

Program Change Request

New Program Proposal

Date Submitted: 10/16/18 2:44 pm

Viewing: **CERT-ENCC : Engineering Concept, Creation, and Commercialization - Certificate**

Last edit: 11/08/18 8:09 pm

Changes proposed by: kbrumbelow

Contact(s)

Name	E-mail	Phone
Kelly Brumbelow	kbrumbelow@tamu.edu	979-862-5891
Rodney Boehm	rodneyboehm@tamu.edu	979-458-5978

Academic level	Undergraduate
Effective Term	2019-2020
Department	College of Engineering
College	Engineering
Program type	Certificate
Associated Program	Not Applicable
With a certificate in	Engineering Concept, Creation and Commercialization

Catalog Program Title

Engineering Concept, Creation, and Commercialization - Certificate

CIP and Fund code 1401010006

Rationale for Proposal

The Engineering Concept, Creation, and Commercialization Certificate provides students with the training and experience to develop their ideas, create/design solutions to solve customer needs, and to understand the process of commercializing developed solutions. The program will focus on developing an entrepreneurial mindset which will be valuable to the students as employees of companies or as creators of their own startup.

Program hours 13

Is this program eligible for financial aid? Yes

Certificate type

Degree-dependent

Program delivery mode

On-campus

In Workflow

1. CLEN Department Head
2. Curricular Services Review
3. EN Committee Preparer UG
4. EN Committee Chair UG
5. EN College Dean UG
6. Provost
7. UCC Preparer
8. UCC Chair
9. Faculty Senate Preparer
10. Faculty Senate
11. Provost II
12. President
13. Curricular Services

Approval Path

1. 10/18/18 9:11 am
Tim Jacobs (tjacobs): Approved for CLEN Department Head
2. 10/22/18 2:48 pm
Angel Mario Carrizales (carri1214): Approved for Curricular Services Review
3. 10/22/18 5:31 pm
Eileen Hoy (ehoy): Approved for EN Committee Preparer UG
4. 10/23/18 10:03 am
Prasad Enjeti (enjeti): Approved for EN Committee Chair UG
5. 10/23/18 10:16 am
Prasad Enjeti (enjeti): Approved for EN College Dean UG
6. 10/24/18 8:45 am
Mike Stephenson (mstephenson): Approved for Provost
7. 11/06/18 9:17 am
Sandra Williams (sandra-williams): Approved for UCC Preparer
8. 12/10/18 10:27 am
Terra Bissett (t.bissett): Approved for UCC Chair

Catalog Program Requirements

Course List

Code	Title	Semester Credit Hours
ENGR 262	Engineering Entrepreneurship Hour	1
or ENGR 462	or Engineering Entrepreneurship Hour	
ENGR 461	Engineering Product Lean Launch	3

Code	Title	Semester Credit Hours
Select three of the following: 1		9
BMEN 406	Medical Device Path to Market	
BMEN 469	Entrepreneurial Pathways in Medical Devices	
ENDS 101	Design Process	
ENGR 311	Enterprise Basics for Technical Entrepreneurs	
ENGR 312	Sales, Operations and Manufacturing for Technology Companies	
ENGR 421	Technology Company Management, Leadership, and Corporate Culture	
MEEN 490	Entrepreneurship in Nano and Energy Systems	
PETE 453	Petroleum Entrepreneurship	
Total Semester Credit Hours		13
1 Other courses may be approved as prescribed electives by the Certificate Program Director.		

Additional information

Required Proposal Forms [Certificate_Programs_Form CCC UG -- Submission.docx](#)

Reviewer Comments **Mike Stephenson (mstephenson) (10/24/18 8:45 am):** An assessment plan will be required for this to be implemented.
Terra Bissett (t.bissett) (12/10/18 10:27 am): UCC approved December 2018.

Key: 922

New Program Request Form for Certificate Programs

Directions: An institution shall use this form to propose a new bachelor's or master's degree program. In completing the form, the institution should refer to the document *Standards for Bachelor's and Master's Programs*, which prescribes specific requirements for new degree programs. Note: This form requires signatures of (1) the Chief Executive Officer, certifying adequacy of funding for the new program; (2) a member of the Board of Regents (or designee), certifying Board approval, and (3) if applicable, a member of the Board of Regents or (designee), certifying that criteria have been met for staff-level approval. NOTE: Preliminary authority is required for all engineering programs. An institution that does not have preliminary authority for a proposed engineering program shall submit a separate request for preliminary authority prior to submitting the degree program request form. That request shall address criteria set in Coordinating Board rules Section 5.24 (a).

Administrative Information

1. Institution:

Texas A&M University

2. Program Name – Show how the program would appear on the Coordinating Board's program inventory (e.g., *Bachelor of Business Administration degree with a major in Accounting*):

Concept, Creation, and Commercialization Certificate (Undergraduate)

3. Proposed CIP Code: **14.0101.00.06**

4. Brief Program Description – Describe the program and the educational objectives:

The Concept, Creation, and Commercialization Certificate provides students with the training and experience to develop their ideas, create/design solutions to solve customer needs, and to understand the process of commercializing developed solutions. The program will focus on developing an entrepreneurial mindset which will be valuable to the students as employees of companies or as creators of their own startup.

Number of Semester Credit Hours Required: **13**

5. Administrative Unit – Identify where the program would fit within the organizational structure of the university (e.g., *The Department of Electrical Engineering within the College of Engineering*):

College of Engineering

6. Proposed Implementation Date – Report the first semester and year that students would enter the program: **Fall 2019**

7. Contact Person – Provide contact information for the person who can answer specific questions about the program:

Name: Rodney Boehm

Title: Director of Engineering Entrepreneurship and Associate Professor of Practice

E-mail: rodneyboehm@tamu.edu

Phone: 979-458-5978

Program Information

I. Need

Note: Complete I.A and I.B only if preliminary authority for the program was granted more than four years ago. This includes programs for which the institution was granted broad preliminary authority for the discipline.

- A. Job Market Need – Provide short- and long-term evidence of the need for graduates in the job market.

N/A as preliminary authority was not granted more than 4 years ago.

- B. Student Demand – Provide short- and long-term evidence of demand for the program.

N/A as preliminary authority was not granted more than 4 years ago.

- C. Enrollment Projections – Use this table to show the estimated cumulative headcount and full-time student equivalent (FTSE) enrollment for the first five years of the program. *(Include majors only and consider attrition and graduation.)*

YEAR	1	2	3	4	5
Headcount	20	40	80	150	300
FTSE	20	40	80	150	300

II. Quality

- A. Certificate and Degree Requirements – Use this table to show the certificate and degree requirements of the program. *(Modify the table as needed; if necessary, replicate the table for more than one option.)*

Category	Semester Credit Hours
General Education Core Curriculum <i>(bachelor's degree only)</i>	0
Required Courses	4
Prescribed Electives	9
Free Electives	0
Other <i>(Specify, e.g., internships, clinical work)</i>	(if not included above)
TOTAL	13

- B. Curriculum – Use these tables to identify the required courses and prescribed electives of the program, and curriculum as it will appear in the undergraduate and graduate catalog. Note with an asterisk (*) courses that would be added if the program is approved. *(Add and delete rows as needed. If applicable, replicate the tables for different tracks/options as shown in the undergraduate catalog.)*

Prefix and Number	Required Courses	SCH
ENGR 262/462	Engineering Entrepreneurship Hour	1
ENGR 461	Product Lean Startup For Engineers	3

Prefix and Number	Prescribed Elective Courses (Take 9 SCH from this list)	SCH
BMEN 406	Medical Device Path to Market	3
BMEN 469	Entrepreneurial Pathways in Medical Devices	3
ENDS 101	Design Process	3
ENGR 311	Enterprise Basics for Technical Entrepreneurs	3
ENGR 312	Sales, Operations, and Manufacturing for Technology Companies	3
ENGR 421	Technology Company Management, Leadership, and Corporate Culture	3
MEEN 490	Entrepreneurship in Nano and Energy Solutions	3
PETE 453	Petroleum Entrepreneurship	3

	TOTAL SCH	13
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Other courses may be approved as Prescribed Electives by the Certificate Program Director.

- C. Faculty – Use these tables to provide information about Core and Support faculty. Add an asterisk (*) before the name of the individual who will have direct administrative responsibilities for the program. (Add and delete rows as needed.)

Name of <u>Core</u> Faculty and Faculty Rank	Highest Degree and Awarding Institution	Courses Assigned in Program	% Time Assigned To Program
*Boehm, Rodney Associate Professor of Practice	M.Eng. Electrical Engineering Texas A&M University	ENGR 461, ENGR 262/462, ENGR 312	100%
Donnell, James Professor of Practice	B.S. Mechanical Engineering, Texas A&M University Advanced Management Program, Harvard University Business School	ENGR 311, ENGR 421, ENGR 262/462, PETE 453, MEEN 490	100%

Name of <u>Support</u> Faculty and Faculty Rank	Highest Degree and Awarding Institution	Courses Assigned in Program	% Time Assigned To Program
Saurabh Biswas, Associate Professor of Practice	Ph.D. Biomedical Engineering, Texas A&M University	BMEN 406, BMEN 469	5%
M. Cynthia Hipwell, TEES Eminent Professor	Ph.D. Mechanical Engineering, University of California, Berkeley	MEEN 490	5%
Catherine Sliva, Associate Professor of Practice	B.S. Petroleum Engineering, Texas A&M University	PETE 453	5%

- D. Students – Describe general recruitment efforts and admission requirements. How will students be accepted into the program? In accordance with the institution's Uniform Recruitment and Retention Strategy, describe plans to recruit, retain, and graduate students from underrepresented groups for the program.

Students will be recruited by direct email, new student conferences, working with academic advisors, working with Aggies Invent participants, Engineering Inc. participants, web presence, direct marketing, working with the Career Center, and holding open house information sessions. Underrepresented groups will be recruited by working directly with the Access and Inclusion, Women in Engineering, and inclusive student groups.

- E. Library – Provide the library director's assessment of library resources necessary for the program. Describe plans to build the library holdings to support the program.

Current physical and online library resources are adequate for this program.

- F. Facilities and Equipment – Describe the availability and adequacy of facilities and equipment to support the program. Describe plans for facility and equipment improvements/additions.

Facilities used for this program include the Engineering Incubator, the Fischer Engineering Design Center, and Zachry classrooms. All of these facilities are housed in the newly renovated Zachry Engineering Education Center.

- G. Accreditation – If the discipline has a national accrediting body, describe plans to obtain accreditation or provide a rationale for not pursuing accreditation.

No national accrediting body or process exists.

- H. Evaluation – Describe the evaluation process that will be used to assess the quality and effectiveness of the new degree program.

On an annual basis, data will be collected and assessed from the following sources: (1) end-of-course student surveys for all certificate courses, (2) exit surveys and interviews of students graduating and completing the certificate, and (3) program faculty will be surveyed to assess their perceptions of students' attainment of the certificate program goals. The evaluation will take place in the university's annual assessment cycle using current tools (e.g., WEAVE online).

- I. Administration of Program – Describe how the program will be administered. Where will the program be administered (i.e., department, college)?

The program will be administered by the Engineering Academic and Student Affairs office in the College of Engineering.

III. Costs and Funding

Five-Year Costs and Funding Sources - Use this table to show five-year costs and sources of funding for the program.

Five-Year Costs		Five-Year Funding	
Personnel ¹	\$0	Reallocated Funds	\$0
Facilities and Equipment	\$0	Anticipated New Formula Funding ³	\$0
Library, Supplies, and Materials	\$0	Special Item Funding	\$0
Other ²	\$0	Other ⁴	\$0
Total Costs	\$0	Total Funding	\$0

- Report costs for new faculty hires, graduate assistants, and technical support personnel. For new faculty, prorate individual salaries as a percentage of the time assigned to the program. If existing faculty will contribute to program, include costs necessary to maintain existing programs (e.g., cost of adjunct to cover courses previously taught by faculty who would teach in new program).
- Specify other costs here (e.g., administrative costs, travel).
- Indicate formula funding for students new to the institution because of the program; formula funding should be included only for years three through five of the program and should reflect enrollment projections for years three through five.
- Report other sources of funding here. In-hand grants, "likely" future grants, and designated tuition and fees can be included.

Signature Page

1. Adequacy of Funding – The chief executive officer shall sign the following statement:

I certify that the institution has adequate funds to cover the costs of the new program. Furthermore, the new program will not reduce the effectiveness or quality of existing programs at the institution.

Chief Executive Officer

Date

2. Board of Regents or Designee Approval – A member of the Board of Regents or designee shall sign the following statement:

On behalf of the Board of Regents, I approve the program.

Board of Regents (Designee)

Date of Approval

3. Board of Regents Certification of Criteria for Commissioner of Assistant Commissioner Approval – For a program to be approved by the Commissioner or the Assistant Commissioner for Academic Affairs and Research, the Board of Regents or designee must certify that the new program meets the eight criteria under TAC Section 5.50 (b): The criteria stipulate that the program shall:

- (1) be within the institution's current Table of Programs;
- (2) have a curriculum, faculty, resources, support services, and other components of a degree program that are comparable to those of high quality programs in the same or similar disciplines at other institutions;
- (3) have sufficient clinical or in-service sites, if applicable, to support the program;
- (4) be consistent with the standards of the Commission of Colleges of the Southern Association of Colleges and Schools and, if applicable, with the standards or discipline-specific accrediting agencies and licensing agencies;
- (5) attract students on a long-term basis and produce graduates who would have opportunities for employment; or the program is appropriate for the development of a well-rounded array of basic baccalaureate degree programs at the institution;
- (6) not unnecessarily duplicate existing programs at other institutions;
- (7) not be dependent on future Special Item funding
- (8) have new five-year costs that would not exceed \$2 million.

On behalf of the Board of Regents, I certify that the new program meets the criteria specified under TAC Section 5.50 (b).

Board of Regents (Designee)

Date