

Name Elizabeth Kennedy

Email ekennedy@missouriwestern.edu

School/Organization MWSU - SEMO - UCM

Program * UM - Columbia BS Engineering Technology CIP150000

The University of Missouri-Columbia (MU) Bachelor of Science in Engineering Technology (BSET) program proposal submitted November 21, 2023 duplicates Engineering Technology (ET) programs at the University of Central Missouri (UCM), Southeast Missouri State University (SEMO), and Missouri Western State University (MWSU). Each institution alleges the proposed program duplicates existing programs and courses, fails to acknowledge substantial investment in engineering technology laboratory facilities state-wide, and could negatively impact existing ET programs. In light of concerns regarding duplication across multiple state institutions of higher education, the impacted institutions wish to enter the following statements of information into public comment regarding the proposal.

The University of Central Missouri (UCM): The University of Missouri engineering technology program proposal duplicates the University of Central Missouri's ABET-accredited engineering technology degree program and existing areas of emphasis within the degree program to include robotics, electrical engineering and automation. In addition, the MU proposal does not reference that UCM has an ET program nor acknowledge this duplication.

UCM has a designated statewide mission in professional applied science and technology. The proposal's failure to acknowledge and include UCM, which has at least an equal statewide service reach as MU in this programmatic area, raises the question of whether the proposal fully considers the market for providing an ET degree. Indeed, for fall 2023, UCM enrolled 12,788 students from 110 of the 114 counties in Missouri, 48 of the 50 states in the U.S., and 49 different countries. The UCM Engineering Technology program historically and for fall 2023 similarly had enrollment from across the state (northeast, east, northwest, south, and southwest), nation (10 non-Missouri states) and world (four non-U.S. countries). The MU proposal also includes many new courses that do not yet exist at the University of Missouri, and as currently constructed, would appear to represent a significant increase in cost to the state.

Southeast Missouri State University (SEMO): There are existing well established ABET accredited Engineering Technology programs at SEMO, MWSU, and UCM. These programs have proven to fulfill workforce needs and demands throughout the state of Missouri and are not limited solely to the regions of the state that the Universities reside in. The University of Missouri Columbia state that the program would be unique because no "UM system" schools have it. However, that ignores that Southeast Missouri State University along with Missouri Western State University and University of Central Missouri that have built programs to address ET workforce needs. Only reaching out to Community Colleges for potential articulation agreements ignores the fact that there would be significant duplication with the creation of a new program. The addition of a program at University of Missouri Columbia may not help but possibly hurt access. Students that are able to travel to the University of Missouri and afford their tuition are also able to attend one of the several ET programs at regional institutions. However, if the University of Missouri pulls students from these programs, it will likely harm these programs and make an ET program unsustainable.

Missouri Western State University (MWSU): As highlighted on page 1-6 of the University of Missouri Bachelor of Science in Engineering Technology (BSET) degree program proposal, the new program would duplicate Missouri Western State University's (MWSU) accredited ABET- accredited Engineering Technology program in both content and student recruitment pool. As the State of Missouri's designated "Applied Learning Institution," Missouri Western State University (MWSU) actively seeks to meet state and regional ET workforce needs by both continuing to serve engineering technology students from across the nation and region with a broad-based education in engineering principles, and addressing rising workforce needs by opening a new state-of-the-art manufacturing applied-learning laboratory facility in 2024.

The proposed BSET program represents duplication, incorrectly stating that MWSU serves "a more local population," as well as implying limited institutional capacity. MWSU has an established Engineering Technology program rooted in hands-on applied learning pedagogy that is currently serving the state, region, nation, as well as international students. Additionally, the campus and program will open the Convergent Technology Alliance Center (CTAC) in the fall of 2024, highlighting the campus and regional investment in the existing program as well as a substantial increase in capacity not indicated in the proposal.

MWSU Student Population: MWSU attracts international students, as well as students from all over the nation, state, and region. As an institution, we currently enroll students from 33 states and 30 foreign countries: in the fall of 2023, 82% of Engineering Technology majors were from Missouri, with 18% coming from states including California, Florida, Illinois, Nebraska, New Mexico, South Dakota, and Texas. The in-state students equally represent the institution's reach far beyond a "local" population, with students coming from 23 counties state-wide including Cape Girardeau, Douglas County, St. Charles County, St. Louis County, and Clinton County. International students have begun returning post COVID, and the Engineering Technology major currently has one international student from Honduras and increases expected in the coming 2 years as more foreign students return to study in the United States.

MWSU Program Growth and Expansion: Missouri Western State University (MWSU) is partnered with regional employers and educational partners to address the production of skilled workforce utilizing through the establishment of the Convergent Technology Alliance Center (CTAC) and the integration of the existing Engineering Technology degrees offered at MWSU. As the city of Saint Joseph is the third largest exporter in Missouri, with 25% of regional residents employed in manufacturing, MWSU and St. Joseph area have collaborated with manufacturers across a multi-state region to build a new facility that will prepare graduates to succeed in manufacturing, production, and operational engineering and meet the 13% growth projected regionally.

With a planned opening in the fall of 2024, CTAC will offer applied-learning laboratory space, enhance partnerships with regional manufacturing and industry, and result in significant increases in the enrollments of the MWSU Engineering Technology degree. The impact on MWSU enrollment of this \$12.5 million-dollar cutting-edge facility has already begun, most recently evident with a cohort of five (5) new Engineering Technology students enrolling for spring 2024 and an additional cohort of 25 -30 students anticipated in the fall of 2024. Further, new partnerships with school districts outside Missouri (e.g., Omaha, NE) highlight the multi-state reach of MWSU's Engineering Technology program and

provides evidence that the institution's accessible engineering programming serves not only local, but regional and national populations.

Summary:

The University of Central Missouri (UCM), Southeast Missouri State University (SEMO), and Missouri Western State University (MWSU) assert that the proposed University of Missouri-Columbia Bachelor of Science in Engineering Technology (BSET) program is a duplication of existing programs, funding, and physical resources, and that the approval of this program would negatively impact existing funded and resourced Engineering Technology (ET) programs. The impacted institutions appreciate the opportunity to provide this information and highlight the impact of the duplication for the State of Missouri.

January 19, 2024

Ms. Samantha Dickey
Interim Assistant Commissioner for Postsecondary Policy
Missouri Department of Higher Education & Workforce Development
P.O. Box 1469
Jefferson City, MO, 65102

Via Email: Samantha.Dickey@dhewd.mo.gov

Dear Samantha,

Thank you for the opportunity to respond to the public comment from the University of Central Missouri (UCM), Southeast Missouri State University (SEMO), and Missouri Western State University (MWSU) regarding the University of Missouri's (MU) proposed Bachelor of Science in Engineering Technology degree program.

We agree that UCM, SEMO, and MWSU each contribute to the important and growing field of engineering technology. According to IPEDS, these three institutions conferred 175 engineering technology degrees (programs with 2-digit CIP of 15) out of 320 engineering technology conferrals statewide in 2022. Other institutions conferring engineering technology degrees in 2022 include Missouri S&T (77), Northwest Missouri State University (18), Missouri Western (15), and Missouri State (7).

However, we don't believe that MU offering this degree will undermine existing programs. Rather, this degree will provide a pathway for students with existing connections to partnering community colleges and MU to obtain a credential that they may not otherwise obtain. The job market within Missouri should support additional graduates from this program, and still support any growth plans for the existing programs. MU will not be requesting any additional state funding for this program, and will leverage in place infrastructure in the College of Engineering to begin the program.

Partnership with Community Colleges

We are proud of the support we've received from Moberly Area Community College (MACC) and St. Louis Community College (STLCC), whose support is indicative of untapped opportunities in this area.

Partnering with community colleges is essential in the engineering technology sector: in 2022, there were more associate degrees conferred in engineering

technology (450) than bachelor's degrees (320) in Missouri. Our goal in partnering with community colleges is to provide a streamlined path for associate degree holders to earn a bachelor's degree, should they choose to pursue one. The UM System has a history of successful partnerships, such as the Cooperative Engineering Program between Missouri S&T and Missouri State University, UMKC's pharmacy collaboration with MU and Missouri State University, and the Tiger Pathways co-enrollment bridge program with MACC. These partnerships are essential for using state resources responsibly and increasing degree attainment in the state.

There are several unique features of the MU curriculum. The MU ET program is designed to ease transfer by including a large number of technical electives (5 total technical electives). The large number of technical electives allows students to specialize in diverse fields to fit many career directions. To further prepare students for careers in engineering technology, the MU program includes a unique writing intensive component to further develop a communication skillset for graduates. The program also includes an internship experience that ensures that graduates have relevant workforce experience that will help them succeed in full-time job placement.

Improving Degree Attainment

Compared with students who earn a degree, students with some college and no degree find themselves navigating debt without the benefit of increased job and salary prospects. This is an acute concern with respect to engineering programs, which have some of the highest admissions standards and are among the most rigorous degree programs. Even with robust student success and support initiatives in place, it is not uncommon for talented students to not be admitted to traditional engineering programs or for admitted students to decide to go in another direction.

This program is, in part, designed for students that come to MU with an engineering career aspiration, who may not be accepted or may not excel in traditional math-intensive engineering training programs, enabling them to complete a degree in a high-demand, well-paying field. In the most recent cohort, an estimated 68 students (who were either pre-engineering or admitted directly into the College of Engineering) were not retained by the University after their first year. Retaining these students is essential to the student success mission of the University and closely aligned with the state's goal of increasing educational attainment.

Without this option, students may not only leave MU – where they have developed social and academic connections – but higher education altogether, which is a negative outcome for both the student and the state.

Unmet Industry Demand

There is a growing need for engineering technologists in the state/country with the renewed emphasis on manufacturing. The Lightcast data clearly illustrates the gap between demand and supply of skilled engineering technologists. Current programs are not able to adequately supply enough students to meet hiring demand. There were 680 completions regionally (in MO+8 surrounding states) from baccalaureate level engineering technology programs compared to 60,559 annual openings in relevant occupations. These occupations have a median annual salary of \$69,900/year and are projected to grow 17.4% over the next decade.

Lightcast also estimates that, in Missouri alone, there are 13,740 annual job openings for which bachelor-level engineering technology graduates will be competitive. This figure is anticipated to grow 15.6% over the next decade, representing an additional 2,143 job openings annually. With only 320 conferrals of engineering technology bachelor's degrees in 2022, the data clearly indicate an unmet labor market need in which multiple programs can grow and flourish.

Thank you again for the opportunity to provide this response. We are happy to provide additional information to the department to assist in its review.

Sincerely,

A handwritten signature in black ink, appearing to read "John R. Middleton", with a long horizontal flourish extending to the right.

John R. Middleton, DVM, PhD, DACVIM
Associate Vice President for Academic Affairs & Chief of Staff

Attachments:

Letter of support from Moberly Area Community College
Letter of support from St. Louis Community College

cc: Dr. Bennett Boggs, Commissioner, MDHEWD



May 25, 2023

Moberly Area Community College
Mechatronics Advisory Committee
Spring 2023 General Meeting

To Whom It May Concern,

The Moberly Area Community College Mechatronics Advisory Committee fully supports the University of Missouri College of Engineering's creation of a Bachelor of Science in Engineering Technology (BSET) program.

We look forward to the collaboration of the BSET program with the MACC Mechatronics program, and understand that this partnership will allow our Mechatronic students additional pathways for the continuation of their education should they choose to do so. Additionally, we feel the program will provide a conduit for continuing education for many of our non-traditional students.

By aligning itself with community colleges, the program's aim to streamline technical education and build continuing educational bridges, while efficiently utilizing resources and minimizing associated costs, is an efficient use of taxpayer dollars and student fees. We actively support this degree program.

Mechatronics Advisory Committee
Consent By Unanimous Vote, 5/25/2023

- Jennifer Barret, Columbia Safety & Supply
- April Knight, Columbia Safety & Supply
- Alex Anderson, 3M
- Bill Marshall, 3M
- Ray Stewart, Everlast Worldwide, Inc.
- Bernie Valdez, Dana Inc.
- Kirubel Hailemichael, Dana Inc.
- Bernie Andrews, Columbia REDI
- Vernon Robertson, Walsworth Publishing
- John Davidson, Walsworth Publishing
- Roberta Carson, Heart of Missouri RPDC
- Gayla Neumeyer, University of Missouri MURR
- Ryan Fessler, University of Missouri MURR
- Suzanne McGarvey, MACC
- Brandi Glover, MACC

Approved,

Mike Klote
Director, MACC Mechatronics Program



May 31, 2023

To Whom it May Concern:

I am writing in enthusiastic support of the proposal to develop a new Bachelor of Science in Engineering Technology (BSET) degree program in the College of Engineering, University of Missouri-Columbia (MU).

MU and Moberly Area Community College (MACC) are collaborating on this well-rounded curricular opportunity that is designed to develop hard and soft skills that will prepare students for the workplace. As part of our commitment to shape students into engaged citizens and citizen leaders, we are fully supportive of this new degree program. We are eager to see this program further both MU and MACC's curricular goals through innovative pedagogies that connect undergraduate academics to the many career opportunities beyond the higher education platform. In addition, MACC and MU are collaborating on the development of an NSF-Advanced Technological Education which aims at supporting partnerships between community college institutions, industry, and four-year institutions to develop educational and career pathways to improve engineering technology education.

We believe this new BSET degree program will enable graduates to meet the workforce needs of regional employers and will provide pathways for MACC students to transition into MU from a variety of programs including the AA General Studies, AS Engineering, and AAS Mechatronics degrees. This new degree will provide opportunities for non-traditional adult students to enter into engineering careers. This type of engineering degree prepares students to enter the workforce as professional engineers with skills that are applicable to a wide variety of industry disciplines including computer, electrical, mechanical and industrial engineering. With this degree, they will have the ability to respond to real-world situations in all industries. This program will develop their critical and analytical thinking to identify complex problems, evaluate options and implement solutions. Because of the continuing need for skilled workers in these fields, engineering technology is expected to be a rapidly growing field in the decade to come.

Our students will be well-served by this opportunity as part of their educational pathway, and we fully support the development of the Bachelor of Science in Engineering Technology degree program in the College of Engineering at Mizzou.

Sincerely,

Dr. Todd Martin
Vice President for Instruction

Suzi McGarvey
Dean of Workforce Development & Technical Education

31 May 2023

To Whom it May Concern:

I am writing to support the proposed new Bachelor of Science in Engineering Technology (BSET) degree program in the College of Engineering at the University of Missouri-Columbia (MU). Saint Louis Community College (STLCC) is committed to innovative workforce development programs and college pathways to serve the students of our state and surrounding states.

I strongly support this new BSET degree program. We are eager to see this program further both MU's and STLCC's educational goals to develop seamless pathways that lead to many career opportunities for our graduates. MU Engineering and STLCC continue to collaborate on developing academic programs and curricula designed to prepare our graduates for the continually advancing workplace. MU and STLCC-Florissant Valley are collaborating on the development of an NSF-Advanced Technological Education which aims at supporting partnerships between community college institutions, industry, and four-year institutions to develop educational and career pathways to improve engineering technology education.

We believe this new BSET degree program will provide pathways for our community college students to transition into MU to support the workforce needs of regional employers. Because of the continued need for skilled workers, engineering technology is expected to be a rapidly growing field in the decade to come. The collaboration between MU and STLCC through this new BSET degree will prepare graduates to enter engineering workforce careers, such as computer, electrical, mechanical and industrial engineering. STLCC-Florissant Valley students will greatly benefit from this opportunity as part of their college and career pathways. We fully support this new Bachelor of Science in Engineering Technology degree program in the College of Engineering at MU.

Sincerely,



Thomas A. McGovern

Division Dean, STEM

St. Louis Community College-Florissant Valley

3400 Pershall Road, St. Louis, MO 63135

314-513-4313 | 314-513-4401 (assistant)

tmcgovern@stlcc.edu



January 23, 2024

Samantha Dickey

Interim Assistant Commissioner for Postsecondary Policy
Missouri Department of Higher Education & Workforce Development

P.O. Box 1469
Jefferson City, MO, 65102

Via Email: Samantha.Dickey@dhewd.mo.gov

Dear Samantha,

The Missouri Community College Association (MCCA) has no concerns with the University of Missouri's (MU's) proposal for a Bachelor of Science in Engineering Technology degree.

Included in the proposal submitted by MU were letters of support from two MCCA member institutions – Moberly Area Community College (MACC) and St. Louis Community College (STLCC) – indicating a desire for collaboration in this growing engineering discipline. The MACC Mechatronics Advisory Committee, in its letter, stated that *“this partnership will allow our Mechatronics students additional pathways for the continuation of their education should they choose to do so. Additionally, we feel the program will provide a conduit for continuing education for many of our non-traditional students.”*

Thomas McGovern, the STEM Division Dean at STLCC-Florissant Valley, similarly indicates in his letter that the program *“will provide pathways for our community college students to transition into MU to support the workforce needs of regional employers,”* and that *“engineering technology is expected to be a rapidly growing field in the decade to come.”*

MCCA is in strong support of collaborations between two- and four-year institutions in this state to support seamless transfer and degree completion and appreciate the efforts by MU to build these partnerships into the proposed program. Given labor market trends indicated in the letters of support and the original proposal, this appears to be a field where additional programs are warranted.

Sincerely,

A handwritten signature in black ink that reads "Brian Miller". The signature is written in a cursive, flowing style.