

**New Integrated BSME/MSE dual degree program**

**PROPOSED CREATION OF AN INTEGRATED BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING AND MASTER OF SCIENCE IN ENGINEERING PROGRAM IN THE COCKRELL SCHOOL OF ENGINEERING, CHAPTER IN THE UNDERGRADUATE CATALOG 2018-2020**

**TYPE OF CHANGE:**<sup>i</sup>     Academic Change  
 Degree Program Change (THECB<sup>ii</sup> form required)

**PROPOSED CLASSIFICATION:**<sup>iii</sup>     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

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

Integrated BSME/MSE program. The integrated degree program proposed to be added to the 2018-20 Catalog integrates two existing authorized degrees with Mechanical Engineering, the BSME and MSE, to allow students to complete the degrees within a shortened time period. Please see the enclosed full program proposal for details. See the summary following the proposed catalog language for more detailed rationale.

**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:

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Person communicated with:

Date of communication:

Response:

- c. 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:

- d. 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:

## 2. COLLEGE/SCHOOL APPROVAL PROCESS

Department approval date: May 18, 2017

Approved by whom: Mechanical Engineering Faculty

College approval date: August 31, 2017

Approved by whom: Degrees & Courses Committee

Dean approval date: Sept. 18, 2017

Approved by whom: CSE Faculty; Sharon L. Wood,

Dean

## PROPOSED NEW CATALOG TEXT:<sup>4</sup>

### Integrated BSME/MSE program

The integrated degree program results in simultaneously awarding a Bachelor of Science in Mechanical Engineering (BSME) and a Master of Science in Engineering (MSE) degree offered by the Department of Mechanical Engineering. The objective of the Integrated BSME/MSE Program is to enable prepared undergraduates in Mechanical Engineering to earn two degrees in a shortened time period. By allowing seniors to enroll in graduate-level engineering courses reserved for graduate credit, the program enables graduates to complete both degree requirements within five years.

**Admissions.** Current undergraduate ME students may begin the application process to the Integrated BSME/MSE Program option in the first term of their third year. Admission includes the two steps outlined below. Undergraduate students not in the mechanical engineering major are not eligible to apply. It is expected that all students selected for the program in Step 1 and have been successful in their first graduate-level coursework will be selected for admission in Step 2. Successful completion will be evaluated and determined by the department's Domestic Graduate Admission Committee and the Graduate Advisor.

*Step 1.* Students go through the first step in application for admission to the Integrated BSME/MSE Program in the first term of the third year. The Step 1 application is internal through the department and includes a resume, statement of purpose, and letters of recommendation. Qualified applicants will be selected based on the applicant's progress to degree completion, grade point average, and other qualifications included in the application materials. Selected students will be notified early in the second term of the third year of their admission status for the integrated program, allowing them to meet with an Academic Advisor to plan graduate coursework in the first term of their fourth year.

*Step 2.* Students go through the second step in the application in the second term of their fourth year. The Step 2 application is formal through the Graduate and International Admission Center (GIAC). Admission to the integrated program will be based on a review of the applicant's undergraduate record and GPA, GRE scores, performance in graduate coursework, letters of recommendation, personal statement, TOEFL score (if required), and research experience.

If a student in their fourth year is taking graduate courses and would be on track to complete the integrated program but did not apply in their third year through Step 1, they may also choose to apply in Step 2 and

## New Integrated BSME/MSE dual degree program

formally apply through GIAC. These students will be evaluated for admission on the same criteria.

**Degree Requirements.** In order for integrated program students to complete both the BSME and MSE degrees in five years, the department waives 6 semester credit hours (SCH) of technical area electives in lieu of 6 SCH of graduate engineering coursework reserved for graduate credit taken in the fourth year. This reduces the total BSME degree requirements for integrated program students from 126 to 120 SCH.

Students in the integrated program complete 12 SCH of graduate coursework in their fourth year and 18-24 SCH of graduate coursework in their fifth year to complete a total of 30-36 SCH of graduate coursework for the MSE degree as described in the Graduate Catalog. Students have the option of choosing the coursework, report, or thesis option for the MSE degree as described in the Graduate Catalog. The selected degree option determines the number of hours required to graduate with the MSE degree. Courses the student takes will be determined with the Graduate Advisor and Academic Advisor to ensure compliance with degree requirements and meet the students' career goals.

Students unable to successfully complete the integrated program, or who wish to terminate pursuit of the MSE for any reason, may obtain a BSME degree by satisfying all of the requirements for the standalone degree. 6 SCH of the graduate courses taken in the fourth year may count toward the 12 SCH of CGEs required to complete the entire 126 SCH requirements. An undergraduate student leaving the integrated program will be on a trajectory to graduate with the regular BSME degree in the same timeframe prior to admission to the integrated program.

Graduates of the integrated program will receive the BSME and MSE degrees simultaneously after successfully completing the 120 SCH for the BSME and 30-36 SCH for the MSE, a total of 150-156 SCH. Ideally students in this program will graduate with both degrees in a total of five years to completion.

**Advising.** Once admitted, students will be advised each semester by the Graduate Advisor and an Academic Advisor to complete coursework required for the BSME degree in their fourth year, and completion of the coursework required for the MSE degree in their fourth and fifth years.

Information regarding the integrated program requirements and policies may be obtained from the ME Academic Advising Office in ETC 5.224.

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<sup>1</sup> See <https://facultycouncil.utexas.edu/degree-program-changes> for detailed explanations.

<sup>2</sup> Submit required Texas Higher Education Coordinating Board forms to the provost's office ([lydia.cornell@austin.utexas.edu](mailto:lydia.cornell@austin.utexas.edu)); downloadable from URL <https://facultycouncil.utexas.edu/theccb-forms>

<sup>3</sup> **EXCLUSIVE:** of *exclusive* application and of primary interest only to a single college or school ("no protest" period is *seven calendar days*); **GENERAL:** of *general* interest to more than one college or school (but not for submission to the General Faculty) ("no protest" period is *fourteen calendar days*); *major* legislation must be submitted to the General Faculty for adoption ("no protest" period is *fourteen calendar days*).

<sup>4</sup> The proposed text should be based on the text of the current catalog available at:

<http://catalog.utexas.edu/undergraduate>  
**Strike through and replace (with underlines) only the specific language to be changed. Do NOT use track changes, and do not include hyperlinks in the catalog copy.** Submit form electronically to the Office of the General Faculty and Faculty Council at [fc@austin.utexas.edu](mailto:fc@austin.utexas.edu). For questions on completing this section, please contact Victoria Cervantes, [vc@austin.utexas.edu](mailto:vc@austin.utexas.edu), 471-5934 or Brenda Schumann, [brenda.schumann@austin.utexas.edu](mailto:brenda.schumann@austin.utexas.edu), 475-7654.

## **New Integrated BSME/MSE dual degree program**

### **Summary**

#### **INTEGRATED PROGRAM RESULTING IN THE SIMULTANEOUS AWARDING OF A BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING AND MASTER OF SCIENCE IN ENGINEERING**

The Department of Mechanical Engineering (ME) seeks approval to create an integrated degree program leading to the simultaneous awarding of the Bachelor of Science in Mechanical Engineering (BSME) and Master of Science in Engineering (MSE) degrees in five years. The program will have a two-part admissions process. ME undergraduate students will apply for provisional admission to the BSME/MSE integrated degree program in their third year by submitting an application to the Department of Mechanical Engineering. If accepted, students will complete a modified BSME degree option and begin taking graduate courses during their senior year, reserving up to 12 SCH of this coursework for graduate credit. Students who successfully complete this graduate coursework will apply for formal admission to the Graduate School during their fourth year by submitting an application to the Graduate and International Admissions Center. The BSME and MSE degrees will be awarded simultaneously when the student has completed the requirements of both programs at the end of the fifth year.

This proposal follows the structure of the five-year integrated program offered by the Department of Electrical and Computer Engineering at The University of Texas at Austin. The proposed program is similar to integrated bachelor's/master's, programs offered at top-ranked peer mechanical engineering departments such as at Georgia Tech, Purdue University and the University of Michigan.

The program serves three primary goals: (1) provide graduates with further employability in technical fields where an advanced degree is sometimes essential; (2) allow graduates from our program who are already going to advanced degree programs to reduce forgone earnings and increase lifetime earnings by entering the workforce or doctoral programs earlier with an advanced degree; and (3) recruit top high school students that would otherwise consider our top-ranked, peer schools to participate in an integrated program.

The BSME/MSE integrated degree program will provide a shortened degree completion path for the mechanical engineering undergraduates to earn both degrees in five years. Currently the standalone BSME degree plan requires 12 SCH of career gateway electives (CGEs). In the integrated program option, 6 of these hours will be waived based on completion of 6 SCH of graduate-level engineering coursework taken for the MSE degree. The modified BSME degree option will reduce the overall BSME degree requirements from 126 to 120 SCH for students in the integrated program and maintains the minimum number of engineering credits required by ABET.

Students in the BSME/MSE integrated program will reserve up to a total of 12 SCH of graduate engineering coursework for graduate credit in their fourth year. The MSE degree requires completion of between 30 and 36 SCH dependent upon selection between coursework, report, and thesis degree options. Students in the BSME/MSE integrated program will ideally finish the remaining 18-24 SCH required for the MSE degree in one year, thereby completing requirements for both degrees in 5 years.

**New Integrated BSME/MSE dual degree program**

Proposal for an Integrated Program Resulting in the Simultaneous Awarding of

Bachelor of Science in Mechanical Engineering

and

Master of Science in Engineering

To be effective Fall 2018

The Department of Mechanical Engineering The Cockrell

School of Engineering

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## **New Integrated BSME/MSE dual degree program**

### Rationale

The Department of Mechanical Engineering (ME) seeks approval to create an integrated degree program leading to the simultaneous awarding of a Bachelor of Science in Mechanical Engineering (BSME) degree and a Master of Science in Engineering (MSE) degree in five years.

### Program Need

The proposed BSME/MSE integrated degree program addresses identified needs of mechanical engineering graduates to: (1) graduate with further employability in complex technical fields where an advanced MSE or PhD degree is often required; (2) reduce forgone earnings and increase lifetime earnings by entering the workforce or doctoral program earlier with a MSE degree; and (3) recruit top high school students that would otherwise favor offers from our top-ranked, peer schools to participate in an integrated program.

In this academic year, the Department of Mechanical Engineering's newly formed Undergraduate Advisory Board (UAB) —whose mission as representatives of the undergraduate student population is to provide advice to the department on curriculum, community, and facilities—recommended the department consider offering an integrated program to help prepare students for careers in industry and PhD programs, make the most of undergraduate research experiences within the department, and make the most of the 126 semester credit hours required in the BSME degree program. A survey of undergraduate students conducted by the ME UAB showed strong support for the program.

Furthermore, many students in ME already earn a significant number of credits from Advanced Placement courses in high school and have time in their course schedules to take more coursework and participate in research. A combined five-year plan will allow these students to use their available time to take graduate courses and build on existing research experience toward earning a master's degree.

### Program Demand

Combined bachelor's and master's programs are available at a number of top-ranked mechanical engineering departments in the United States. In addition to the demand from current students, the proposed program will allow The University of Texas at Austin to compete for top high school graduates by offering the opportunity to earn two degrees in five years from a major public research institution. Top out-of-state mechanical engineering competitive programs—such as Georgia Tech, Purdue University, Stanford University, University of California Berkeley, and University of Michigan—offer a five-year, combined-program option.

### Similar Programs

## New Integrated BSME/MSE dual degree program

See Appendix A – Integrated BS/MS Programs at Peer Institutions

### Program Description

#### Program Objectives

The objective of the BSME/MSE integrated program is to enable prepared undergraduates in Mechanical Engineering to earn two degrees in a shortened time period. Through offering an early-entry point for qualified seniors and allowing seniors to enroll in graduate-level engineering courses reserved for graduate credit, the program enables graduates to complete both degree requirements within five years.

#### Admission Requirements and Process

Admission to the Integrated BSME/MSE Program will happen in two steps. Step 1 will happen in the first term of the third year and will consist of an internal application to the Department of Mechanical Engineering. Step 2 will happen in the first term of the fourth year and will consist of a formal application to UT Austin's Graduate and International Admissions Center. Academic Advisors in the Department of Mechanical Engineering will offer information sessions each semester to current BSME students covering the integrated program requirements, processes, and benefits of participation. Attending an information session will not be required to apply. **Figure 1** illustrates the overall timeline for admission and program completion.

**Figure 1** *Integrated Program Admission Timeline*

Year	Semester	Educational Activities	Integrated Program Admission
1	Fall-Spring	Completion of Y1 BSME requirements	N/A
2	Fall-Spring	Completion of Y2 BSME requirements	Attend program info session (optional)
3	Fall	Completion of Y3 BSME requirements	<b>Step 1 Application Submission to Department of ME</b>
3	Spring	Completion of Y3 BSME requirements	<b>Step 1 Admission Decision;</b> program advising for Y4 before registration in April
4	Fall	Completion of Y4 BSME requirements; completion/ reservation of 6 SCH of graduate coursework toward MSE	<b>Step 2 Application Submission to Graduate &amp; International Adm. Center;</b>
4	Spring	Completion of fourth-year BSME requirements, less 6 SCH technical area electives; completion/ reservation of 6 SCH of graduate coursework toward MSE	<b>Step 2 Admission Decision;</b> program advising for Y5 before registration in April
5	Fall-Spring	Completion of 18-24 SCH graduate toward MSE	Classified as Master's student



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5	Spring	Graduation: Simultaneous awarding of BSME and MSE degrees	
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### Step 1: First Admission Process (Provisional Admission by Department of ME)

Only current undergraduate ME students in good academic standing may apply to the BSME/MSE integrated program. The optimal time for students to apply is in the first term of the third year, prior to rising senior academic advising and registration for the following fall. Application materials, deadlines, and information on procedures will be available online and in the ME Academic Advising Office in ME ETC 5.224.

Qualified students will be selected in the Step 1 admissions process by the department's Graduate Admissions Committee (a subset of the ME Graduate Studies Committee). Admissions will be based on a review of the applicant's GPA, resume, and letters of recommendation. Selected individuals will be required to meet with the Graduate Advisor and Academic Advisor to review requirements for the integrated program, plan a path for completion, and be authorized for graduate courses selected for their fourth year. This advising process will also guide students through the selection of a research advisor if one has not already been selected, in the case that the student wishes to pursue the Thesis option of the MSE degree. Integrated program advising will also include post-graduation planning to allow the student to select coursework and activities to meet their individual goals, such as planning for internships or a PhD. At this stage, the cohort of Integrated Program juniors and seniors will also have the opportunity to form a support community as they persist through the program together.

Students who are not selected for admission to the integrated program will receive advising and guidance from the Graduate Advisor designed to strengthen future applications to other MS/MSE/PhD programs.

### Step 2: Second Admission Process (Formal Admission by Graduate School)

Before the beginning of the fifth year of the program, students in the integrated program must be formally admitted to the Graduate School as master's students. Students will complete Step 2 of the integrated program's application process by applying for formal admission to the Graduate School in the second term of their fourth year. Application forms must be completed and submitted to the Graduate and International Admissions Center (GIAC).

Admission to the integrated program will be based on a review of the applicant's undergraduate record and GPA, GRE scores, performance in graduate coursework, letters of recommendation, personal statement, TOEFL score (if required), and research experience.

It is expected that all students who are provisionally admitted to the integrated program in Step 1 and who are successful in completing graduate-level coursework during their senior year will be selected for formal admission to the Graduate School in Step 2.

Admission decisions will be made again by the department's Graduate

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Admissions Committee. Students who are selected will be enrolled in the Graduate School and classified as master's-level students in the fifth year.

In the rare case that an applicant who was admitted in Step 1 is denied admission in Step 2, the student will be advised by the Graduate Advisor regarding the reason and provided guidance to strengthen future applications to other programs. The department will request that any graduate coursework reserved for graduate-credit be reverted to count toward the standalone BSME degree 126 SCH requirements, so the student may graduate on time.

### **Degree Requirements**

#### *Bachelor's Degree*

The standalone BSME degree requires 126 SCH of coursework, 12 of which are to be fulfilled through Career Gateway Electives (CGEs). In order for the integrated program students to complete both the BSME and MSE degrees in five years, the proposal seeks a modification to the BSME degree requirements to waive 6 SCH of CGEs in lieu of 6 SCH of graduate engineering coursework. This will reduce the total number of hours required for the BSME degree within the integrated-program arrangement to 120 SCH, thus meeting the University's 120 SCH minimum for bachelor's degrees.

As is very common among ME undergraduates, it is expected that students in the BSME/MSE integrated program will complete approximately 15 SCH of coursework required for the BSME degree through advanced placement credit (CR) for core curriculum and basic science coursework. This will reduce the amount of BSME-related coursework to be completed in the fourth year and will provide students with time in their course schedules to register for graduate coursework that can be reserved for graduate credit and later applied towards their MSE degree requirements. [Appendix B](#) includes the suggested arrangement of coursework for the standalone BSME degree, and [Appendix C](#) includes the comparable suggested arrangement of coursework for the BSME degree within the integrated program arrangement.

[Appendix D](#) includes the ABET table of semester credit hours by subject area in the current standalone BSME degree. Waiving 6 SCH of CGEs from the undergraduate curriculum in lieu of 6 SCH of graduate coursework does not affect the integrated program's compliance with ABET requirements, as ME CGEs do not currently count towards any course categories that are tracked by ABET.

#### *Master's Degree*

There are no changes to the MSE degree requirements. Students in the BSME/MSE integrated program can choose to complete 36 SCH of coursework, 30 SCH of coursework with 3 SCH of report coursework, or 24 SCH of coursework with 6 SCH of thesis coursework. [Appendix E](#) includes the program of work form for the MSE degree.

## **New Integrated BSME/MSE dual degree program**

### *Undergraduate Catalog Statement*

The following is the proposed 2018-2020 Undergraduate Catalog Bachelor of Science in Mechanical Engineering statement:

#### **Integrated BSME/MSE program**

The integrated degree program results in simultaneously awarding a Bachelor of Science in Mechanical Engineering (BSME) and a Master of Science in Engineering (MSE) degree offered by the Department of Mechanical Engineering. The objective of the Integrated BSME/MSE Program is to enable prepared undergraduates in Mechanical Engineering to earn two degrees in a shortened time period. By allowing seniors to enroll in graduate-level engineering courses reserved for graduate credit, the program enables graduates to complete both degree requirements within five years.

**Admissions.** Current undergraduate ME students may begin the application process to the Integrated BSME/MSE Program option in the first term of their third year. Admission includes the two steps outlined below. Undergraduate students not in the mechanical engineering major are not eligible to apply. It is expected that all students selected for the program in Step 1 and have been successful in their first graduate-level coursework will be selected for admission in Step 2. Successful completion will be evaluated and determined by the department's Graduate Admission Committee and the Graduate Advisor.

*Step 1.* Students complete the first step in application for admission to the Integrated BSME/MSE Program in the first term of the third year. The Step 1 application is internal through the department and includes a resume, statement of purpose, and letters of recommendation. Qualified applicants will be selected based on the applicant's progress to degree completion, grade point average, and other qualifications included in the application materials. Selected students will be notified early in the second term of the third year of their admission status for the integrated program, allowing them to meet with an Academic Advisor to plan graduate coursework in the first term of their fourth year.

*Step 2.* Students complete the second step in the application in the second term of their fourth year. The Step 2 application is formal through the Graduate and International Admission Center (GIAC). Admission to the integrated program will be based on a review of the applicant's undergraduate record and GPA, GRE scores, performance in graduate coursework, letters of recommendation, personal statement, TOEFL score (if required), and research experience.

If a student in their fourth year is taking graduate courses and would be on track to complete the integrated program but did not apply in their third year through Step 1, they may apply by completing Step 1 and Step 2 together. These students will be evaluated for admission on the same criteria.

## **New Integrated BSME/MSE dual degree program**

**Degree Requirements.** In order for integrated program students to complete both the BSME and MSE degrees in five years, the department waives 6 semester credit hours (SCH) of technical area electives in lieu of 6 SCH of graduate engineering coursework reserved for graduate credit taken in the fourth year. This reduces the total BSME degree requirements for integrated program students from 126 to 120 SCH.

Students in the integrated program complete 12 SCH of graduate coursework in their fourth year and 18-24 SCH of graduate coursework in their fifth year to complete a total of 30-36 SCH of graduate coursework for the MSE degree as described in the Graduate Catalog. Students have the option of choosing the coursework, report, or thesis option for the MSE degree as described in the Graduate Catalog. The selected degree option determines the number of hours required to graduate with the MSE degree. Courses the student takes will be determined with the Graduate Advisor and Academic Advisor to ensure compliance with degree requirements and meet the students' career goals.

Students unable to successfully complete the integrated program, or who wish to terminate pursuit of the MSE for any reason, may obtain a BSME degree by applying for a change of major back to the standalone BSME program and satisfying all of the requirements for the standalone degree. 6 SCH of the graduate courses taken in the fourth year may count toward the 12 SCH of CGEs required to complete the entire 126 SCH requirements. An undergraduate student leaving the integrated program will be on a trajectory to graduate with the regular BSME degree in the same timeframe prior to admission to the integrated program.

Graduates of the integrated program will receive the BSME and MSE degrees simultaneously after successfully completing the 120 SCH for the BSME and 30-36 SCH for the MSE, a total of 150-156 SCH. Ideally students in this program will graduate with both degrees in a total of five years to completion.

**Advising.** Once admitted, students will be advised each semester by the Graduate Advisor and an Academic Advisor to complete coursework required for the BSME degree in their fourth year, and completion of the coursework required for the MSE degree in their fourth and fifth years.

Information regarding the integrated program requirements and policies may be obtained from the ME Academic Advising Office in ETC 5.224.

### *Graduate Catalog Statement*

The following is the proposed 2019-2021 Graduate Catalog Master of Science in Engineering statement:

#### **Integrated BSME/MSE program**

Admission to the Integrated Bachelor of Science in Mechanical Engineering and Master of Science in Engineering (BSME/MSE) program is open only to undergraduate students within the Department of Mechanical Engineering at the University of Texas at Austin. It results in the simultaneous awarding of a BSME degree (integrated option) and an MSE degree. The MSE degree options and requirements for students in the Integrated BSME/MSE program are identical to those for students in the traditional MSE program. Admission requirements and procedures for the graduate portion of the Integrated BSME/MSE program also are much the same as for the Traditional MSE program, except that the requirement for an undergraduate degree upon entering the program has been waived by the University.

See the Bachelor of Science in Mechanical Engineering, Integrated BSME/MSE program section of the Undergraduate Catalog for more details about the requirements of the Integrated Option BSME degree. Additional information about the Integrated BSME/MSE program requirements and policies may be obtained from the Mechanical Engineering advising office.

### *Academic Policies for Continuance*

Students admitted to the integrated program are expected to continue to make progress toward both degrees each semester starting in the first term of their fourth year. Each semester, integrated program students will be required to meet with the Graduate Advisor or Academic advisor to review satisfactory progress. All integrated program students must maintain a minimum 3.0 cumulative, in-residence GPA in both programs.

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### *Probation and Dismissal*

An integrated program student in undergraduate standing whose GPA falls below a 3.0 will be placed on probation with respect to the BSME/MSE integrated program and, by University policy, will be unable to take graduate courses. A student in graduate standing whose GPA falls below a 3.0 will be placed on probation in accordance with Graduate School policies.

Students in undergraduate standing on probation who fail to attain a satisfactory cumulative GPA of 3.0 at the end of the next term of enrollment are subject to possible dismissal from the integrated program. Students will be allowed to change their major back to the standalone BSME program complete the BSME standalone degree requirements and graduate at the end of their fourth year with one degree. Students in graduate standing on probation who fail to attain a satisfactory cumulative GPA of 3.0 at the end of the next term of enrollment are subject to possible dismissal from the graduate program. The department would petition the Graduate School to revert graduate courses reserved for graduate credit back to count toward undergraduate degree requirements for these students to finish the BSME standalone degree on time.

### Program Administration and Academic Advising

The ME Graduate Studies Committee (GSC) will serve as the oversight committee for the MSE portion of the integrated degree program. The Undergraduate Curriculum Advisory Committee (UCAC) will serve as the oversight committee for the BSME portion of the integrated program. The Graduate Advisor and Academic Advising Coordinator of the standalone MSE and BSME programs, respectively, will administer the integrated degree program. Integrated program students will remain classified as undergraduate students through their fourth year. After successfully completing the second step of the admissions process, students will begin their fifth year in graduate standing classified as master's students.

Students in the BSME/MSE integrated program will be required to meet with an Academic Advisor each semester prior to registration; this will be enforced through an advising registration bar. Academic advisors will ensure integrated program students have completed all requirements for the BSME degree by the end of the fourth year. Academic Advisors will work closely with the Graduate Advisor to guide students in the selection of up to 12 SCH of graduate coursework that will be completed and reserved for graduate credit in the fourth year, and 18-24 SCH of graduate coursework that will be completed in the fifth year. Per University policy, undergraduate students may not reserve more than 12 SCH of coursework for graduate credit. Academic Advisors and the Graduate Coordinator will work closely to ensure students complete the requirements of the MSE degree by the end of the fifth year.

### Relationship to Existing Authorized Programs

The integrated program provides an early entry point into the current MSE program for talented ME undergraduates. Admissions processes will be kept commensurate with those of the regular program to maintain the quality of the graduate student body. Students in the integrated program will enroll in the same graduate coursework as students admitted to the standalone graduate programs.

### Effects on Existing Authorized Programs

In recent history, the ME department has prioritized admission to the doctoral program over admission to the MSE terminal master's program. The graduate courses offered for both programs are the same and fulfill degree requirements on the program of work for each degree. The BSME/MSE integrated program will slightly increase enrollment in the mechanical engineering graduate programs and increase the number of terminal MSE degrees awarded. The department is prepared to accommodate the addition of integrated program students within existing resources. Increases in class size are not expected to require additional sections of courses or faculty.

### Expected Enrollment

The ME department intends the integrated program to be suitable for the most talented undergraduates in UT Austin's mechanical engineering program. We anticipate enrollment of less than 10% of each undergraduate cohort, or no more than 10-15 students per year. The number of admits will be coordinated with the number of available seats in ME graduate courses offered. It is expected that the existing courses can accommodate up to 10-15 students from the integrated program per year.

## **New Integrated BSME/MSE dual degree program**

### Resources

### Courses

No additional sections or courses will be required. Students in the BSME/MSE integrated program will enroll in existing graduate courses which are already offered on a regular basis. The existing courses have capacity for the additional 10-15 students per year who enter the graduate program through this pathway.

### Faculty

No additional faculty will be required. Students in the integrated program will be taught by existing faculty in existing graduate coursework. Students who choose the thesis option will be supervised by existing faculty.

### Facilities and Equipment

No additional equipment or laboratories will be required.

### Libraries

No additional library resources will be required.

## **New Integrated BSME/MSE dual degree program**

### Appendices

Appendix A – Integrated BS/MS Programs at Peer Institutions

**See attached.**

Appendix B – BSME Suggested Arrangement of Courses

**See attached.**

Appendix C – BSME Suggested Arrangement of Courses for Integrated Program

**See attached.**

Appendix D – BSME ABET Table 5-1

**See attached.**

Appendix E – MSE Program of Work

**See attached.**

**New Integrated BSME/MSE dual degree program**

**Appendix A**

**Integrated BS/MS Programs at Peer Institutions**

School	Program Name	Application Timing	Min GP A	# hours double-counted	# hours reserved for grad credit	Thesis option hours required	Non-thesis option hours required	Time to complete after undergrad	Notes
<b>UT Austin (proposed)</b>	Integrated BS/MS	Fall junior year	3.5	6	6	24hrs coursework+ 6hrs research	36hrs coursework	Not advertised, estimated 1 year	
<b>Berkeley</b>	Five Year BS/MS								Coursework only, no thesis option
<b>Georgia Tech</b>	BS/MS	Between 30 and 75 undergrad hours completed (including AP credit)	3.5	6	6	21hrs coursework+ 9hrs thesis research	30hrs coursework	1 year non-thesis, 2 years thesis	GRE not required
<b>Michigan</b>	SUGS (Sequential Undergraduate/Graduate Studies)	Senior Year	3.6	9	3	~30 credits		1 year	
<b>MIT</b>	Early Admission	Fall senior year	4.8	N/A	N/A	N/A	N/A	N/A	MIT's program allows senior undergrads to take grad classes and reserve for graduate credit. Limit on number of hours not listed
<b>Purdue</b>	Combined BSME/MSME	Fall junior year	3.4	12		21hrs coursework + 9hrs thesis research	30hrs coursework	1year	
<b>Stanford</b>	Coterminal Masters	After 120 hours	A Average			45 hours		~1 year	Difficult to compare due to quarter system Stanford Fellowships not offered to coterm students



**New Integrated BSME/MSE dual degree program**

**APPENDIX B - SUGGESTED ARRANGEMENT OF COURSES 2018-  
2020 CATALOG**

**First Year**

<b>First Term</b>	<b>Hours</b>	<b>Second Term</b>	<b>Hours</b>
CH 301	3	M 408D	4
M 408C	4	PHY 303K	3
M E 302	3	PHY 103M	1
RHE 306	3	Social and behavioral sciences	3
UGS 302 or 303	3	Visual and performing arts	3
		American history	3
	16		17

**Second Year**

<b>First Term</b>	<b>Hours</b>	<b>Second Term</b>	<b>Hours</b>
E M 306	3	E M 319	3
M 427J or 427K	4	M 427L	4
M E 316T (Thermodynamics)	3	M E 318M	3
PHY 303L	3	M E 314D (Dynamics)	3
PHY 103N	1	M E 333T	3
American and Texas Government	3		
	17		16

**Third Year**

<b>First Term</b>	<b>Hours</b>	<b>Second Term</b>	<b>Hours</b>
M E 330	3	M E 338	3
M E 130L	1	M E 339	3
M E 334	3	M E 139L	1
M E 134L	1	M E 340	3
M E 335	3	M E 140L	1
Approved career gateway elective	3	Approved career gateway elective	3
	14		14

**Fourth Year**

<b>First Term</b>	<b>Hours</b>	<b>Second Term</b>	<b>Hours</b>
M E 344	3	M E 266K	2
M E 144L	1	M E 266P	2
M E 353	3	Approved career gateway elective	3
M E 366J	3	Approved mathematics/natural science elective	3
Approved career gateway elective	3	E 316L, 316M, 316N, or 316P	3
American and Texas government	3	American history	3
	16		16

Total credit hours: 126

**New Integrated BSME/MSE dual degree program**

**APPENDIX C - SUGGESTED ARRANGEMENT OF COURSES FOR INTEGRATED PROGRAM**

**2018-2020 CATALOG**

**First Year**

<b>First Term</b>	<b>Hours</b>	<b>Second Term</b>	<b>Hours</b>
CH 301	3	M 408D	4
M 408C	4	PHY 303K	3
M E 302	3	PHY 103M	1
RHE 306	3	Social and behavioral sciences	CR*
UGS 302 or 303	3	Visual and performing arts	3
		American history	CR*
		Approved mathematics/natural science elective	3
	16		14

**Second Year**

<b>First Term</b>	<b>Hours</b>	<b>Second Term</b>	<b>Hours</b>
E M 306	3	E M 319	3
M 427J or 427K	4	M 427L	4
M E 316T (Thermodynamics)	3	M E 318M	3
PHY 303L	3	M E 314D (Dynamics)	3
PHY 103N	1	M E 333T	3
E 316L, 316M, 316N, or 316P	3	American history	CR*
	17		16

**Third Year**

<b>First Term</b>	<b>Hours</b>	<b>Second Term</b>	<b>Hours</b>
M E 330	3	M E 338	3
M E 130L	1	M E 339	3
M E 334	3	M E 139L	1
M E 134L	1	M E 340	3
M E 335	3	M E 140L	1
Approved career gateway elective	3	M E 353	3
	14		14

**Fourth Year**

<b>First Term</b>	<b>Hours</b>	<b>Second Term</b>	<b>Hours</b>
M E 344	3	M E 266K	2
M E 144L	1	M E 266P	2
M E 366J	3	American and Texas government	CR*
American and Texas government	CR*	Approved career gateway elective	3
Graduate Coursework	3	Graduate Coursework	3
Graduate Coursework	3	Graduate Coursework	3
	13		13

## New Integrated BSME/MSE dual degree program

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Total credit hours: 126

Total credit hours toward MSE at the end of Y4: 12

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### Fifth Year: Graduate Standing

<b>First Term</b>	<b>Hours</b>	<b>Second Term</b>	<b>Hours</b>
Graduate Coursework	3	Graduate Coursework	3
Graduate Coursework	3	Graduate Coursework	3
Graduate Coursework	3	Approved career gateway elective	3
	9		9
Total credit hours toward MSE at the end of Y5: 30			

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\* As is common among ME undergraduates, it is expected that approximately 15 SCH of coursework required for the BSME degree plan will be completed through advanced placement credit (CR) for core curriculum and basic science coursework. This will reduce the amount of credit enrolled in the fourth year to accommodate graduate coursework.

New Integrated BSME/MSE dual degree program

Appendix D - Table 5-1 Curriculum

Mechanical Engineering 2016

Course (Department, Number, Title) List all courses in the program by term starting with the first term of the first year and ending with the last term of the final year.		Indicate Whether Course is Required, Elective or a Selected Elective by an R, an E or an SE. <sup>1</sup>	Subject Area (Credit Hours)				Last Two Terms the Course was Offered: Year and, Semester, or Quarter	Maximum Section Enrollment for the Last Two Terms the Course was Offered <sup>2</sup>
			Math & Basic Sciences	Engineering Topics Check if Contains Significant Design (✓)	General Education	Other		
Semester 1	M 408C Differential and Integral Calculus	R	4				2015 Fall & 2016 Spring	240 Lec, 60 Dis
	CH 301 Principles of Chemistry I	R	3				2015 Fall & 2016 Spring	500 Lec
	ME 302 Intro. To Engineering Design and Graphics	R		3 (☉)			2015 Fall & 2016 Spring	140 Lec, 28 Dis
	UGS 302/3 First Year Signature Course	SE			3		2015 Fall & 2016 Spring	18 UGS 302/UGS 303 90 Lec, 15 Dis
	RHE 306 Rhetoric and Writing	R			3		2015 Fall & 2016 Spring	25 Lec
Semester 2	M 408D Sequences, Series, & Multivariable Calculus	R	4				2015 Fall & 2016 Spring	120 Lec, 60 Dis
	PHY 303K Engineering Physics I	R	3				2015 Fall & 2016 Spring	140 Lec, 35 Dis
	PHY 103M Engineering Physics I Lab	R	1				2015 Fall & 2016 Spring	24 Lab
	VAPA Visual and Performing Arts	SE			3		2015 Fall & 2016 Spring	Varies by Course
	SOC SCI Social and Behavioral Science	SE			3		2015 Fall & 2016 Spring	Varies by Course
	HIS United States History	SE			3		2015 Fall & 2016 Spring	Varies by Course
Semester 3	M 427J Differential Equations with Linear Algebra	R	4				2015 Fall & 2016 Spring	120 Lec/Dis

**New Integrated BSME/MSE dual degree program**

	PHY 303L Engineering Physics II	R	3				2015 Fall & 2016 Spring	140 Lec, 35 Dis
	PHY 103N Engineering Physics II Lab	R	1				2015 Fall & 2016 Spring	24 Lab
	EM 306 Statics	R		3			2015 Fall & 2016 Spring	140 Lec, 35 Dis
	ME 326 Thermodynamics	R		3			2015 Fall & 2016 Spring	140 Lec, 35 Dis
Semester 4	ME 318M Intro. To Comp. and Engineering Comp. Methods	R	1	2			2015 Fall & 2016 Spring	92 Lec, 23 Dis
	EM 319 Mechanics of Solids	R		3			2015 Fall & 2016 Spring	160 Lec, 40 Dis
	ME 324 Dynamics	R		3			2015 Fall & 2016 Spring	150 Lec, 25 Dis
	ME 330 Fluid Mechanics	R		3			2015 Fall & 2016 Spring	140 Lec
	ME 130L Experimental Fluid Mechanics	R		1 (☹)			2015 Fall & 2016 Spring	140 Lec, 10 Lab
	ME 333T Engineering Communications	R			3		2015 Fall & 2016 Spring	100 Lec, 25 Lab
Semester 5	ME 334 Materials Engineering	R		3			2015 Fall & 2016 Spring	38 Lec
	ME 134L Materials Engineering Lab	R		1			2015 Fall & 2016 Spring	144 Lec, 12 Lab
	ME 339 Heat Transfer	R		3			2015 Fall & 2016 Spring	150 Lec
	ME 139L Experimental Heat Transfer	R		1 (☹)			2015 Fall & 2016 Spring	150 Lec, 10 Lab
	ME 335 Engineering Statistics	R	1	2			2015 Fall & 2016 Spring	150 Lec, 25 Dis
	CGE Career Gateway Elective	SE				3	2015 Fall & 2016 Spring	40 Lec
Semester 6	ME 340 Mechatronics	R		3			2015 Fall & 2016 Spring	80 Lec
	ME 140L Mechatronics lab	R		1 (☹)			2015 Fall & 2016 Spring	160 Lec, 14 Lab
	ME 338 Machine Elements	R		3 (☹)			2015 Fall & 2016 Spring	150 Lec
	ME 353 Engineering Finance	R	1	2			2015 Fall & 2016 Spring	150 Lec, 25 Dis

**New Integrated BSME/MSE dual degree program**

	CGE Career Gateway Elective	SE				3	2015 Fall & 2016 Spring	40 Lec
	GOV 310L American Government	R			3		2015 Fall & 2016 Spring	325 Lec
Semester 7	ME 344 Dynamic Systems and Controls	R		3			2015 Fall & 2016 Spring	100 Lec
	ME 144L Dynamic Systems and Controls Lab	R		1 (☞)			2015 Fall & 2016 Spring	170 Lec, 12 Lab
	ME 366J ME Design Methodology	R		3 (☞)			2015 Fall & 2016 Spring	90 Lec, 30 Dis
	CGE Career Gateway Elective	SE				3	2015 Fall & 2016 Spring	40 Lec
	Mathematics Elective	SE	3				2015 Fall & 2016 Spring	Varies by Course
	GOV 312L Topics in Government	R			3		2015 Fall & 2016 Spring	300 Lec
Semester 8	ME 266K Design Project	R		2 (☞)			2015 Fall & 2016 Spring	186 Lec
	ME 266P Design Project Lab	R		2 (☞)			2015 Fall & 2016 Spring	24 Lab
	CGE Career Gateway Elective	SE				3	2015 Fall & 2016 Spring	40 Lec
	Mathematics or Natural Science Elective	SE	3				2015 Fall & 2016 Spring	Varies by Course
	E 316 Masterworks of Literature	R			3		2015 Fall & 2016 Spring	300 Lec, 25 Dis
	United States History Elective	SE			3		2015 Fall & 2016 Spring	Varies by Course
TOTALS-ABET BASIC-LEVEL REQUIREMENTS				32	51	30	12	
OVERALL TOTAL CREDIT HOURS FOR COMPLETION OF THE PROGRAM				125				
PERCENT OF TOTAL				25.6%	40.8%	24%	9.6%	
Total must satisfy either credit hours or percentage	Minimum Semester Credit Hours			32 Hours	48 Hours			
	Minimum Percentage			25%	37.5 %			

1. **Required** courses are required of all students in the program, **elective** courses (often referred to as open or free electives) are optional for students, and **selected elective** courses are those for which students must take one or more courses from a specified group.
2. For courses that include multiple elements (lecture, laboratory, recitation, etc.), indicate the maximum enrollment in each element. For selected elective courses, indicate the maximum enrollment for each option.

Instructional materials and student work verifying compliance with ABET criteria for the categories indicated above will be required during the campus visit.

**New Integrated BSME/MSE dual degree program**

Appendix E

**Department of Mechanical Engineering**

**Program of Work for the Master's Degree**

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Name (Last, First, Middle) UT EID

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Degree Sought Graduate Majorand Area Date Degree Expected

Check your option:

Thesis Option = **30** hours

No Thesis/No Report Option = **36** hours

Report Option = **33** hours

List only the courses required for your degree below:

**MAJOR COURSEWORK** (eighteen hours minimum)

**SUPPORTING COURSEWORK** (six hours minimum)

<u>Semester Taken</u>	<u>Course Abbrev. &amp; #</u>	<u>Unique #</u>	<u>Grade</u>		<u>Semester Taken</u>	<u>Course Abbrev. &amp; #</u>	<u>Unique #</u>	<u>Grade</u>

**AUTHORIZATION OF PROGRAM OF WORK: GRADUATE STUDIES COMMITTEE**

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Signature of Supervisor (or Co-Supervisor) Date

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Signature of Co-Supervisor (if applicable) Date

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Signature of Area Coordinator (if no Supervisor) Date

Please submit completed form to the ME Academic Advising Office, ETC 5.224, or email a scanned copy with faculty signature to [advising@me.utexas.edu](mailto:advising@me.utexas.edu).

This form is due to the ME Academic Advising Office by the **12th class day** of the semester you wish to graduate.

<sup>1</sup> See <https://facultycouncil.utexas.edu/degree-program-changes> for detailed explanations.

<sup>2</sup> Submit required Texas Higher Education Coordinating Board forms to the provost's office ([lydia.comell@austin.utexas.edu](mailto:lydia.comell@austin.utexas.edu)); downloadable from URL <https://facultycouncil.utexas.edu/theeb-forms>

## New Integrated BSME/MSE dual degree program

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<sup>iii</sup> **EXCLUSIVE:** of *exclusive* application and of primary interest only to a single college or school ("no protest" period is *seven calendar days*); **GENERAL:** of *general* interest to more than one college or school (but not for submission to the General Faculty) ("no protest" period is *fourteen calendar days*); *major* legislation must be submitted to the General Faculty for adoption ("no protest" period is *fourteen calendar days*).