OFFICE OF THE FACULTY COUNCIL
THE UNIVERSITY OF TEXAS AT AUSTIN

P. O. BOX 7816 • Austin, TX 78713-7816
(512) 471-5934 • Fax: (512) 471-5984 • http://www.utexas.edu/faculty/council

Approved by Executive Vice President and Provost Maurie McInnis on December 14, 2017

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 with your office on behalf of President Fenves.

- Proposed Changes to the Academic Policies and Procedures (D 15656-15661)
- Proposed Changes to the Admissions and Registration (D 15662-15667)
- Proposed Changes to the Biomedical Engineering Degree Program (D 15668-15679)
- Proposed Changes to the Computational Engineering Degree Program (D 15680-15686)
- Proposed Changes to the Degrees and Programs (D 15687-15693)
- Proposed Changes to the Graduation (D 15694-15697)
- Proposed Changes to the Petroleum Engineering Degree Program (D 15698-15703)

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

Sincerely,

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 ACADEMIC POLICES AND PROCEDURES SECTION 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 Academic Policies and Procedures section in the Cockrell School of Engineering chapter in the *Undergraduate Catalog, 2018-2020*. The Degrees and Courses Committee approved the proposal 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 Provost on behalf of the President.

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

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.

15657

PROPOSED CHANGES TO THE ACADEMIC POLICES AND PROCEDURES SECTION 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:

1. **Academic policies and procedures** – engineering no longer has major sequence.
2. **Repetition of course** – many colleges/schools have a competitive internal transfer process therefore not all degrees are an option.
3. **Academic standards** – circumstances include two new majors (computational and environmental) which have additional technical course requirements, which needed to be listed to make clearer.
4. **Professional and honor societies** – organization allows all students to participate.

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:
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? NO
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 24, 2017	CSE Degrees and Courses Committee
College approval date:	September 18, 2017	CSE Faculty
Dean approval date:	September 18, 2017	Sharon L. Wood, Dean

PROPOSED NEW CATALOG TEXT:

ACADEMIC POLICIES AND PROCEDURES

Grade Point Average for Academic Decisions

In the Cockrell School of Engineering, the grade point average used in all academic decisions is the average of grades the student has earned in residence in courses applicable to the degree. Academic decisions are decisions about engineering probation, engineering dismissal, internal transfer (change of major), [~~admission to the major sequence~~] admission to the Engineering Honors Program, designation as an Engineering Scholar, eligibility for graduation, and eligibility for graduation with University Honors.

Quantity of Work Rule

Maximum Number of Hours in the Long Session

As used in items 1 and 2 below, "coursework" includes correspondence courses, extension courses, distance education courses, non-required electives, physical activity courses, and courses for which the student is registered concurrently at another institution.

1. An engineering student may not register for more than seventeen [~~17~~] semester hours of coursework without an approved application to do so. Application is made online at http://www.engr.utexas.edu/undergraduate/forms/.
2. No student may register for more than twenty-one [~~21~~] semester hours of coursework during any long-session semester.

Rules for the Summer Session

A student may not receive credit for more than fourteen [~~14~~] semester hours during a twelve [~~12~~]-week summer session or for more than eight semester hours in a six-week summer term. These limits apply whether the courses are taken at the University or another institution. For more information about the quantity of work allowed in the summer, see *General Information*.

Repetition of a Course

An undergraduate in the Cockrell School may not enroll in any lower division courses in engineering, geology or natural sciences required by the engineering degree plan more than twice. A symbol of *Q* or *W* counts as an enrollment unless it is recognized as nonacademic by the dean's office.

To request permission to enroll in a course for a third or more attempt a student must submit a written appeal at https://utdirect.utexas.edu/link2/appeal_entry.WBX. A student may receive departmental adviser approval to enroll in a course a third or more times only if the student has a substantiated nonacademic reason for not successfully completing the course in earlier attempts. Documentation may be required by the departmental adviser to support the substantiated nonacademic reason. If the student is denied approval to enroll in a required course, he or she will be placed in the undeclared major code and must consider other eligible degree options.

A student who is denied approval to repeat a course in residence at the University will also be denied approval to complete the course by transfer, extension, correspondence, distance education, or credit by examination and then count it toward the degree.

A student in the Cockrell School may not repeat for a letter grade a course in which he or she has earned a grade of *C-* or better.

Attendance

Engineering students are expected to attend all meetings of the classes for which they are registered. Students who fail to attend class regularly are inviting scholastic difficulty. In some courses, instructors may have special attendance requirements; these should be made known to students during the first week of classes. With the approval of the dean, a student may be dropped from a course with a grade of *F* for repeated unexcused absences.

Portable Computing Devices

[~~The~~] All degree programs in the [~~following engineering fields Cockrell~~] School have specific expectations regarding portable computing devices. [~~:Aerospace Engineering, Architectural Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Electrical and Computer Engineering, Geosystems Engineering, Mechanical Engineering, and Petroleum Engineering~~] For more information, please see the catalog sections for these programs.

Academic Standards

In addition to the scholastic standards described in *General Information,* the Cockrell School imposes the following academic standards. Students who fail to meet the standards stated in *General Information* are placed on "scholastic probation" by the University. The probationary status given to those who fail to meet the following school standards is "engineering probation."

In cases with extenuating circumstances, the student may appeal to the dean for a waiver of any of the following requirements.

A student is placed on [~~academic~~] engineering probation [~~in engineering~~] under the following circumstances:

- If his or her grade point average in courses in the major area of study taken in residence falls below 2.00. The "major area of study" includes all courses in the student's discipline [~~(biomedical, chemical, electrical, mechanical, or petroleum and geosystems engineering)~~] and required under the student's engineering degree plan. For specific degree plans, there are additional courses included in the "major area of study:"
    - For architectural and civil engineering majors, the major area includes all courses in both architectural engineering and civil engineering;
    - [~~and~~] For environmental engineering majors, the major area includes all courses in architectural engineering, civil engineering and environmental engineering;

- [~~f~~] For aerospace engineering majors, the major area includes all courses in both aerospace engineering and engineering mechanics
- For computational engineering majors, the major area includes all courses in computational engineering, aerospace engineering and engineering mechanics;
- [~~for~~] For geosystems engineering and hydrogeology majors, the major area includes all courses in both geological sciences and petroleum and geosystems engineering.

- If the student's grade point average in required technical courses taken in residence falls below 2.00. "Required technical courses" are courses taken in the Cockrell School, the College of Natural Sciences, or the Jackson School of Geosciences and required under the student's engineering degree plan; they include approved technical elective courses.

Grades received at the University in all courses in the major area, including grades in courses that have been repeated, are included in computing the student's grade point average.

A student on engineering probation will be removed from probation at the end of a long-session semester or summer session if the student is no longer subject to engineering probation under either of the criteria above.

After being placed on engineering probation, a student must be removed from probation within the next two long-session semesters in which he or she is registered. A student who fails to be removed from engineering probation within this time will be placed on engineering dismissal from the school.

A student seeking to reenter the school after having been scholastically dismissed from the University must enroll as an undeclared major unless there is a reasonable likelihood that the student can complete the degree plan under which he or she last registered. A student seeking to reenter the school after having been dismissed from engineering must enroll as an undeclared major. Students who are undeclared majors may not enroll in engineering courses.

Any student having academic difficulty should discuss his or her status with an academic adviser in the Engineering Student Services Office. Call (512) 471-4321 to set up an appointment with an academic adviser.

Pass/Fail Option

{No change to this section}

Honors

University Honors

{No change to this section}

Graduation with University Honors

{No change to this section}

Cockrell School Honors Program

The Cockrell School of Engineering offers a select group of students the opportunity to participate in the Engineering Honors Program (EHP), a non-curriculum based program designed to enhance the undergraduate experience outside the classroom. Participants gain access to scholarships for first-year students, honors housing, faculty mentors and community building events hosted by [~~the University Honors Center and~~] the EHP

When submitting an admission application to the University through ApplyTexas, incoming first-year students should mark engineering as their first-choice major and indicate their intent to apply for honors. Students will receive additional instructions to complete the EHP application separately. Both the admission application and the EHP application are due December 1.

The Cockrell School also sends current students invitations to apply for the EHP after they complete 24 hours in residence and rank in the top 10 percent of their class and major. Eligible students must have at least 60 hours remaining in their degree program in order to receive an invitation to apply.

To remain in the EHP, students must maintain an in residence grade point average of at least 3.50. The grade point average is evaluated each year after grades for the spring and summer semester have been awarded.

An EHP student who completes an optional undergraduate honors thesis will receive special honors designation on his or her transcript and is recognized during the graduation ceremony. Additional information about the honors thesis and the EHP is available at http://www.engr.utexas.edu/undergraduate/services/honors.

Engineering Scholars

Engineering Scholars are designated each spring semester from the sophomore, junior, and senior classes. To be eligible, a student must be enrolled in the Cockrell School, must have completed at least twenty-four [~~24~~] semester hours of coursework in residence while enrolled in the school, must have a grade point average that places him or her in the top 5 percent of the class, be of good character, and show promise of continued success in engineering. The grade point average used to determine the student's class rank includes only courses that the student has completed in residence and that are applicable to the degree.

Professional and Honor Societies

Professional student organizations play an important role in the life of an engineering student. Many of these are student branches of national professional engineering organizations that endeavor to advance the profession of engineering by education, service, professional development, publication, and support of meetings, activities, and conferences. In addition to a variety of professional development and social activities, engineering student organizations frequently support projects that aid students and benefit the Cockrell School of Engineering, the University, and the community.

Honor societies are also an important part of the Cockrell School student community. Honor societies admit students who have established outstanding scholastic records and have demonstrated desirable character and leadership traits. The engineering honor societies are Alpha Eta Mu Beta (biomedical engineering); Chi Epsilon (civil engineering); Eta Kappa Nu (electrical and computer engineering); Omega Chi Epsilon (chemical engineering); Phi Alpha Epsilon (architectural engineering); Pi Epsilon Tau (petroleum and geosystems engineering); Pi Tau Sigma (mechanical engineering); and Sigma Gamma Tau (aerospace engineering); Tau Beta Pi selects top students from all engineering disciplines. [~~Only students in the upper fifth of the senior class or the upper eighth of the junior class, and a few graduate students qualify scholastically for Tau Beta Pi membership consideration. Generally, the chapter elects fewer members than the number of eligible students.~~] Kappa Theta Epsilon is the cooperative engineering education honor society for all engineering majors who participate in the cooperative engineering program. .[~~Students considered for membership must be enrolled in the cooperative engineering program and are in the top 20 percent of their class.~~]

The Student Engineering Council is the governing body representing all undergraduate engineering students. Representatives to the council are elected by the professional student organizations and honor societies in the Cockrell School; members-at-large are elected annually. The Graduate Engineering Council is the governing body representing all graduate engineering students.

Engineering student organizations and honor societies are overseen by Engineering Student Life. A complete list of engineering societies is available at http://www.engr.utexas.edu/studentlife/learn/.

DOCUMENTS OF THE GENERAL FACULTY

PROPOSED CHANGES TO THE ADMISSIONS AND REGISTRATION SECTION 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 Admission and Registration section in the Cockrell School of Engineering chapter in the *Undergraduate Catalog, 2018-2020*. The Degrees and Courses Committee approved the proposal 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 Provost on behalf of the President.

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

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.

15663

PROPOSED CHANGES TO THE ADMISSIONS AND REGISTRATION SECTION 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:

1. **Transfer admission** – language has remained the same and no changes have been made to procedures. This was edited to be comprehensible. First-semester engineering students have separate procedures and admission criteria compared to a continuing engineering student (internal transfer within the Cockrell School, after first semester added to clarify the criteria).
2. **External transfer** – incomplete admission applications are not considered therefore this statement is inaccurate.
3. **Guidelines for transfer** – removed "or the equivalent" as there is no equivalent to five semesters other than five semesters.

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:
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? NO
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 24, 2017	CSE Degrees and Courses Committee
College approval date:	September 18, 2017	CSE Faculty
Dean approval date:	September 18, 2017	Sharon L. Wood, Dean

PROPOSED NEW CATALOG TEXT:

ADMISSION AND REGISTRATION

Admission

Admission and readmission of undergraduate students to the University is the responsibility of the director of admissions. All students who wish to major in engineering must be admitted to the University according to the procedures given in *General Information*.

Information is available from The University of Texas at Austin, Engineering [~~Student Services~~] Education and Research Center (EER), Cockrell School of Engineering, [~~2407~~]-2501 Speedway, C2108, Austin TX 78712. The telephone number is (512) 471-4321.

Students who have questions about the requirements of a specific degree plan should contact the appropriate departmental advising office. Additional information about academic advising can be found at http://www.engr.utexas.edu/undergraduate/advising.

Freshman Admission

Freshman applicants seeking admission to the Cockrell School must meet the calculus readiness requirement by the official admissions application deadline. More information about calculus readiness is available at http://www.engr.utexas.edu/undergraduate/admission/calculus/.

Applicants to the Cockrell School should use the online application at http://www.applytexas.org/ and select engineering as a first-choice major. When selecting a second-choice major, freshman applicants may choose from one of the many other majors offered at the University, [~~but~~]-and [~~may are encouraged to~~] choose a second [~~engineering~~] major [~~when applying to the Cockrell School which~~] that aligns with their interests.

Transfer Admission

Internal Transfer

Internal transfer within the Cockrell School, first-semester engineering student

[~~An~~] A first-semester engineering student who wants to transfer to another major within the Cockrell School of Engineering must submit an application by the December 15 deadline for spring admission. [~~and the May 15 deadline for summer/fall admission~~] Students who are applying during their first semester enrolled must meet the following requirements to be eligible for consideration:

1. Completion of at least fourteen [~~14~~] semester hours of coursework in residence.
2. Successful [~~C~~] completion of Mathematics 408C, for a letter grade, or a subsequent calculus course, taken in residence.
3. Successful [~~C~~] completion of a second technical course in residence for a letter grade that counts toward the engineering degree. Technical courses include courses offered in math, physics, chemistry, biology, geology, or engineering.

[~~Engineering students who are applying after completing at least one semester must meet the requirements listed in the internal transfer from another division of the University section below.~~]

Internal transfer within the Cockrell School, after first semester

Engineering students who want to transfer to another major within the Cockrell School must submit an application by the May 15 deadline for summer/fall admission and the December 15 deadline for spring admission. Engineering students who are applying after completing at least one semester must meet the following requirements to be eligible for consideration:

1. Completion of at least twenty-eight semester hours of coursework in residence at the University.
2. A cumulative in-residence grade point average of at least 3.00.
3. Successful completion of Mathematics 408D, Physics 303K, and 103M for a letter grade or their equivalents.
4. Successful completion of a minimum of four technical courses in residence for a letter grade that count toward the engineering degree, including the mathematics and physics coursework listed above. Technical courses include courses offered in math, physics, chemistry, biology, geology, or engineering.

Internal transfer from another division of the University

A student may transfer to the Cockrell School of Engineering from another division of the University in accordance with the regulations given in *General Information*. All students must submit an internal transfer application by the May 15 deadline for summer/fall admission.

Internal transfer applicants must meet the following requirements to be eligible for consideration:

1. Completion of at least twenty-eight [~~28~~] semester hours of coursework in residence at the University.
2. A cumulative in-residence grade point average of at least 3.00.
3. Successful [~~C~~] completion of Mathematics 408D, Physics 303K, and 103M for a letter grade or their equivalents.
4. Successful [~~C~~] completion of a minimum of four technical courses in residence for a letter grade that count toward the engineering degree, including the mathematics and physics coursework listed above. Technical courses include courses offered in math, physics, chemistry, biology, geology, or engineering.

Additional information for all internal transfer applicants:

- Only currently enrolled students may apply.
- Students may apply during the semester they are completing the minimum requirements to be eligible for consideration.

- Application forms are available online at http://www.engr.utexas.edu/undergraduate/admissions/changeofmajor.
- Admission to all engineering majors is offered as space is available to the students who are best qualified. For equally qualified applicants, preference is given to the student who has completed more of the required technical courses for the requested major.

[~~Some degree programs may have additional admission considerations; these are described in the individual degree plans.~~]

External Transfer

External transfer applicants will be required to meet the following minimum criteria to be considered for admission to an engineering major:

- Transfer credit for Mathematics 408L, 408M, or 408D
- Transfer credit for Physics 303K and 103M
- Transfer credit for at least four technical courses, including the mathematics and physics coursework listed above. Technical courses include courses offered math, physics, chemistry, biology, geology, computer science, or engineering.

[~~Admission applications that are not complete by the March 1 deadline may be held to a higher admissions standard than those that are complete if enrollment limits are reached.~~]

Guidelines for Transfer Students

1. Students who wish to transfer to the University from another college or university must apply to the Office of Admissions as described in *General Information*. [~~Requirements for admission as a transfer student vary, but all~~] <u>All</u> transfer applicants must submit transcripts of all college and high school coursework.
2. Only courses listed in the student's engineering degree program, or equivalent courses accepted by the department chair and approved by the dean, may be counted toward an engineering degree. A course may therefore be accepted for transfer credit but not be applicable toward an engineering degree.
3. Courses that are common to all degree programs in the Cockrell School are listed in Requirements Included in All Engineering Degree Plans. These may be taken at any school offering courses acceptable for transfer to the University.
4. Completion of sequences of technical courses in the major area sometimes requires five or more semesters. Therefore, most transfer students should anticipate a minimum of five semesters [~~or the equivalent~~] in residence at the University.

Registration

General Information gives information about registration, adding and dropping courses, transfer from one division of the University to another, and auditing a course. The *Course Schedule,* published online before registration each semester and summer session, includes registration instructions, advising locations, and the times, places, and instructors of classes.

To register for a course, a student must fulfill the prerequisite given in the catalog or course schedule. If the student has not fulfilled the prerequisite, he or she must obtain the approval of the department offering the course before registering for it.

Concurrent Enrollment

Concurrent enrollment refers to taking courses through The University of Texas at Austin Extension (UEX) program, or taking courses at another university or a community college. An engineering student must have the approval of the dean for concurrent enrollment. Application for this approval should be made online at http://www.engr.utexas.edu/undergraduate/forms. A student may not enroll concurrently in any course counted toward the degree in the semester he or she will be graduating. More information about the approval

process is available in the Engineering Student Services located in the Engineering [~~Student Services Building~~] Education Research Center (EER[~~ESS~~]), by email at studentservices@engr.utexas.edu; or by phone at (512) 471-4321.

DOCUMENTS OF THE GENERAL FACULTY

PROPOSED CHANGES TO THE BIOMEDICAL 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 Biomedical Engineering Degree Program in the Cockrell School of Engineering chapter in the *Undergraduate Catalog, 2018-2020*. The Biomedical Engineering faculty approved the proposal on April 27, 2107; 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 Provost on behalf of the President.

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Alan W. Friedman

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

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15669

PROPOSED CHANGES TO THE BIOMEDICAL 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:

The following bulleted list describes each change made to the degree program document attached, with corresponding page numbers in parentheses. The changes in the degree plan for 2018-20 catalog are entirely focused on providing more options in the technical area elective requirements, with the exception of a few stylistic edits in the first few pages. No changes are proposed to courses required for all students in the major, and no changes are proposed to add requirements from outside of Biomedical Engineering. The rationale is to provide more technical elective options within Biomedical Engineering in order for students to complete the twelve semester credit hours of technical electives, and gain deeper knowledge and skills in technical areas that interest them and will prepare them for their chosen career tracks.

- **Portable Computing Devices:** *Minor grammatical and style editing*.
- **List of course requirements:**
  - **M 427J -** Math department has changed M427K to M427J, this change therefore reflects college-wide changes in course number.
  - **UGS 302 and 303 -** Clarification of writing flag options for sections of first-year signature courses.
- **Technical Area Options:**
  - **Introduction -** Addition of statement to require a minimum of six semester credit hours counting toward the twelve semester credit hours required for technical area electives must be taken in engineering, in response to fall 2016 ABET accreditor feedback. This statement is reiterated under each of the four areas as well.
  - **Preparation for health professions -** Minor style editing for consistency.
  - **Preparation for law -** Minor edits for consistency and to provide links to more information.
  - **Minors and certificate programs -** Minor style edits for consistency.
- **Technical Area 1, Biomedical Imaging and Instrumentation:**
  - **Introduction -** Addition of statement to require a minimum of six semester credit hours counting toward the twelve semester credit hours required for technical area electives must be taken in engineering, in response to fall 2016 ABET accreditor feedback.
  - **BME 350 addition -** Newly developed technical elective added to the list of BME options that count toward the requirement.
  - **BME 358 addition -** Technical elective added to the list of BME options that count toward the requirement.
- **Technical Area 2, Cellular and Biomolecular Engineering**
  - **Introduction -** Addition of statement to require a minimum of six semester credit hours counting toward the twelve semester credit hours required for technical area electives must be taken in engineering, in response to fall 2016 ABET accreditor feedback.
  - **Career Emphasis A: Biomaterials/Regenerative Medicine**

- **BME 359 addition -** Technical elective added to the list of BME options that count toward the technical area requirement in the Biomaterials/Regenerative Medicine career emphasis.
- **BME 366 addition -** Newly developed technical elective added to the list of BME options that count toward the technical area requirement in the Biomaterials/Regenerative Medicine career emphasis.
- **BME 373 addition -** Newly developed technical elective added to the list of BME options that count toward the technical area requirement in the Biomaterials/Regenerative Medicine career emphasis.
- **BME 375 addition -** Newly developed technical elective added to the list of BME options that count toward the technical area requirement in the Biomaterials/Regenerative Medicine career emphasis.

- **Career Emphasis B: Nanotechnology**
  - **BME 359 addition -** Technical elective added to the list of BME options that count toward the technical area requirement in the Nanotechnology career emphasis.
  - **CHE 322 removal -** Removal of elective option due to overlap in content with other new BME courses.

- **Technical Area 3, Computational Biomedical Engineering**
  - **Introduction -** Addition of statement to require a minimum of six semester credit hours counting toward the twelve semester credit hours required for technical area electives must be taken in engineering, in response to fall 2016 ABET accreditor feedback.
  - **BME 347 addition -** Technical elective added to the list of BME options that count toward the technical area requirement.
  - **BME 350 addition -** Newly developed technical elective added to the list of BME options that count toward the technical area requirement.
  - **BME 357 addition -** Technical elective added to the list of BME options that count toward the technical area requirement.
- **Technical Area 4, Biomechanics**
  - **Introduction -** Addition of statement to require a minimum of six semester credit hours counting toward the twelve semester credit hours required for technical area electives must be taken in engineering, in response to fall 2016 ABET accreditor feedback.
  - **BME 354 addition -** Technical elective added to the list of BME options that count toward the technical area requirement.
  - **BME 373 addition -** Newly developed technical elective added to the list of BME options that count toward the technical area requirement.
  - **ME 314D edit -** Mechanical Engineering has changed the course number for this course from 324 to 314D.
  - **ME 326 removal -** Removal of elective option due to overlap in content with other new BME courses.
- **Suggested arrangement of courses -** Math department has changed M427K to M427J, this change therefore reflects college-wide changes in course number.

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:
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?
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:	April 27, 2017	Biomedical Engineering Faculty
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 BIOMEDICAL ENGINEERING

The mission of the Department of Biomedical Engineering is to develop clinically translatable solutions for human health by training the next generation of biomedical engineers, cultivating leaders, and nurturing the integration of science, engineering, and medicine in a discovery-centered environment. The main educational objective is to provide a thorough training in the fundamentals of engineering science, design, and biology. The curriculum is designed to provide concepts central to understanding living systems from the molecular and cellular levels to the tissue and organismal levels. The curriculum incorporates principles of vertical integration, leading to the choice of a technical area (biomedical imaging and instrumentation, cellular and biomolecular engineering, computational biomedical engineering, or biomechanics), and culminates in a team capstone design experience. Students are expected to develop an understanding of industrial, research, and clinical biomedical engineering environments; an understanding of regulatory issues and biomedical ethics; the ability to create, identify, formulate, and solve biomedical engineering problems; the ability to design systems to meet needs in medical/life science applications; an understanding of life processes at the molecular, cellular, tissue, and organismal levels; the ability to use instrumentation and to make measurements and interpret data in living systems; and an appreciation of the interdisciplinary nature of biomedical engineering research.

Portable Computing Devices

Students entering biomedical engineering are required to have a laptop computer [~~at their disposal~~]. Laptops do not need to be brought to campus on a daily basis, but individual courses may require that a laptop be brought to certain lectures, labs, and/or exams. Minimum requirements for the laptop are listed on the department's website.

Student Outcomes

Graduates of the biomedical engineering program are expected to have:

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 what impact engineering solutions have in global, economic, environmental, and societal contexts
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

Program Educational Objectives

Achievement of the preceding program outcomes gives students the foundation for accomplishing the biomedical engineering program educational objectives. A few years after graduation, students are expected to be able to:

1. Conduct themselves with exemplary professional ethics and highest integrity
2. Demonstrate a quantitative, analytical, and systems approach to problem solving in their professional practice
3. Demonstrate a continuous quest for professional excellence and success
4. Participate in continuing education to expand their knowledge of contemporary professional issues
5. Exhibit effective scientific, technical, communication, and resource management skills in their professional practice

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 the two 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.

Prior to registration, students must receive approval from the Biomedical Engineering Academic Advising Office for courses to be used to fulfill technical and nontechnical course requirements. 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, except for those listed as Remaining Core Curriculum Courses.

Requirements		Hours
Biomedical Engineering Courses		
BME 214L	Computational Fundamentals of Biomedical Engineering Design	2
BME 245L	Experimental Principles of Biomedical Engineering Design	2
BME 261L	Development and Analysis in Biomedical Engineering Design	2
BME 303	Introduction to Computing	3
BME 303L	Introduction to Biomedical Engineering Design	3
BME 311	Network Analysis in Biomedical Engineering	3
BME 313L	Introduction to Numerical Methods in Biomedical Engineering	3
BME 333T	Engineering Communication (writing and an ethics and leadership flag)	3
BME 335	Engineering Probability and Statistics	3
BME 343	Biomedical Engineering Signal and Systems Analysis	3
BME 344	Biomechanics	3
BME 349	Biomedical Instrumentation	3
BME 352	Engineering Biomaterials	3
BME 353	Transport Phenomena in Living Systems	3
BME 355	Molecular Engineering	3
BME 365R	Quantitative Engineering Physiology I	3
BME 365S	Quantitative Engineering Physiology II	3
BME 370	Biomedical Engineering Capstone Design I (writing flag)	3
BME 371	Biomedical Engineering Capstone Design II (independent inquiry flag)	3
Approved technical area elective		12
Biology		
BIO 206L	Introductory Laboratory Experiments in Biology	2
BIO 311C	Introductory Biology I	3
Biochemistry and Chemistry		
BCH 369	Fundamentals of Biochemistry	3
CH 128K	Organic Chemistry Laboratory	1
CH 301	Principles of Chemistry I	3
CH 302	Principles of Chemistry II	3
CH 204	Introduction to Chemical Practice	2
CH 320M	Organic Chemistry I	3

or CH 328M	Organic Chemistry I	
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~~]	
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
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 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)	
Minimum Required		**133**

{A new Integrated BSBME/MSE program will inserted here if endorsed by the Committee on Undergraduate Degree Program Review (CUDPR)}

Technical Area Options

The technical area option allows the student to build on the biomedical engineering core curriculum by choosing twelve semester hours of technical area coursework. A minimum of six semester hours of the twelve semester hours of technical area coursework must be taken within engineering. Students choose coursework in one of four areas: biomedical imaging and instrumentation[~~,~~]; cellular and biomolecular engineering~~,~~; computational biomedical engineering~~,~~; or biomechanics. Within some technical areas, career emphases are available for students to focus coursework toward a particular career track. Students have flexibility to take

technical elective coursework from more than one career emphasis under the same technical area. Each student should choose a technical area by the end of the sophomore year and plan an academic program to meet the area requirements during the next two years.

Preparation for health professions. Students who plan to attend medical, veterinary, or dental school in Texas must complete coursework in addition to that required for the BS in Biomedical Engineering in order to meet professional school admission requirements; those who plan to attend schools outside Texas may need additional coursework. The student is responsible for knowing and meeting these additional requirements, but assistance and information are available [~~from full-time pre-health professions coaches and part-time peer mentors~~] in the Health Professions Office in the College of Natural Sciences, PAI 5.03. Additional information about preparation for health professions is available online at http://cns.utexas.edu/careers/health-professions/.

Preparation for law. There is no sequential arrangement of courses prescribed for a pre-law program. The Association of American Law Schools puts special emphasis on comprehension and expression in words, critical understanding of the human institutions and values with which the law deals, and analytical power in thinking. Courses relevant to these objectives deal with communication of ideas, logic, mathematics, social sciences, history, philosophy, and the physical sciences. Services for pre-law students are provided to students in all colleges by Liberal Arts Career Services (LACS) in FAC 18, and to engineering students by the Engineering Career Assistance Center (ECAC) in ECJ 3.256. Additional information about preparation for law is available online at http://liberalarts.utexas.edu/lacs/students/prelaw-gradschool/prelaw.php.

Plan II Honors Program. Students enrolled in the Plan II Honors Program are encouraged to contact the Biomedical Engineering Academic Advising Office, in addition to the Plan II Office to ensure that requirements for both programs are met. Plan II courses may count toward biomedical engineering program requirements.

Minors and Certificate programs. Biomedical engineering students may enrich their education through minors and certificate programs. For a full list please see Minor and Certificate Programs.

Common examples of certificates completed by Biomedical engineering students are as follows:

Business Minor. Students who wish to learn about fundamental business concepts and practices may take supplemental coursework that leads to the Business Minor, awarded by the Red McCombs School of Business. The program is described in the Minor and Certificate Programs section in the McCombs School.

Business of Healthcare Certificate. The Red McCombs School of Business offers this certificate to prepare students for the unique challenges and opportunities in the field of healthcare. The program is described in the Minor and Certificate Programs section in the McCombs School.

Elements of Computing. Students who wish to learn about computer science may take the coursework that leads to the certificate in the Elements of Computing, awarded by the Department of Computer Science. The program is described in the Minor and Certificate Programs section of the College of Natural Science. [~~More information about the Elements of Computing Program is available at https://www.cs.utexas.edu/undergraduate-program/academics/elements-computing, and from the Department of Computer Science.~~]

Pre-Health Professions Certificate. This certificate provides majors outside of the College of Natural Sciences [~~(CNS)~~] access to the courses required to complete health professions prerequisites. The program is described in the Minor and Certificate Programs section of the College of Natural Science. [~~The certificate description and application are available at https://cns.utexas.edu/pre-health-professions-certificate from the CNS Health Professions Office.~~]

Bridging Disciplines Programs. These interdisciplinary programs offer students the opportunity to develop skills to collaborate across disciplines and cultures. The programs are listed and described in the Minor and Certificate Programs section in the School of Undergraduate Studies.

Technical Area 1, Biomedical Imaging and Instrumentation

This technical area is designed for students interested in the general area of medical imaging science and instrumentation design. Two career emphases are available in this area: biomedical imaging and biomedical instrumentation. Students are required to select twelve semester hours from any of the Technical Area 1 electives; six of the twelve hours must be within engineering.

Career Emphasis A: Biomedical Imaging. The main objective of this emphasis is to prepare students for a career in biomedical imaging. A solid foundation, practical knowledge, and skills are established in optics, imaging modalities, and image and signal processing.
While students are required to select twelve [~~12~~] hours from any of the Technical Area 1 electives, the following are recommended for the biomedical imaging career emphasis:

Biomedical Engineering 347, *Fundamentals of Biomedical Optics*
Biomedical Engineering 350, *Computational Methods for Biomedical Engineers*
Biomedical Engineering 357, *Biomedical Imaging Modalities*
Biomedical Engineering 358, *Medical Decision Making*
Electrical Engineering 347, *Modern Optics*
Electrical Engineering 351M, *Digital Signal Processing*
Electrical Engineering 371R, *Digital Image and Video Processing*
An approved upper-division biomedical engineering, electrical engineering, or physics course

Career Emphasis B: Biomedical Instrumentation. The main objective of this emphasis is to prepare students to design and use biomedical instrumentation for imaging, diagnostic, and therapeutic applications. A solid foundation, practical knowledge, and skills are established in analog and digital network analysis, software and hardware programming, electronic circuits, sensors, data acquisition systems, image and signal processing, and computational analysis of data as it applies to living systems.

While students are required to select twelve [~~12~~] hours from any of the Technical Area 1 course options, the following are recommended for the biomedical instrumentation career emphasis:

Biomedical Engineering 354, *Molecular Sensors and Nanodevices for Biomedical Engineering Applications*
Biomedical Engineering 374K, *Biomedical Instrument Design*
Biomedical Engineering 374L, *Applications of Biomedical Instrumentation Lab*
Electrical Engineering 312, *Software Design and Implementation I*
Electrical Engineering 319K, *Introduction to Embedded Systems*
Electrical Engineering 438, *Fundamentals of Electronic Circuits I Laboratory*
Electrical Engineering 445L, *Embedded Systems Design Laboratory*
Electrical Engineering 445M, *Embedded and Real-Time Systems Laboratory*
Electrical Engineering 445S, *Real-Time Digital Signal Processing Laboratory*
Electrical Engineering 351M, *Digital Signal Processing*

Technical Area 2, Cellular and Biomolecular Engineering

The major objective of this area is to teach students how to integrate knowledge in cell and molecular biology with engineering analysis, so that they can address problems in molecular-based medicine. Two career emphases are available in this area: biomaterials/regenerative medicine and nanotechnology. Students are required to select twelve semester hours from any of the Technical Area 2 electives; six of the twelve hours must be within engineering.

Career Emphasis A: Biomaterials/Regenerative Medicine. The objective of this emphasis is to prepare students for a career in biomaterials and regenerative medicine engineering. This emphasis includes solid foundation in cell and tissue engineering, biomaterials, and pharmacology. While students are required to select twelve [~~12~~] hours from any of the Technical Area 2 course options, the following are recommended for the biomaterials/regenerative medicine career emphasis:

Biology 320, *Cell Biology*
Biology 325, *Genetics*
Biology 326M, *Introductory Medical Microbiology and Immunology*
Biomedical Engineering 339, *Biochemical Engineering*
Biomedical Engineering 359, *Cellular and Molecular Biomechanics*
Biomedical Engineering 366, *Immune Engineering*
Biomedical Engineering 373, *Tissue, Scaffold and Cell Biomechanics Applications*
Biomedical Engineering 375, *Stem Cells in Cell and Tissue Engineering*
Biomedical Engineering 376, *Cell Engineering*
Biomedical Engineering 379, *Tissue Engineering*
An approved topic of Chemical Engineering 379, *Topics in Chemical Engineering*
Chemistry 320N, *Organic Chemistry II* and 220C, *Organic Chemistry Laboratory*; or 328N, *Organic Chemistry II* and 128L, *Organic Chemistry Laboratory*
Pharmacy PharmD 338, *Introduction to Pharmacology*
An approved upper-division biomedical engineering, chemical engineering or mechanical engineering course

Career Emphasis B: Nanotechnology. The objective of this emphasis is to prepare students for a career in nanotechnology. This emphasis includes solid foundation in nanodevices and sensors, biological physics, and nanocomposites. While students are required to select twelve [~~12~~] hours from any of the Technical Area 2 course options, the following are recommended for the nanotechnology career emphasis:

Biomedical Engineering 346, *Computational Biomolecular Engineering*
Biomedical Engineering 354, *Molecular Sensors and Nanodevices for Biomedical Engineering Applications*
Biomedical Engineering 359, *Cellular and Molecular Biomechanics*
~~[Chemical Engineering 322, *Thermodynamics*]~~
Chemical Engineering 339P, *Introduction to Biological Physics*
An approved topic of Chemical Engineering 379, *Topics in Chemical Engineering*
Chemistry 320N, *Organic Chemistry II* and 220C, *Organic Chemistry Laboratory*; or 328N, *Organic Chemistry II* and 128L, *Organic Chemistry Laboratory*
An approved topic of Mechanical Engineering 379M, *Topics in Mechanical Engineering*
An approved upper-division biomedical engineering, chemical engineering or mechanical engineering course

Technical Area 3, Computational Biomedical Engineering

The objective of this area is to provide students with the knowledge and skills that will enable them to design and use computational algorithms to address problems in biomedical research and health care. Examples include (a) designing medical decision aids using statistical and machine learning models, (b) dynamic modeling and computer simulation to study the biomechanics and control of movement, (c) development of thermodynamic models of dynamic processes at the microscopic and macroscopic scales in biological systems, and (d) image processing techniques for quantitative measurement and interpretation of biomedical images.

Students must select twelve [~~12~~] hours from the following; six of the twelve hours must be within engineering:

Biomedical Engineering 345, *Graphics and Visualization Laboratory*
Biomedical Engineering 346, *Computational Biomolecular Engineering*
Biomedical Engineering 347, *Fundamentals of Biomedical Optics*
Biomedical Engineering 348, *Modeling of Biomedical Engineering Systems*
Biomedical Engineering 350, *Computational Methods for Biomedical Engineers*
Biomedical Engineering 357, *Biomedical Imaging Modalities*
Biomedical Engineering 358, *Medical Decision Making*
Electrical Engineering 312, *Software Design and Implementation I*
Electrical Engineering 319K, *Introduction to Embedded Systems*

Electrical Engineering 422C, *Software Design and Implementation II*
Electrical Engineering 360C, *Algorithms*
Electrical Engineering 371R, *Digital Image and Video Processing*
Mathematics 325K, *Discrete Mathematics*
Mathematics 340L, *Matrices and Matrix Calculations*
A computer science course from an approved list

Technical Area 4, Biomechanics

The major objective of this area is to provide students with knowledge of the structure and function of biological systems by means of the methods of mechanics. Students will learn skills to apply engineering principles to understand how living systems function at all scales of organization and to translate this understanding to the design of devices and procedures that will improve diagnostic and therapeutic methods in health care.

Students must select twelve [~~12~~] hours from the following; six of the twelve hours must be within engineering:

Biomedical Engineering 342, *Biomechanics of Human Movement*
Biomedical Engineering 346, *Computational Biomolecular Engineering*
Biomedical Engineering 347, *Fundamentals of Biomedical Optics*
Biomedical Engineering 354, *Molecular Sensors and Nanodevices for Biomedical Engineering Applications*
Biomedical Engineering 359, *Cellular and Molecular Biomechanics*
Biomedical Engineering 362, *Introduction to Nonlinear Dynamics in Biological Systems*
Biomedical Engineering 373, *Tissue, Scaffold and Cell Biomechanics Applications*
Chemical Engineering 339P, *Introduction to Biological Physics*
Kinesiology 326K, *Biomechanical Analysis of Movement*
Mechanical Engineering 314D[~~324~~], *Dynamics*
[~~Mechanical Engineering 326, *Thermodynamics*~~]
Mechanical Engineering 344, *Dynamic Systems and Controls* and 144L, *Dynamic Systems and Controls Laboratory*
Mechanical Engineering 354, *Introduction to Biomechanical Engineering*
Mechanical Engineering 372J, *Robotics and Automation*
An approved upper-division biomedical engineering or mechanical engineering course

SUGGESTED ARRANGEMENT OF COURSES

First Year

First Term	Hours	**Second Term**	Hours
BIO 311C	3	BME 303	3
BME 303L	3	CH 302	3
UGS 302 or 303	3	CH 204	2
BIO 206L	2	M 408D	4
CH 301	3	PHY 303K	3
M 408C	4	PHY 103M	1
		RHE 306	3
	18		19

Second Year

First Term	Hours	**Second Term**	Hours
BME 214L	2	BME 333T	3
CH 320M or 328M	3	BME 313L	3
CH 128K	1	BME 344	3
BME 311	3	BME 335	3
M 427J [~~or 427K~~]	4	BCH 369	3
PHY 303L	3		
PHY 103N	1		
	17		15

Third Year

First Term	Hours	**Second Term**	Hours
BME 245L	2	BME 261L	2
BME 343	3	BME 355	3
BME 352	3	BME 349	3
BME 365R	3	BME 365S	3
E 316L, 316M, 316N, or 316P	3	Technical area elective	3
Technical area elective	3	BME 353	3
	17		17

Fourth Year

First Term	Hours	**Second Term**	Hours
BME 370	3	BME 371	3
GOV 310L	3	GOV 312L or 312P	3
Technical area elective	3	Visual and performing arts	3
American history	3	Technical area elective	3
Social and behavioral sciences	3	American history	3
	15		15

Total credit hours: 133

DOCUMENTS OF THE GENERAL FACULTY

PROPOSED CHANGES TO THE COMPUTATIONAL 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 Computational Engineering Degree Program in the Cockrell School of Engineering chapter in the *Undergraduate Catalog, 2018-2020*. The Computational Engineering faculty approved the proposal on April 27, 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 Provost on behalf of the President.

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

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.

15681

PROPOSED CHANGES TO THE COMPUTATIONAL 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:

Deleted the 'Design systems…' bullet-point from the Program Educational Objectives to better reflect the implementation of the degree program.

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.

Degree requirement updates (reflected in the 'Requirements' section and the 'Suggested Arrangement of Courses') that will not require inventory updates: 1) remove COE 111L from required coursework-- the content of this course will be moved to a new course added as COE 322 and outlined below; 2) remove SDS 322 from required coursework and change to an optional substitute for COE 322 outlined below; 3) remove SDS 329C from required coursework; 4) remove COE 373 from required coursework—the intention of this class will be covered in a new course added as COE 332 and outlined below; and 5) add three hours of technical elective coursework.

Inventory updates (reflected in the 'Requirements' section and the 'Suggested Arrangement of Courses') already submitted for fall 2017 and spring 2018: 1) changed ASE 321K to COE 321K to reflect the content of the coursework that is more Computational than Aerospace-related; 2) changed ASE 347 to COE 347 to reflect the content of coursework that is more Computational than Aerospace-related; and 3) changed ME 320 to ME 310T to reflect the inventory change that was completed by the Department of Mechanical Engineering in fall 2016.

Inventory updates (reflected in the 'Requirements' section and the 'Suggested Arrangement of Courses') planned to be submitted for fall 2018: 1) Change COE 211K to 311K (two-hour to three-hour) in order to reflect the actual coursework and teaching hours needed for the course content; 2) Add COE 322 (Intro to Scientific Computation)—this course will take the place of SDS 322 in degree requirements (although SDS 322 will also still be allowed to count as a substitute for COE 322) and will be designed alongside TACC to incorporate content once covered in COE 111L as well as new content in data structures; and 3) Add COE 332 (Software Design)—this course will offer three hours of design in software engineering.

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 admission requirements (external or internal)
☐ Change in course sequencing for an existing program
☐ Requirements not explicit in the catalog language (e.g., lists of acceptable courses maintained by department office)
☒ Courses that have to be added to the inventory

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:
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? NO
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
College approval date:	May 24, 2017	CSE Degrees & Courses Committee
Dean approval date:	September 18, 2017	CSE Faculty and Sharon L. Wood, Dean

PROPOSED NEW CATALOG TEXT:

BACHELOR OF SCIENCE IN COMPUTATIONAL ENGINEERING

{No changes up to this point.}

Program Educational Objectives

Within a few years of graduation, computational engineering graduates should:

- Contribute to the economic development of Texas and beyond through the ethical practice of computational engineering in industry and public service
- Exhibit leadership in technical or business activity through engineering ability, communication skills, and knowledge of contemporary and global issues
- Continue to educate themselves through professional study and personal research
- Be prepared for admission to, and to excel in, the best graduate programs in the world
- [~~Design systems to collect, encode, store, transmit, and process energy and information, and to evaluate system performance, either individually or in teams~~]
- Use their engineering ability and creative potential to create technology that will improve the quality of life in society

Portable Computing Devices

Students entering computational 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 computational 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**
Computational Engineering Courses		
[~~COE 111L~~	~~Engineering Computation Laboratory~~	~~1~~]
COE [~~211K~~] 311K	Engineering Computation	3 [~~2~~]
COE 301	Introduction to Computer Programming	3
COE 321K	Computational Methods for Structural Analysis	3

COE 322	Intro to Scientific Computation	3
COE 332	Software Engineering	3
COE 347	Introduction to Computational Fluid Dynamics	3
COE 352	Advanced Scientific Computation	3
COE 371	Applied Mathematics I	3
COE 372	Applied Mathematics II	3
[~~COE 373~~	~~Systems Engineering Design~~	~~3~~]
COE 374	Senior Design Project (writing flag and independent inquiry flag)	3
Aerospace Engineering		
ASE 320	Low-Speed Aerodynamics	3
[~~ASE 321K~~	~~Computational Methods for Structural Analysis~~	~~3~~]
ASE 330M	Linear System Analysis	3
ASE 333T	Engineering Communication (writing flag and ethics and leadership flag)	3
[~~ASE 347~~	~~Introduction to Computational Fluid Dynamics~~	~~3~~]
ASE 375	Electromechanical Systems	3
Chemistry		
CH 301	Principles of Chemistry I (part II science and technology)	3
Engineering Mechanics		
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
M 362K	Probability I	3
Mechanical Engineering Courses		
M E 210	Engineering Design Graphics	2
M E [~~320~~] 310T	Applied Thermodynamics	3
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
Other required courses		
Approved technical electives		9 [~~6~~]
[~~SDS 322~~	~~Introduction to Scientific Programming~~	~~3~~]
[~~SDS 329C~~	~~Practical Linear Algebra I~~	~~3~~]
Rhetoric and Writing		
RHE 306	Rhetoric and Writing (English composition)	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 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		122

SUGGESTED ARRANGEMENT OF COURSES

First Year

First Term	Hours	**Second Term**	Hours
UGS 302 or 303	3	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~~] ME 210	2 [~~3~~]
		American history	3
	16		16 [~~17~~]

Second Year

First Term	Hours	Second Term	Hours
E M 306	3	COE [~~211K~~] 311K	3 [~~2~~]
M 427J or 427K	4	[~~COE 111L~~]	[~~1~~]
PHY 303L	3	E M 311M	3
PHY 103N	1	[~~E M 319~~] COE 332	3
[~~M E 210~~] COE 322	3 [~~2~~]	M 427L	4
M E 310T	3	[~~ASE 333T~~] American and Texas government	3
	17 [~~16~~]		16

Third Year

First Term	Hours	Second Term	Hours
ASE 320	3	[~~ASE~~] COE 321K	3
[~~ASE 330M~~] COE 352	3	~~ASE~~ COE 347	3
M 362K	3	[~~SDS 322~~] ASE 330M	3
[~~SDS 329C~~] E M 319	3	[~~American and Texas government~~] E 316L, 316M, 316N, or 316P	3
[~~E 316L, 316M, 316N, or 316P~~] ASE 333T	3	[~~Social and behavioral sciences or visual and performing arts~~] Technical elective	3
	15		15

Fourth Year

First Term	Hours	Second Term	Hours
ASE 375	3	COE 372	3
[~~COE 352~~] Social and behavioral sciences or visual and performing arts	3	COE 374	3
COE 371	3	American history	3
[~~COE 373~~] American and Texas government	3	Technical elective	3
Technical elective	3		
	15		12

Total credit hours: 122

DOCUMENTS OF THE GENERAL FACULTY

PROPOSED CHANGES TO THE DEGREES AND PROGRAMS SECTION 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 Degrees and Programs section in the Cockrell School of Engineering chapter in the *Undergraduate Catalog, 2018-2020*. The Degrees and Courses Committee approved the proposal 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 Provost on behalf of the President.

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

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.

15688

PROPOSED CHANGES TO THE DEGREES AND PROGRAMS SECTION 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:

1. **Simultaneous major** – Clarification that the simultaneous major option is only available to undergraduates who have been admitted to both degree programs denoted.
2. **Correspondence and extension courses** – wording was not clear so the phrase, "in residence [or through distance ed] at another school" has been removed to avoid confusion.
3. **Requirements included in all engineering degree plans** – there is more emphasis on flag requirements and students are encouraged to complete flags early in academic career.

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:
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? NO
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 24, 2017	CSE Degrees and Courses Committee
College approval date:	September 18, 2017	CSE Faculty
Dean approval date:	September 18, 2017	Sharon L. Wood, Dean

PROPOSED NEW CATALOG TEXT:

DEGREES AND PROGRAMS

{No change to this section}

Dual Degree Programs

Engineering/Plan II Honors Program

A limited number of students whose high school class standing and admission test scores indicate strong academic potential and motivation may pursue a curriculum leading to both a bachelor's degree in engineering and the Bachelor of Arts, Plan II. This dual degree option, offered jointly by the Cockrell School and the Plan II Honors Program of the College of Liberal Arts, provides the student with challenging liberal arts courses while he or she also pursues a professional degree in engineering. Admission to this program requires at least two separate applications: one to the University and one to the Plan II Honors Program. Students should contact both the Cockrell School Engineering Student Services Office, located in the Engineering Education and Research Center [~~Student Services Building~~] (EER[~~SS~~]), and the Plan II office, located in the Liberal Arts Building (CLA), for more information on applications and early deadlines.

Architectural Engineering/Architecture

{No change to this section}

Simultaneous Majors

An engineering student may pursue two majors simultaneously. The student must follow all procedures and meet all requirements associated with both majors. An engineering student may not pursue two engineering majors simultaneously.

The simultaneous major option is available only to undergraduates who have been admitted to both degree programs. [~~completed 30 hours of coursework in residence at the University and who have been admitted to both degree programs.~~]

Technical Area Options

{No change to this section}

Preparation for Professional School

{No change to this section}

Medical School

{No change to this section}

Dental School

{No change to this section}

Law School

Each year a few graduates, representing all engineering disciplines, elect to enter law school, where they find their training in careful and objective analysis is a distinct asset. Many of these students are preparing for careers in patent or corporate law that will enable them to draw on their combined knowledge of engineering and law. Others may not plan to use their engineering knowledge directly, but they still find that the discipline in logical reasoning acquired in an engineering education provides excellent preparation for the study of law. Students interested in admission to the law school of the University should consult the *Law School Catalog*. Students interested in pursuing law school outside of the University may utilize pre-law services of the Liberal Arts Career Service Center. In addition, the Engineering Career Assistance Center (ECAC) provides pre-law advising.

Graduate Study in Business

Since many engineering graduates advance rapidly into positions of administrative responsibility, it is not surprising that they often elect to do graduate work in the area of business administration. In addition to an understanding of the technical aspects of manufacturing, the engineer has the facility with mathematics to master the quantitative methods of modern business administration.

Requirements for admission to the University's graduate business programs are outlined in the *Graduate Catalog*. Many engineering degree programs offer technical area options that include business and management courses. These can be used with advantage by students who plan to do graduate-level work in business. Students interested in pursuing a graduate business program outside of the University may utilize the Engineering Career Assistance Center (ECAC) for career advising.

ABET Criteria

To be accredited by the Engineering Accreditation Commission of ABET, a degree plan of the Cockrell School must include the following:

1. One year of a combination of college level mathematics and basic sciences (some with experimental experience) appropriate to the discipline. Basic sciences are defined as biological, chemical, and physical sciences.
2. One and one-half years of engineering topics, consisting of engineering sciences and engineering design appropriate to the student's field of study. The engineering sciences have their roots in mathematics and basic sciences but carry knowledge further toward creative application. These studies provide a bridge between mathematics and basic sciences on the one hand and engineering practice on the other. Engineering design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process (often iterative), in which the basic sciences, mathematics, and the engineering sciences are applied to convert resources optimally to meet these stated needs.

3. A general education component that complements the technical content of the curriculum and is consistent with the program and institution objectives.

Students must be prepared for engineering practice through a curriculum culminating in a major design experience based on the knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints.

Here, one year is defined as either thirty-two [~~32~~] semester hours (or equivalent), or one-fourth of the total credits required for graduation, whichever is lesser.

Liberal Education of Engineers

Each student must complete the University's Core Curriculum. The core curriculum includes the first-year signature course and courses in English composition, American and Texas government, American history, mathematics, science and technology, visual and performing arts, humanities, and social and behavioral sciences. It must be an integral part of all engineering degree programs, so that engineering graduates will be aware of their social responsibilities and the effects of technology on society. The University of Texas at Austin believes every undergraduate should be exposed to a set of skills and experiences in preparation for a complex world. To this end, all undergraduates at UT are required to earn Flags—courses that include a substantial focus on cultural diversity in the U.S., ethics and leadership, global cultures, independent inquiry, quantitative reasoning, and writing.

With the appropriate selection of courses, the University's [~~core~~] Core Curriculum, Flags, and ABET general education requirements can be satisfied simultaneously.

Social and Behavioral Sciences Requirement

As part of the University's [~~core~~] Core [~~curriculum~~] Curriculum, each student must complete three semester hours of coursework in social and behavioral sciences. Additionally, the Core Curriculum social and behavioral science course may be satisfied simultaneously for flag requirement(s) as well as coursework in a potential minor and certificate program. [~~Students preparing for the professional practice of engineering are encouraged to select coursework in economics to fulfill this requirement.~~]

Visual and Performing Arts Requirement

As part of the University's Core Curriculum, each student must complete three semester hours of coursework in visual and performing arts. Architectural engineering majors must take an approved architectural history course as part of the Bachelor of Science in Architectural Engineering requirement. This course (or its prerequisite) will fulfill the visual and performing arts requirement of the Core Curriculum. Additionally, the Core Curriculum visual and performing arts course may be satisfied simultaneously for flag requirement(s) as well as coursework in a potential minor and certificate program.

Foreign Language Requirement

{No change to this section}

Applicability of Certain Courses

Physical Activity Courses

{No change to this section}

ROTC Courses

{No change to this section}

Correspondence and Extension Courses

Credit that a University student in residence earns simultaneously by UT Austin correspondence/extension [~~from the university~~] or elsewhere [~~or in residence~~] or through distance education at another school will not be counted toward a degree in the Cockrell School unless specifically approved in advance by the dean. Application for this approval should be made online or at the Engineering Student Services Office, located in the Engineering [~~Student Services Building~~] Education and Research Center (EER[~~ESS~~]). No more than twenty [~~20~~] semester hours required for any degree offered in the Cockrell School may be taken by correspondence and extension.

Requirements Included in All Engineering Degree Plans

Each student must complete the University's Core Curriculum. In the process of fulfilling engineering degree requirements, students must also complete: 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 at least one writing flag are carried by courses specifically required for each engineering degree plan. As applicable, students are advised to fulfill the second writing flag and global culture and cultural diversity requirements with a course that meets another requirement of the core curriculum, such as the first-year signature course. Students are encouraged to complete flag requirements within the first and second year of their degree program. Additionally, students are encouraged to discuss options with his or her departmental academic adviser. Courses that may be used to fulfill flag requirements are identified in the *Course Schedule*.

In addition, students in all engineering degree plans must complete the following requirements. 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.

Courses	Sem Hrs
Engineering Communication	
• Aerospace Engineering 333T, Biomedical Engineering 333T, Chemical Engineering 333T, Civil Engineering 333T, Electrical Engineering 333T, Mechanical Engineering 333T, or Petroleum and Geosystems Engineering 333T (This course may also be counted toward the writing flag requirement. This course may also be counted toward the ethics and leadership flag requirement.)	3
Mathematics	
• Mathematics 408C, *Differential and Integral Calculus* (This course may also be used to fulfill the mathematics requirement of the core curriculum and the quantitative reasoning flag requirement.)	4
• Mathematics 408D, *Sequences, Series, and Multivariable Calculus*	4
• Mathematics 427J, *Differential Equations with Linear Algebra* or Mathematics 427K, *Advanced Calculus for Applications I*. This course may also be used to fulfill the quantitative reasoning flag requirement.)	4
Physics	
• Physics 303K, *Engineering Physics I* (This course may also be counted toward the science and technology, part I, requirement of the core curriculum and the quantitative reasoning flag requirement.)	3
• Physics 103M, *Laboratory for Physics 303K*	1
• Physics 303L, *Engineering Physics II* (This course may also be counted toward the science	3

and technology, part I, requirement of the core curriculum and the quantitative reasoning flag requirement.)	
• Physics 103N, *Laboratory for Physics 303L*	1

Length of Degree Program

An eight-semester arrangement of courses leading to the bachelor's degree is given for each of the engineering degree plans. The exact order in which the courses are taken is not critical, as long as the prerequisite for each course is fulfilled. A student who registers for fewer than the indicated number of hours each semester will need more than eight semesters to complete the degree. The student is responsible for including in each semester's work any courses that are prerequisite to those he or she will take the following semester.

[~~The first three semesters of all curricula contain many of the same courses. This commonality gives students some freedom to change degree plans without undue loss of credit.~~]

DOCUMENTS OF THE GENERAL FACULTY

PROPOSED CHANGES TO THE GRADUATION SECTION 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 Graduation section in the Cockrell School of Engineering chapter in the *Undergraduate Catalog, 2018-2020*. The Degrees and Courses Committee approved the proposal 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 Provost on behalf of the President.

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

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.

15695

PROPOSED CHANGES TO THE GRADUATION SECTION 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:

1. **Applying for graduation** – University has implemented auto-grad procedures which voided current graduation language.
2. **Final degree audit** – The University has implemented auto-grad procedures which voided current graduation language.
3. **Commencement** – The Cockrell School will no longer participate in fall (December) commencement.

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:
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? NO
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 24, 2017	CSE Degrees and Courses Committee
College approval date:	September 18, 2017	CSE Faculty
Dean approval date:	September 18, 2017	Sharon L. Wood, Dean

PROPOSED NEW CATALOG TEXT:

GRADUATION

Special Requirements of the School

All University students must have a grade point average of at least 2.00 to graduate. Students in the Cockrell School must also have an in residence grade point average of at least 2.00 in all courses applicable to the degree, the major area of study and required technical courses. “Major area of study” and “required technical courses” are defined in the section “Academic Standards."

A candidate for a degree in engineering must be registered in the Cockrell School either in residence or in absentia the semester or summer session the degree is to be awarded. No later than the date given in the official academic calendar, the candidate must complete an online application form for graduation or graduation in absentia at /www.engr.utexas.edu/graduation/application/apply.

All individual degree programs must include at least forty-eight [~~48~~] semester hours of engineering coursework.

Residence Rules

All University students must complete in residence at least sixty [~~60~~] semester hours of the coursework counted toward the degree. In the Cockrell School, thity [~~30~~] of these sixty [~~60~~] hours must be in the major field or in a field closely related to the major as approved by the major department and the dean.
At least the last twenty-four [~~24~~] hours of technical coursework counted toward an engineering degree must be taken while the student is registered as an undergraduate engineering major at the University. A student seeking an exception to this requirement must obtain written approval in advance from the dean. Information about the petition process is available in the Engineering Student Services Office, located in the Engineering [~~Student Services Building~~] Education and Research Center (EER[~~SS~~]).

Degree Audit

{No change to this section}

Applying for Graduation

Students must apply for graduation the first semester they are eligible to graduate.[~~. Failure to do so will jeopardize the student's future registration in the Cockrell School. Any subsequent registration must be recommended by the undergraduate adviser and approved by the dean.~~] A student is eligible to graduate if their engineering degree audit is 100 percent complete. If a student fails to submit an application for degree by the deadline given in the academic calendar, an application for degree may be submitted by his or her academic Dean or designee. An application submitted under these circumstances cannot be canceled without a successful appeal to the Office of the Provost (Student Success Initiatives). Please refer to the Graduation Appeal Application for further information.

[~~A student is considered eligible to graduate if he or she can complete all remaining course requirements by registering for 12 semester hours or fewer.~~

[~~Any student who does not graduate when eligible must~~] Please contact the Engineering Student Services Office, located in the Engineering Education and Research Center [~~Student Services Building~~] (EER[~~SS~~]) or by phone at (512) 471-4321 for further questions. [~~The degree auditor will advise the student what steps are needed for future registration and graduation.~~]

Nonresidence Coursework

{No change to this section}

~~[**Final Degree Audit**~~]

[~~The student must complete all procedures associated with the final degree audit.~~

[~~Any student who does not graduate when eligible must contact the Engineering Student Services Office in the Engineering Student Services Building (ESS). The degree auditor will advise the student what steps are needed for future registration and graduation.~~]

Second Degrees

A student who completes a bachelor's degree in engineering may receive a second bachelor's degree in a second engineering discipline if the student meets all the requirements of the second degree that he or she did not meet in completing the first degree. This process is subject to approval by the Engineering Student Services Office. No student may receive two bachelor's degrees in the same discipline of engineering, even if the technical area options are different. For example, a student may receive the degree of Bachelor of Science in Chemical Engineering and that of Bachelor of Science in Mechanical Engineering but may not receive two Bachelor of Science in Chemical Engineering degrees. A student may not receive bachelor's degrees in both architectural engineering and civil engineering.

Commencement

In addition to the University commencement ceremony held each spring, the Cockrell School holds [~~graduation ceremonies in December and~~] a commencement ceremony in May. [~~August~~] [~~d~~]Degree candidates [~~who have completed a degree audit and online graduation application may participate in~~] intending to graduate in the current academic year and who have applied to participate are eligible to attend the May [~~graduation~~] commencement ceremony. Information about graduation and commencement is available at http://www.engr.utexas.edu/graduation.

Registration as a Professional Engineer

{No change to this section}

DOCUMENTS OF THE GENERAL FACULTY

PROPOSED CHANGES TO THE PETROLEUM 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 Petroleum Engineering Degree Program in the Cockrell School of Engineering chapter in the *Undergraduate Catalog, 2018-2020*. The Petroleum Engineering faculty approved the proposal on April 12, 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 Provost on behalf of the President.

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

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.

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PROPOSED CHANGES TO THE PETROLEUM 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:

PGE 368 replaced with PGE 358. Replacement course will cover a significant portion of material that goes beyond well-logging interpretation, including applications in reservoir engineering, drilling, production, geophysics. The change is mainly meant to more accurately reflect the course as it has evolved.

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? n/a
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? No
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:	April 12, 2017	PGE Faculty and chair
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 PETROLEUM 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 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 course with a 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 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 and nontechnical elective requirements must be approved by the petroleum and geosystems engineering undergraduate adviser before the student enrolls in them.

Requirements		Hours
Petroleum and Geosystems Engineering Courses		
PGE 301	Engineering, Energy, and the Environment	3
PGE 310	Formulation and Solution of Geosystems Engineering Problems	3
PGE 427	Properties of Petroleum Fluids	4
PGE 322K	Transport Phenomena in Geosystems	3
PGE 326	Thermodynamics and Phase Behavior	3
PGE 333T	Engineering Communication (writing flag and ethics and leadership flag)	3
PGE 323K	Reservoir Engineering I: Primary Recovery	3

PGE 323L	Reservoir Engineering II: Secondary and Tertiary Recovery	3
PGE 334	Reservoir Geomechanics	3
PGE 337	Introduction to Geostatistics	3
PGE 362	Production Technology and Design	3
PGE 365	Resource Economics and Valuation	3
PGE [~~368~~] 358	[~~Fundamentals of Well Logging~~] Principles of Formation Evaluation	3
PGE 373L	Geosystems Engineering Design and Analysis	3
PGE 424	Petrophysics	4
PGE 430	Drilling and Well Completions	4
Chemistry		
CH 301	Principles of Chemistry I (part II science and technology)	3
CH 302	Principles of Chemistry II	3
Engineering Mechanics		
E M 306	Statics	3
E M 319	Mechanics of Solids	3
Geological Sciences		
GEO 303	Introduction to Geology	3
GEO 316P	Sedimentary Rocks	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	
Physics		
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
PHY 103M	Laboratory for Physics 303K	1
PHY 103N	Laboratory for Physics 303L	1
Rhetoric and Writing		
RHE 306	Rhetoric and Writing (English composition)	3
Other Required Courses		
Approved technical area electives		12
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
Visual and performing arts (some sections carry a global cultures and/or cultural diversity flag)		3
Social and behavioral sciences (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		128

SUGGESTED ARRANGEMENT OF COURSES

First Year

First Term	Hours	**Second Term**	Hours
GEO 303	3	PHY 303K	3
CH 301	3	PHY 103M	1
M 408C	4	M 408D	4
RHE 306	3	PGE 301	3
UGS 302 or 303	3	CH 302	3
		Social and behavioral sciences or visual and performing arts	3
	16		17

Second Year

First Term	Hours	**Second Term**	Hours
PHY 303L	3	GEO 316P	3
PHY 103N	1	E M 319	3
E M 306	3	PGE 333T	3
M 427J or 427K	4	Social and behavioral sciences or visual or performing arts	3
PGE 310	3	PGE 427	4
PGE 326	3		
	17		16

Third Year

First Term	Hours	Second Term	Hours
PGE 323K	3	PGE 323L	3
PGE 424	4	PGE 362	3
PGE 430	4	PGE [~~368~~] 358	3
PGE 322K	3	American history	3
American government	3	Approved technical area elective	3
	17		15

Fourth Year

First Term	Hours	Second Term	Hours
PGE 334	3	PGE 373L	3
PGE 337	3	E 316L, 316M, 316N, or 316P	3
PGE 365	3	American history	3
Approved technical area elective	3	Approved technical area electives	6
American government	3		
	15		15

Total credit hours: 128