, structures, propulsion, controls, and flight mechanics, while also giving the student a chance to learn about the space environment, attitude determination and control, orbital mechanics, mission design, and spacecraft systems engineering. These subjects are treated at a fundamental level that lays a foundation for work in a broad variety of specialties in space-related industries. This option is intended for the undergraduate student whose primary interest is space and spacecraft.

Aerospace Engineering 366L, *Applied Orbital Mechanics*
Aerospace Engineering 166M, *Spacecraft Systems Laboratory*
Aerospace Engineering 372K, *Attitude Dynamics*
Aerospace Engineering 374K, *Space Systems Engineering Design*
Aerospace Engineering 374L, *Spacecraft/Mission Design* (carries an independent inquiry flag and a writing flag)

Structures Elective

The degree requires all students to take three semester hours of an approved structures elective.
Students pursuing Technical Area 1, Atmospheric Flight, must take Aerospace Engineering 365, *Structural Dynamics,* to fulfill this requirement.
Students pursuing Technical Area 2, Space Flight, will choose one of four options to fulfill this requirement:
Aerospace Engineering 365, *Structural Dynamics*
Aerospace Engineering 357, *Mechanics of Composite Materials*
Aerospace Engineering 339 or Engineering Mechanics 339, *Advanced Strength of Materials*, or
Computational Engineering 321K, *Computational Methods for Structural Analysis*.

Special Projects Laboratories

The department offers students the opportunity to participate in special projects such as student-built radio-controlled aircraft competitions and student satellite-building projects. These time-intensive projects are open to all aerospace engineering students with at least fifteen [~~15~~] semester hours of University credit toward the degree and a grade point average of at least 2.50. Academic credit for participation in departmentally approved student projects is available on the pass/fail basis through the course Aerospace Engineering 128. Three such laboratory courses can be combined to count as one three-hour technical elective; one such laboratory course can be combined with a two-hour cooperative program to count as one three-hour technical elective.

SUGGESTED ARRANGEMENT OF COURSES

First Year

First Term	Hours	**Second Term**	Hours
UGS 302 or 303	3	[~~ASE~~] COE 301	3
CH 301	3	M 408D	4
M 408C	4	PHY 303K	3
RHE 306	3	PHY 103M	1
Social and behavioral sciences or visual and performing arts	3	American and Texas government	3
		American history	3
	16		17

Second Year

First Term	Hours	**Second Term**	Hours
E M 306	3	[~~ASE~~] COE [~~211K~~] 311K	32
M 427J or 427K	4	E M 311M	3
PHY 303L	3	E M 319	3
PHY 103N	1	M 427L	4
M E 210	2	ASE 333T	3
M E ~~320~~ 310T	3		
	16		16 [~~15~~]

Third Year

First Term	Hours	**Second Term**	Hours
ASE 320	3	ASE 362K	3
ASE 120K	1	ASE 367K	3
ASE 330M	3	Social and behavioral sciences or visual and performing arts	3
[~~ASE 365~~] Structures Elective	3	Technical area courses	7
ASE 366K	3		
E 316L, 316M, 316N, or 316P	3		
	16		16

Fourth Year

First Term	Hours	**Second Term**	Hours

ASE 375	3	ASE 324L	3
ASE 376K	3	ASE [~~370L~~] 370C	3
Technical area courses	6	American history	3
Technical elective	3	American and Texas government	3
		Technical area elective	3
	15		15
Total credit hours:			[~~126~~] 127

DOCUMENTS OF THE GENERAL FACULTY

PROPOSED CHANGES TO THE CIVIL ENGINEERING DEGREE PROGRAM IN THE COCKRELL SCHOOL OF ENGINEERING CHAPTER IN THE *UNDERGRADUATE CATALOG 2018-2020*

Dean Sharon L. Wood in the Cockrell School of Engineering has filed with the Secretary of the Faculty Council the following proposal to change the Civil Engineering Degree Program in the Cockrell School of Engineering chapter in the *Undergraduate Catalog, 2018-2020*. The Civil, Architectural, and Environmental Engineering faculty approved the proposal on April 14, 2017; the Degrees and Courses Committee approved it on May 24, 2017; the Dean and the College faculty approved it on September 18, 2017. The Secretary has classified this proposal as legislation of exclusive interest to one college or school.

The Committee on Undergraduate Degree Program Review recommended approval of the proposal on December 5, 2017, and forwarded it to the Office of the General Faculty. The Faculty Council has the authority to approve this legislation on behalf of the General Faculty. The authority to grant final approval on this legislation resides with the Texas Higher Education Coordinating Board.

If no objection is filed with the Office of the General Faculty by the date specified below, the legislation will be held to have been approved by the Faculty Council. If an objection is filed within the prescribed period, the legislation will be presented to the Faculty Council at its next meeting. The objection, with reasons, must be signed by a member of the Faculty Council.

To be counted, a protest must be received in the Office of the General Faculty by December 12, 2017.

Alan W. Friedman, Secretary of the General Faculty and Faculty Council
The University of Texas at Austin
Arthur J. Thaman and Wilhelmina Doré Thaman Professor of English and Comparative Literature

Distributed through the Faculty Council Wiki site https://wikis.utexas.edu/display/facultycouncil/Wiki+Home on December 6, 2017.

15713

PROPOSED CHANGES TO THE CIVIL ENGINEERING DEGREE PROGRAM IN THE COCKRELL SCHOOL OF ENGINEERING CHAPTER IN THE *UNDERGRADUATE CATALOG 2018-2020*

TYPE OF CHANGE: ☐ Academic Change
☒ Degree Program Change (THECB form required)

PROPOSED CLASSIFICATION: ☒ Exclusive ☐ General ☐ Major

1. IF THE ANSWER TO ANY OF THE FOLLOWING QUESTIONS IS YES, THE COLLEGE MUST CONSULT LINDA DICKENS, DIRECTOR OF ACCREDITATION AND ASSESSMENT, TO DETERMINE IF SACSCOC APPROVAL IS REQUIRED.

- Is this a new degree program? Yes ☐ No ☒
- Is this program being deleted? Yes ☐ No ☒
- Does the program offer courses that will be taught off campus? Yes ☐ No ☒
- Will courses in this program be delivered electronically? Yes ☐ No ☒

2. EXPLAIN CHANGE TO DEGREE PROGRAM AND GIVE A DETAILED RATIONALE FOR EACH INDIVIDUAL CHANGE:

- Update to CE 171P to CE 371P Engineering Professionalism to reflect a degree capstone course. CE 371P will have an updated course description of the following: Examines professional engineering licensure, ethics, leadership, public service, and public policy, with an emphasis on multidisciplinary perspectives, legal and business considerations, and the importance of lifelong learning. Includes participation in a culminating major design project in public service, reflecting knowledge from technical electives and base level coursework. Prerequisite: 3 technical electives and all base level courses.
- Removal of Level I & II elective language. Courses now included in technical electives, with CE 371P being required for all students that has a major design component. All previous course labeled as Level I or II are now Technical Electives.
- Removal of Math/Science/Engineering elective requirement. These courses may now satisfy 1 technical elective requirement. These courses do not count towards breadth requirement.
- Three hours added to Technical electives to replace Level II elective requirement. Level II electives will continue to be offered as Technical elective options.
- Update to the eight-semester suggested arrangement of courses in order to remove Level I and Level II elective wording.
- Update to the list of approved Technical electives to include courses previously added to the inventory to include past Level I and Level II electives as well at the Math/Science/Engineering electives list.
- Update to required number of hours for degree from 125 to 124 to reflect removal of Math/Science/Engineering elective requirement and addition of two (2) hours to the Engineering Professionalism course.

3. THIS PROPOSAL INVOLVES: (Please check all that apply)

☐ Courses in other colleges	☐ Courses in proposer's college that are frequently taken by students in other colleges	☐ Flags
☐ Course in the core curriculum	☒ Change in course sequencing for an existing program	☒ Courses that have to be added to the inventory
☐ Change in admission requirements (external or internal)	☐ Requirements not explicit in the catalog language (e.g., lists of acceptable courses maintained by department office)	

4. SCOPE OF PROPOSED CHANGE:

a. Does this proposal impact other colleges/schools? Yes ☐ No ☒

If yes, then how would you do so?

b. Do you anticipate a net change in the number of students in your college? Yes ☐ No ☒
If yes, how many more (or fewer) students do you expect?

c. Do you anticipate a net increase (or decrease) in the number of students from outside of your college taking classes in your college? Yes ☐ No ☒
If yes, please indicate the number of students and/or class seats involved.

d. Do you anticipate a net increase (or decrease) in the number of students from your college taking courses in other colleges? Yes ☒ No ☐

- Students no longer required to take a Math/Science/Engineering elective. While some students may still choose to take these courses, we anticipate enrollment of Civil Engineering students in the following courses may be reduced: BIO 311D, CH 320M, CH 328M, CH 353, E M 311M, E M 339, GEO 316P, M 427L, M 340L, M 361, M 362K, M 364K, M 372, M 372K, M 374, M E 339, M E 349, M E 374F, PHY 335. We do not anticipate a decrease in enrollment in GEO 303, GEO 401, or BIO 311C since it is still a requirement that Civil Engineering student take one of these courses to fulfill their Science elective requirement.

If 4 a, b, c, or d was answered with yes, please answer the following questions:
If the proposal has potential budgetary impacts for another college/school, such as requiring new sections or a non-negligible increase in the number of seats offered, at least one contact must be at the college-level.

How many students do you expect to be impacted? 260
Impacted schools must be contacted and their response(s) included:
Person communicated with: Dr. Janice Fischer – Director of Undergraduate Biology; Dr. Dave Thirumalai – Department of Chemistry Chair; Dr. Noel Clemens – Department of Engineering Mechanics Chair; Dr. Charles Kerans – Department of Geological Sciences Chair; Dr. Thomas Chen – Department of Mathematics Chair; Dr. Richard Neptune – Department of Mechanical Engineering Chair; Dr. Jack Ritchie – Department of Physics
Date of communication: May 18, 2017
Response: No objections received.

e. Does this proposal involve changes to the core curriculum or other basic education requirements (42-hour core, signature courses, flags)? **NO**
If yes, explain:
If yes, Undergraduate Studies must be informed of the proposed changes and their response included:
Person communicated with:
Date of communication:
Response:

f. Will this proposal change the number of hours required for degree completion? **YES**
Note: THECB Semester Credit Hour Change Form required, download from URL:
http://www.thecb.state.tx.us/reports/DocFetch.cfm?DocID=2419&format=doc
If yes, explain: Yes, with the increased number of hours in 171P to 371P and the removal of a Math/Science/Engineering elective the net will decrease by one.

5. COLLEGE/SCHOOL APPROVAL PROCESS

Department approval date:	April 14, 2017	CAEE Faculty & Chair
College approval date:	May 24, 2017	CSE Degrees & Courses Committee
Dean approval date:	September 18, 2017	CSE Faculty; Sharon L. Wood, Dean

PROPOSED NEW CATALOG TEXT:

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

{No changes up to this point}

Curriculum

Course requirements include courses within the Cockrell School of Engineering and other required courses. In addition, each student must complete the University's core curriculum. In some cases, a course required for the Bachelor of Science in Civil Engineering may also be counted toward the core curriculum; these courses are identified below.

In the process of fulfilling engineering degree requirements, students must also complete coursework to satisfy the following flag requirements: one independent inquiry flag, one quantitative reasoning flag, one ethics and leadership flag, one global cultures flag, one cultural diversity in the US flag, and two writing flags. The independent inquiry flag, the quantitative reasoning flag, the ethics and leadership flag and one writing flag are carried by courses specifically required for the degree; these courses are identified below. Students are advised to fulfill the second writing flag requirement with a course that meets another requirement of the core curriculum. Courses that may be used to fulfill flag requirements are identified in the *Course Schedule*.

Requirements		**Hours**
Civil Engineering Courses		
C E 301	Civil Engineering Systems	3
C E 311K	Introduction to Computer Methods	3
C E 311S	Probability and Statistics for Civil Engineers	3
C E 319F	Elementary Mechanics of Fluids	3
C E 321	Transportation Systems^	3
C E 324P	Properties and Behavior of Engineering Materials^	3
C E 329	Structural Analysis^	3
C E 333T	Engineering Communication (writing flag; ethics and leadership flag)	3
C E 341	Introduction to Environmental Engineering^	3
C E 356	Elements of Hydraulic Engineering^	3
C E 357	Geotechnical Engineering^	3
C E [+]371P	Engineering Professionalism (ethics and leadership flag)	[+]3
Architectural Engineering		
ARE 323K	Project Management and Economics^	3
Chemistry		
CH 301	Principles of Chemistry I (part I science and technology)	3
CH 302	Principles of Chemistry II (part I science and technology)	3
Engineering Mechanics		

^ Base Level course

E M 306	Statics	3
E M 319	Mechanics of Solids	3
Mathematics		
M 408C	Differential and Integral Calculus (mathematics; quantitative reasoning flag)	4
M 408D	Sequences, Series, and Multivariable Calculus	4
M 427J	Differential Equations with Linear Algebra (quantitative reasoning flag)	4
or M 427K	Advanced Calculus for Applications I	
Mechanical Engineering		
M E 210	Engineering Design Graphics	2
Physics		
PHY 103M	Laboratory for Physics 303K	1
PHY 103N	Laboratory for Physics 303L	1
PHY 303K	Engineering Physics I (part II science and technology)	3
PHY 303L	Engineering Physics II	3
Other Required Courses		
E M 311M	Dynamics	3
or M E 320	Applied Thermodynamics	
Approved science elective		3
[~~Approved mathematics, science, or engineering science elective~~		~~3~~]
[~~Level I~~] Technical electives (some courses carry an independent inquiry flag)		18[~~15~~]
[~~Level II elective (independent inquiry flag)~~		~~3~~]
Remaining Core Curriculum		
RHE 306	Rhetoric and Writing (English Composition)	3
E 316L	British Literature (humanities; [~~in E 316L, 316M, 316N, and 316P~~] some sections carry a global cultures or cultural diversity flag)	3
or E 316M	American Literature (humanities; some sections carry a global cultures or cultural diversity flag)	
or E 316N	World Literature (humanities; some sections carry a global cultures or cultural diversity flag)	
or E 316P	Masterworks of Literature (humanities; some sections carry a global cultures or cultural diversity flag)	
American and Texas government (some sections carry a cultural diversity flag)		6
American history (some sections carry a cultural diversity flag)		6
Social and behavioral science (some sections carry a global cultures and/or cultural diversity flag)		3
Visual and performing arts (some sections carry a global cultures and/or cultural diversity flag)		3
UGS 302	First-Year Signature Course (in UGS 302 all sections carry writing flag; [~~in UGS 303 some sections carry a writing flag~~])	3

or UGS 303	First-Year Signature Course (in UGS 303 some sections carry a writing flag)	
Total Hours		[~~125~~] 124

[~~Level I and Level II~~] Technical Electives

The civil engineering curriculum does not require the student to declare a specific technical area option. However, for the guidance of students with particular interests, [~~level I~~] technical electives in civil engineering are listed in areas of specialization. The [~~15~~] eighteen semester hours of [~~level I~~] technical electives must be chosen from the following civil engineering and architectural engineering courses; in special cases, with the written permission of the department chair, this requirement may be relaxed, provided the student demonstrates in advance that the courses to be substituted for civil engineering or architectural engineering courses are part of a consistent educational plan. To provide a broad general background, at least one technical elective from each of three different areas of specialization must be included in each student's program.

One, three-hour course, from the approved list of Math/Science/Engineering Electives may be substituted for a technical elective. This course does not count towards the three different area breadth requirements. The current approved list is available in the departmental undergraduate office.

[~~Each student must take at least one technical area option level II elective. Level II electives may be substituted for technical area option level I electives, but the requirement of at least one technical elective from each of three different areas of specialization still applies.~~]

The following lists reflect current course offerings and are subject to change by the faculty. Current lists are available in the departmental undergraduate office.

[~~Level I~~] Technical Electives
Construction Engineering and Project Management
Architectural Engineering 335, Materials and Methods of Building Construction
Architectural Engineering 358, Cost Estimating in Building Construction
Architectural Engineering 366, Contracts, Liability, and Ethics (carries an ethics and leadership flag)
Architectural Engineering 376, Building Information Modeling for Capital Projects

Infrastructure Materials Engineering
Civil Engineering 351, Concrete Materials
Civil Engineering 366K, Design of Bituminous Mixtures

Environmental Engineering
Civil Engineering 342, Water and Wastewater Treatment Engineering
Civil Engineering 346, Solid Waste Engineering and Management
Civil Engineering 364, Design of Wastewater and Water Treatment Facilities (carries an independent inquiry flag)
Civil Engineering 369L, Air Pollution Engineering
Civil Engineering 369R, Indoor Air Quality
Civil Engineering 370K, Environmental Sampling and Analysis

Geotechnical Engineering
Civil Engineering 360K, Foundation Engineering (carries an independent inquiry flag)
Civil Engineering 375, Earth Slopes and Retaining Structures

Structural Engineering
Architectural Engineering 345K, Masonry Engineering
Architectural Engineering 362L, Structural Design in Wood

Civil Engineering 331, Reinforced Concrete Design
Civil Engineering 335, Elements of Steel Design
Civil Engineering 362M, Advanced Reinforced Concrete Design (carries an independent inquiry flag)
Civil Engineering 362N, Advanced Steel Design (carries an independent inquiry flag)
Civil Engineering 363, Advanced Structural Analysis

Transportation Engineering
Civil Engineering 367G, Design and Evaluation of Ground-Based Transportation Systems (carries an independent inquiry flag)
Civil Engineering 367P, Pavement Design and Performance
Civil Engineering 367T, Traffic Engineering *Water Resources Engineering*
Civil Engineering 367R, Optimization Techniques for Transportation Engineers
Civil Engineering 358, Introductory Ocean Engineering
Civil Engineering 365K, Hydraulic Engineering Design (carries an independent inquiry flag)
Civil Engineering 374K, Hydrology
Civil Engineering 374L, Groundwater Hydraulics

[~~Level II Electives (Design)~~
[~~*Environmental Engineering*~~
[~~Civil Engineering 364, Design of Wastewater and Water Treatment Facilities (carries an independent inquiry flag)~~
[~~*Geotechnical Engineering*~~
[~~Civil Engineering 360K, Foundation Engineering (carries an independent inquiry flag)~~
[~~*Structural Engineering*~~
[~~Civil Engineering 362M, Advanced Reinforced Concrete Design (carries an independent inquiry flag)~~
[~~Civil Engineering 362N, Advanced Steel Design (carries an independent inquiry flag)~~
[~~*Transportation Engineering*~~
[~~Civil Engineering 367G, Design and Evaluation of Ground-Based Transportation Systems (carries an independent inquiry flag)~~
[~~*Water Resources Engineering*~~
[~~Civil Engineering 365K, Hydraulic Engineering Design (carries an independent inquiry flag)~~]

SUGGESTED ARRANGEMENT OF COURSES

First Year

First Term	Hours	**Second Term**	Hours
C E 301	3	CH 302	3
CH 301	3	M E 210	2
M 408C	4	M 408D	4
RHE 306	3	PHY 303K	3
UGS 302 or 303	3	PHY 103M	1
		Social and behavioral sciences or visual and performing arts (may be taken in any semester)	3
	16		16

Second Year

First Term	Hours	**Second Term**	Hours
C E 311K	3	C E 311S	3
E M 306	3	E M 319	3

M 427J or 427K	4	C E 319F	3
PHY 303L	3	C E 333T	3
PHY 103N	1	American history	3
American history	3		
	17		15

Third Year

First Term	Hours	**Second Term**	Hours
C E 324P	3	E M 311M or M E 320	3
Base level course	3	Base level course	3
Base level course	3	Base level course	3
Base level course	3	Base level course	3
E 316L, 316M, 316N, or 316P	3	Social and behavioral sciences or visual and performing arts (may be taken in any semester)	3
	15		15

Fourth Year

First Term	Hours	**Second Term**	Hours
[~~Level I~~] Technical elective	3	C E ~~1~~3371P	~~1~~3
[~~Level I~~] Technical elective	3	[~~Level I~~] Technical elective	3
[~~Level I~~] Technical elective	3	[~~Level I~~] Technical elective	3
Approved science elective	3	[~~Level II~~] Technical elective	3
American and Texas government	3	American government	3
		[~~Approved math, science, or engineering science elective~~]	~~3~~
	15		[16] 15

Total credit hours: [~~125~~] 124