

DATE: July 26, 2018

SUBJECT: New Academic Program
University of Tennessee at Chattanooga
Mechatronics Engineering Technology, Bachelor of Applied Science
(CIP 15.0403—Electromechanical Technology/Electromechanical
Engineering Technology)

ACTION RECOMMENDED: Approval

PROGRAM DESCRIPTION

The University of Tennessee at Chattanooga proposes a Mechatronics Engineering Technology Bachelor of Applied Science (BAS) program. This program is designed as a 2 + 2 program for transfer students who have completed a relevant Associate of Applied Science (AAS) degree and seek an advanced technological degree to meet the technical workforce needs of area business and industry in Chattanooga and the surrounding area. Most students are anticipated to transfer from Chattanooga State Community College and Cleveland State Community College.

INSTITUTIONAL GOVERNING BOARD APPROVAL

The proposed Mechatronics Engineering Technology BAS program was approved by the University of Tennessee Board of Trustees on June 22, 2018.

PROPOSED IMPLEMENTATION DATE

Fall 2018

RELEVANCE TO INSTITUTIONAL MISSION AND STRATEGIC PLAN

The program aligns with UTC's institutional mission as "an engaged, metropolitan university." The city of Chattanooga, as well as this entire region, is an area in the midst of transformation with a strong economic and community base and an in-depth urban core. UTC values the community partnerships and connections and as such is committed to supporting the community through programs that address the growing workforce needs such as the Mechatronics Engineering Technology BAS degree.

In keeping with the institutional mission and the State Master Plan, the proposed program combines community partnerships with emerging technological innovation that will positively impact Tennessee's economic development, workforce development, and research needs.

CURRICULUM

The proposed Mechatronics Engineering Technology BAS program is an interdisciplinary program that involves aspects of mechanical, computer systems, manufacturing, networking, and electrical/electronic engineering technology. The proposed program will consist of 127 credit hours, of which 33 hours are devoted to general education, 60 for the major field, and 34 hours of technical electives (with the additional requirement that the final 60 hours must be completed at the University of Tennessee Chattanooga). Eleven new courses are proposed to support the program. The proposed program will prepare graduates for advanced industry recognized certifications such as the SME Certified Manufacturing Technologist certification.

PROGRAM PRODUCTIVITY

The proposed Mechatronics Engineering Technology BAS program projects the initial class size to be 20 students with an increase of 10 students annually. These projections align with the optimal capacity for labs and will provide an environment that allows for hands-on professional training that is necessary for the engineering technology field.

| Year | Full-Time Headcount | Part-Time Headcount | Total Headcount | Graduates |
|------------------|----------------------------|----------------------------|------------------------|------------------|
| Fall 2018 | 10 | 10 | 20 | -- |
| Fall 2019 | 15 | 15 | 30 | -- |
| Fall 2020 | 20 | 20 | 40 | 10 |
| Fall 2021 | 20 | 30 | 50 | 12 |
| Fall 2023 | 25 | 35 | 60 | 15 |

PROGRAM DUPLICATION

No other public or private institutions in Tennessee offer a BAS in Mechatronics Engineering Technology. However, East Tennessee State University does offer a BAS degree in General Applied Science for students who hold an Associate of Applied Science degree in a technical field but not specific to mechatronics engineering.

EXTERNAL JUDGEMENT

On April 12, 2018, an external review was conducted by Dr. Kevin McFall, Associate Professor and Interim Department Chair of Mechatronics Technology at Kennesaw State University. The external reviewer stated that "convinced both of the demand for this program from students and the need for its graduates in the industry. Overall, UTC has thought carefully about this program and has a plan in place to ensure it can launch a quality, in-demand program for its students."

STUDENT DEMAND

In order to gauge student demand for the proposed Mechatronics Engineering Technology BAS program, UT Chattanooga reviewed enrollment and graduation trends at local

community colleges in engineering technology programs. Positive graduation trends along with a student survey indicated a strong interest in a degree pathway from an AAS program to a BAS degree program.

OPPORTUNITIES FOR PROGRAM GRADUATES

This proposed program addresses the regional need to provide a seamless transition from a Tennessee College of Applied Technology (TCAT) diploma program through an AAS in a technical field into a bachelor's degree. Graduates of this proposed program will fill significant workforce needs in advance manufacturing and other fields requiring systems oriented engineering technology. The degree responds to the needs of UTC's industry partners such as TVA, Electric Power Board, and Volkswagen.

INSTITUTIONAL CAPACITY TO DELIVER THE PROGRAM

UT Chattanooga has the institutional capacity with its faculty, facilities and resources to effectively deliver the proposed program. Currently, the Department of Engineering Management and Technology have four tenure and tenure track faculty members along with two lecturers. The Department is currently in the process of hiring a department head with a background in mechatronics to provide oversight to the BAS Mechatronics Engineering Technology program beginning AY 2018-19.

By fall 2020, the Advanced Manufacturing Application Center will be completed and fully equipped to provide laboratory space for three courses in the Mechatronics BAS program. Initially, labs will be available at Chattanooga State Community College. UTC is making a one-time request for \$50,000 to supplement UTC Foundation funds to purchase MecLab Mechatronics Training System, the Siemens approved Mechatronics equipment, for use in the UTC labs. One graduate assistant will be funded to assist students in the lab.

ASSESSMENT AND POST-APPROVAL MONITORING

The professional accreditation body for the Mechatronics Engineering Technology BAS program is the Engineering Technology Accreditation Commission of the Accredited Board for Engineering and Technology (ETAC-ABET). An annual performance review of the proposed program will be conducted by THEC staff for the first five years following program approval prior to the program being accredited by ETAC-ABET in 2020. The review will be based on benchmarks established in the approved proposal. At the end of this period, the campus, institutional governing board, and Commission staff will perform a summative evaluation.

The benchmarks assessed in the post-approval monitoring include enrollment and graduation, program cost, progress toward accreditation, and other metrics set by the institution and Commission staff. If benchmarks are not met during the monitoring period, the Commission may recommend that the institutional governing board terminate the program. If additional time is needed and requested by the institutional governing board, the Commission may choose to extend the monitoring period.