

Texas Higher Education Coordinating Board Request to Change Semester Credit Hours

Directions: An institution shall use this form to request a change in the number of semester credit hours (SCH) required for a degree program already on the institution's program inventory in accordance with Coordinating Board Rules, Chapter 5, Subchapter C, Section 5.55 – Revisions to Approved Programs.

Options:

- 1) Revisions that **reduce** the number of SCH require notification of change and affirmation that the reduction does not fall below the minimum requirements of the Southern Association of Colleges and Schools Commission on Colleges, program accreditors, and licensing bodies, if applicable.
- 2) Revisions that **increase** the number of SCH require detailed written documentation describing the compelling academic reason for the increase in the number of required hours.

NOTE: No request or notification is needed if revisions to the degree program curriculum do not result in a change in SCH.

Options 1 and 2 require the signature of the Provost or Chief Academic Officer.

Please submit *Request to Change Semester Credit Hour* via the Online Submission Portal:
<https://www1.thecb.state.tx.us/apps/proposals/>

Information: Contact the Division of Workforce, Academic Affairs and Research at 512/427-6200.

Administrative Information

1. **Institution:** University of Texas at Austin
2. **Program Name** – *As it appears on the Coordinating Board's program inventory (e.g., Bachelor of Business Administration degree with a major in Accounting):* Mechanical Engineering
3. **Program CIP Code:** 14.1901.00
4. **Contact Person:** *Provide contact information for the person who can answer specific questions about the program.*

Name: Dr. Christopher Rylander
Title: Associate Chair for Undergraduate Education
E-mail: cgr@austin.utexas.edu
Phone: (512) 232-6144

Notification/Request for Change in Semester Credit Hours (SCH):

Current SCH: 125

Proposed SCH: 126

Implementation Date: 9/1/2016

Complete Option 1 or 2 as appropriate

Option 1: Reduction in Semester Credit Hours

Is the change in the number of SCH compatible with the requirements of accreditation for the program?

a. Southern Association of Colleges and Schools Commission on Colleges

YES NO

b. Program Accrerator(s)

YES NO NA

Name of Program Accrerator: _____

c. Licensing Body(ies)

YES NO NA

Name of Licensing Body(ies): _____

Option 2: Increase in Semester Credit Hours

Provide detailed documentation, such as changes in accrediting agency or licensing body requirements, workforce needs, or academic professional standards and needs, describing a compelling reason for the change in the number of SCH:

The proposed increase in credit hours by 1 hour is a result of the implementation of the recommendations that were made to all engineering programs by the ad hoc Engineering Math Committee.

The committee was formed in fall 2013 when we realized that there were several significant problems with the Mathematics curriculum at UT Austin and both Math and Engineering were interested in addressing them. The committee gave its final report in spring 2014 and the recommendations have or are in the process of being adopted by most if not all engineering departments.

The main problems at the time the committee was formed were:

1. Two of the three mathematics courses required by all engineering departments had amongst the highest non-passing rates of any classes taken by engineers.
2. The order of the topics covered in these required three Engineering-Mathematics was
 - a. Significantly different from our peer institutions.
 - b. Challenging from a pedagogy perspective. Mathematics hated the order.
 - c. Not in line with the topics covered on the AP exam and thus students who passed the Calculus AP exams could not receive due credit.
3. All of our peer institutions required either 4 or 5 specific mathematics courses rather than 3. This caused the following problems:

- a. We were rushing through topics that needed more time.
- b. We were not covering topics (linear algebra and a proper coverage of vector calculus) that our peer institutions require.
- c. Having a math elective means students can take different courses so in the ME curriculum we could never assume when we teach advanced courses that student had a working knowledge of any of the math elective topics. Thus, these topics were not being reinforced in ME.

In ME, prior to the change, we required the following Mathematics courses

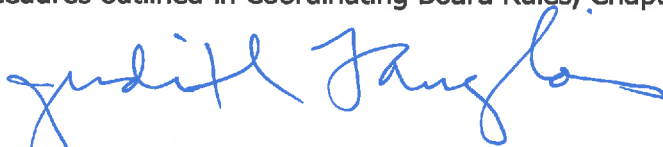
- 1. 408C
- 2. 408D
- 3. 427K
- 4. A fourth, 3 CREDIT HOUR COURSE. Most ME students were taking 340L Matrices and Linear Algebra, usually after they had already completed 427K.

We extensively reordered the topics in Mathematics. From the perspective of the request for the additional credit hour, the most relevant changes included removing virtually all of the minima coverage of vector calculus from 408D and adding a six week section of linear algebra into 427K (now renamed 427J). Since in the new curriculum, we removed all vector calculus from 408D, the committee recommended REQUIRING a fourth Math course (427L which is primarily vector calculus) for all engineering majors. This is also in line with what all of our peer institutions do. The addition of 6 weeks of linear algebra to 427J negates the need for students to take 340L and we recommend that our department no longer allow this class to count as an elective or career gateway elective since most of the material is duplicative to what is covered in 427J.

Since 427L is a 4 credit hour class and the old math elective was 3 credit hours, we need to request the additional hour.

Signature of Compliance

I hereby certify that all of the above changes have been approved in accordance with the procedures outlined in Coordinating Board Rules, Chapter 5, Subchapter C, Section 5.55.



Provost/Chief Academic Officer

Date 2/4/2016