

## COVER PAGE FOR CHANGES TO ACADEMIC ORGANIZATION OR STRUCTURE OF AN EDUCATIONAL UNIT

The Senate’s Academic Organization and Structure Committee (SAOSC) is tasked by the University Senate with the review of proposals to change academic organization or structure. The information needed by the SAOSC for the review of such proposals is set forth in *Senate Rules 3.4.2.A.5*<sup>1</sup>.

The SAOSC has developed a set of guidelines (from the *Senate Rules*) that are intended to ease the task of proposal submission (available at <http://www.uky.edu/universitysenate/forms>). As proposal omissions usually cause a delay in the review process, the individual(s) responsible for the proposal is (are) urged to familiarize themselves with these guidelines before submitting their proposals for review. In particular, the individual responsible for the proposal must fill out Sections I, II and III of this form, as well as include statements and documentation that provide a full accounting of the items a - i, below.

- a. Disposition of faculty, staff and resources (financial and physical);
- b. Willingness of the donating units to release faculty lines for transfer to a different educational unit;
- c. Consultation with the faculty of the unit to which the faculty lines are proposed to be transferred;
- d. Consultation with the faculty of educational unit that will be significantly reduced;
- e. Summary of votes and viewpoints (including dissents) of unit faculty and department/college committees;
- f. Ballots, votes expressing support for or against the proposal by unit faculty and staff and committees;
- g. Letters of support or opposition from appropriate faculty and/or administrators; and
- h. Letters of support from outside the University.

### Section I – General Information about Proposal

One- to two-sentence description of change:	Create the Department of Engineering Technology within the College of Engineering in order to facilitate the appointment of faculty and allocation of resources to the proposed Bachelor of Science in Lean Systems Engineering Technology and the Bachelor of Science in Computer Engineering Technology,				
Contact person name:	Nelson K. Akafuah	Phone:	(859) 218-0702	Email:	nelson.akafuah@uky.edu
Administrative position (dean, chair, director, etc.):	Chair, Engineering Technology Implementation Committee				

### Section II – Educational Unit(s) Potentially Impacted by Proposal

Check all that apply and name the specific unit(s).		
<input type="checkbox"/>	Department of:	
<input type="checkbox"/>	School of:	
<input checked="" type="checkbox"/>	College of:	Engineering
<input type="checkbox"/>	Graduate Center for:	
<input type="checkbox"/>	Interdisciplinary Instructional Program:	
<input type="checkbox"/>	Multidisciplinary Research Center/Institute:	

### Section III – Type of Proposal

<sup>1</sup> Items a-i are derived from *Senate Rules 3.4.2.A.5*. The Senate Rules in their entirety are available at [http://www.uky.edu/Faculty/Senate/rules\\_regulations/index.htm](http://www.uky.edu/Faculty/Senate/rules_regulations/index.htm).)

**COVER PAGE FOR CHANGES TO ACADEMIC ORGANIZATION OR STRUCTURE OF AN EDUCATIONAL UNIT**

Check all that apply.	
<i>A. Changes</i>	
<input type="checkbox"/>	Change to the name of an educational unit.
<input type="checkbox"/>	Change to the type of educational unit (e.g., from department to school).
<i>B. Other types of proposals</i>	
<input checked="" type="checkbox"/>	Creation of a new educational unit.
<input type="checkbox"/>	Consolidation of multiple educational units.
<input type="checkbox"/>	Transfer of an academic program to a different educational unit.
<input type="checkbox"/>	Transfer of an educational unit to a different reporting unit.
<input type="checkbox"/>	Significant reduction of an educational unit.
<input type="checkbox"/>	Discontinuation, suspension or closure of an educational unit.
<input type="checkbox"/>	Other (Give a one- or two-sentence description below; a complete description will be in the proposal).

**Section IV is for internal use/guidance.**

**Section IV – Guidance for SAOSC, Senate Council and University Senate**

***SAOSC Review of Type A Proposals (Changes to Type of, or to Name of, an Educational Unit)***

- ✓ SAOSC review of proposal.
- ✓ SAOSC recommendation for an additional or joint review by other Senate committee(s) (e.g. Senate's Academic Programs Committee).

***SAOSC Review of Type B Proposals (All Other Changes)***

- ✓ SAOSC review of proposal.
- ✓ SAOSC recommendation for an additional or joint review by other Senate committee(s) (e.g. Senate's Academic Programs Committee).
- ✓ SAOSC review of proposals for creation, consolidation, transfer, closure, discontinuation, or significant reduction and educational unit, or transfer of an academic program to a different educational unit (attach documentation).
- ✓ Program review in past three years (attach documentation).
- ✓ Request to Provost for new program review (attach documentation).
- ✓ Open hearing (attach documentation).
  - SAOSC information must be shared with unit 10 days prior to hearing.
  - Open hearing procedures disseminated.

***Voting by SAOSC, Senate Council and University Senate***

- ✓ Endorse (or do not endorse) the academic organization, reporting, infrastructure, etc.
  - This vote is taken by the SAOSC, SC and Senate for every SAOSC proposal.
- ✓ Approve (or do not approve) the academic status or content of academic program.

**COVER PAGE FOR CHANGES TO ACADEMIC ORGANIZATION OR STRUCTURE OF AN EDUCATIONAL UNIT**

- This vote is taken by the SAOSC, SC and Senate only when the review involves an MDRC.

**Proposal to Create the  
Department of Engineering Technology  
College of Engineering, University of Kentucky**

**Overview**

The proposed Department of Engineering Technology, hereafter referred to as the Department of Engineering Technology, within the University of Kentucky, College of Engineering (UK-COE) will bring together the Bluegrass Community and Technology College (BCTC) and Industry Partners that offer the University of Kentucky a unique approach to address the critical manufacturing skills shortage in the Commonwealth of Kentucky and the nation.

The Economic Modeling, LLC, (Emsi) conducted an engineering sector analysis in Kentucky for the Kentucky Council on Postsecondary Education (KY CPE, April 2020). The EMSI report identified Engineering Technology as an area of expansion at the bachelor's degree level within the Commonwealth of Kentucky. In partnering with the BCTC and industry, the COE will create a unique undergraduate engineering program that bridges the gap between industry and academia with strategic partnerships, instills scholarly knowledge, and develops the skills needed by students to be career-ready for the 21<sup>st</sup> Century economy. The Bachelor of Science (BS) in Engineering Technology (ET) to be offered by the proposed department will be the best choice for students who want to solve practical problems and who learn best when given extensive hands-on training and experiences. The strategic partnerships with industry will allow close collaboration on curriculum development and foster a deeper understanding of the technology and market needs to create more compatible, enlightened course offerings that better prepare graduates for success. The strategic partnerships with BCTC and industry will enable the faculty and staff associated with the new department to more effectively address the strategic goals of the College of Engineering, the University of Kentucky, and the Commonwealth of Kentucky.

The new department shall be formed by reconfiguring existing resources within the UK-COE. It will position the UK at the forefront of meeting the critical education and skills needs within the 21<sup>st</sup> Century manufacturing workforce within the Commonwealth.

The **vision** of the Department of Engineering Technology is:

To be recognized as a premier academic location for undergraduate education in Engineering Technology and to be the source of innovative, interdisciplinary Engineering Technology programs that partner with community and industry collaborators for addressing STEM workforce needs as part of Kentucky's overall economic growth agenda.

The **mission** of the Department of Engineering Technology is:

- To recognize and develop students who can learn best by visualizing concepts through hands-on practice, using the unique strengths of learning by doing.
- To integrate engineering and craftsmanship that supports STEM workforce development as part of Kentucky's overall economic growth agenda.
- To align with the COE's 2019 strategic plan growth strategy and to expand engineering

education and technical job opportunities for students.

## **Overview of the Process to Form the Department of Engineering Technology**

In January of 2019, Dr. Rudolph Buchheit, the Dean of the UK-COE, asked Associate Dean for Administration and Academic Affairs, Dr. Kimberly Anderson, to convene a group of faculty and staff from within the UK-COE to conduct a benchmarking exercise and feasibility assessment for initiating one or more academic degree programs that would be eligible for accreditation under ABET's Engineering Technology Accreditation Commission (ETAC).

From February through August of 2019, the task force made up of a group of faculty and staff in the UK and from the BCTC met regularly to explore the possibility of creating a new Engineering Technology academic programs. The task force includes the following from the UK-COE, Nelson Akafuah, Kimberly Anderson, Michael Montross, Michael Johnson, Michael Renfro, Reginald Souleyrette, Douglas Kalika, David Silverstein, Farzad Taghaddosi, Thomas Novak, Kozo Saito, Susan Herrick, Douglas Klein, Ilka Balk, Suzy Wampler, and Dale Davis; the UK College of Agriculture, Larry Grabau; the UK office of Admissions, Sara Price; and the BCTC, Gregory Feeney, Karen Mayo, and Ralph Potter. With Nelson Akafuah as Chair.

The initial meeting entailed a brainstorming session of the task force to vet potential advantages, benefits, and disadvantages of creating a new academic program(s) in Engineering Technology, and to identify faculty concerns related to the formation of such program(s). The meeting also explored what each team member saw as essential requirements for launching a new Engineering Technology degree program and supporting it in achieving its goals. After several meetings, the consensus was that the advantages and benefits were significant, and that the disadvantages and concerns could be addressed through a comprehensive approach, including those related to start-up requirements. On August 8, 2019, a proposal was presented to the UK-COE executive committee, an outline of which is:

The task force recommended the establishment of an ABET-accredited Engineering Technology Program in the UK-COE in partnership with the BCTC. The joint programs of the two institutions would create a new practice-based learning avenue for students, with extensive use of hands-on exercises in most of the classes. It would teach how to integrate the 'process' and the 'system,' with a continuous improvement approach, and instill creative problem-solving thinking/skills. The new programs within the UK-BCTC would create unique career paths and opportunities for students in creative design, production, and service, and would leverage resources available through educational and industrial partners. The new programs would recognize students who can learn best by visualizing concepts through hands-on experiences and practice, using the unique strengths of "learn by doing," and who would thrive with an integrated education involving extensive industrial practicums and participation. The programs would also establish a collaborative path for students to attain a four-year undergraduate degree with a unique Engineering Technology pathway and provide an alternate pathway for students who currently leave the UK-COE before graduation.

The new degree programs will support workforce needs through the development of a STEM-trained workforce that strongly supports Kentucky's overall economic growth agenda. It also will align with the UK-COE growth strategy to increase enrollment to 5,000 undergraduate students by 2025. It is envisioned this program will help increase recruitment, retention, and graduation of undergraduate

engineering students, diversify graduating classes and increase graduation rates, and expand the number of attractive degree programs.

## **Senate Academic Organization and Structure Committee (SAOSC) Guidelines for Preparing a Proposal for Change in Organization**

The following section of the proposal addresses specific questions as outlined in the SAOSC guidelines.

### 1. *What is the impetus for the proposed change?*

The Department of Engineering Technology is consistent with the strategic plans of the UK and UK-COE. The Kentucky Council on Postsecondary Education (KY CPE) recently published its Engineering Sector Analysis in Kentucky in April 2020. The report assesses the labor market information, program demand gap analysis, and migration analysis. It assesses the effectiveness of Kentucky institutions in meeting workforce demand in the engineering sector. The CPE report identifies a large gap existing in the area of Engineering Technology. It considers it critical for an expansion at the bachelor's degree level because of an inability of the Commonwealth's institutions to help meet manufacturing job openings.

The KY-CPE findings are consistent with a national trend, with the following highlighting a few examples. In November 2017, McKinsey Global Institute published a report titled "*Making it in America: Revitalizing US manufacturing.*" The report outlined how multiple technology advances are converging and changing manufacturing industries driven by an explosion in the volume of available data, developments in analytics and machine learning, new forms of human-machine interactions, intelligent robots, interconnected supply chains, and an ability to transmit digital instructions to the physical world. These complementary technologies can run smart, cost-efficient, and automated plants that produce large volumes or highly customized products. Concomitantly, increased knowledge, and technology skills are required on factory floors.

In a December 2019 article published in the Wall Street Journal, entitled "*American Factories Demand White-Collar Education for Blue-Collar Work,*" the authors defined how new manufacturing jobs that require more advanced skills are driving the education level needed by factory workers. Manufacturers are, for the first time, on track to employ more college graduates than workers with a high-school education or less; this shift, in part, coincides with manufacturing shifts toward automation that has increased factory output.

The skills shortages in manufacturing have been well documented. For example, Deloitte and the Manufacturing Institute have been tracking skills shortages for the past 17 years. They have documented how skill shortages continue to swell and threaten to impede the current growth in the US manufacturing industry and its productivity. In their November 14, 2018 report entitled "*The jobs are here, but where are the people?*" the Deloitte and the Manufacturing Institute explores the depths of today's talent shortage in manufacturing and how jobs are changing due to technology and automation. They predict a 53% shortage of skills in the US manufacturing industry by 2028.

In response to local, state, and national skills needs, the new Department of Engineering Technology

will partner with the BCTC to create joint feeder-completer Programs in Engineering Technology. They will enroll students who can earn a degree in one of the two-degree paths, including:

- i. An Associate of Applied Science (AAS) degree in Integrated Engineering Technology (IET) from the BCTC. This AAS will be the feeder into a Bachelor of Science (BS) Degree in Lean Systems Engineering Technology (LST) from the UK.
- ii. An Associate of Applied Science (AAS) Degree in Computer Engineering Technology (CPT) from the BCTC. This AAS will be the feeder into a Bachelor of Science (BS) Degree in Computer Engineering Technology (CPT) from the UK.

### **Bachelor of Science in Lean Systems Engineering Technology (BS-LST)**

The BS-LST is to become the first program of its kind in the United States. Developed in collaboration with Toyota Motor Manufacturing North America (TMNA) and several other industrial partners, it will develop students' skills needed in manufacturing that improve quality output, streamline processes, and reduce waste. The LST prepares students to thrive in a highly competitive global marketplace by providing advanced problem-solving skills in Just-In-Time manufacturing, project management, lean enterprise development, logistics, and material and information flowcharting. The curriculum is based on a solid academic foundation, with intensive classroom and laboratory experiences, and in-depth instruction in Just-In-Time processes, built-in-quality, and productivity improvement.

The Associate in Applied Science in Integrated Engineering Technology (AAS-IET) is the feeder program for the BS-LST degree. The AAS-IET degree will include embedded certificates in:

- a. Electrical Engineering Technology; and
- b. Mechanical Engineering Technology.

### **Bachelor of Science in Computer Engineering Technology (BS-CPT)**

The BS-CPT provides in-depth knowledge of computer hardware and software design, development, applications, and maintenance. It is based on a solid academic foundation with intensive classroom and laboratory experiences. Students gain strong backgrounds in cutting-edge developments and applications, and programming languages currently used or emerging in industry. Students learn and experience industrial-standard approaches to developing application software as well as state-of-the-art problem-solving techniques for code and firmware development with networking and web operations. The hardware focus of the curriculum is in digital systems design and development. From low-level gate design to high-end microprocessors and current/advancing bus standards, students gain an architectural understanding of computer systems. The curriculum includes in-depth design and analysis of combinational logic, sequential logic and state machines, microcontroller systems, microprocessor systems, and state-of-the-art computer technology.

The Associate in Applied Science in Computer Engineering Technology (AAS-CPT) is the feeder program for the BS-CPT program. The AAS-CPT has the following embedded certificates:

- a. A+ Prep;
- b. Computer Tech Basic;

- c. Informatics Programming; and
- d. Net+ Prep.
- e. Computer Maintenance Technician

The engineering technology program development committee recognizes that there is a need for an interdisciplinary engineering technology within Kentucky and the region to respond to the growing skills shortage in advanced manufacturing. The new department provides a springboard to respond to this unmet need through the development of appropriate degree programs and continuing professional education opportunities.

**2. *What are the benefits and weaknesses of the proposed unit with specific emphasis on the academic merits for the proposed change?***

The Engineering Technology Program Development Committee produced a list of diverse reasons for creating a new academic department. Key among these were the substantial strengths of forming the proposed department, including:

1. The synergy that comes from partnering with our community partners, the BCTC, and employers and industries to create solutions for a critical skill shortage.
2. A focus on tackling the significant challenges confronting the Commonwealth of Kentucky for meeting its manufacturing workforce needs.
3. A commitment among faculty to interdisciplinary collaboration and industry engagement.
4. A dedication to engaging students and community partners in collaborative learning processes.
5. The significant potential of the program to help attract interdisciplinary faculty who are well-positioned to compete for extramural funding for research, instruction, and outreach programs with industrial partners.

The name of the proposed department is not unprecedented, but its focus, course offerings, and degrees will establish UK as a unique institution throughout the Commonwealth and the nation. Relative to Engineering Technology, other comprehensive research universities like Texas A & M University, Oklahoma State University, Temple University, and Drexel University have similarly named departments; however, their programs are distinct from what is defined herein. Another strength of this UK Program is in its conception and support by industry as a response to enhancing their opportunities to address the critical skills shortage in the Commonwealth of Kentucky.

The proposed department will pursue a largely revenue-neutral position for the COE by leveraging available resources within the College of Engineering, BCTC, and the industrial partners. Furthermore, it will encourage and then support new grant initiatives that, within the next few years, are envisioned to increase extramural funding in the department and COE from industry partners. However, some costs are to be noted, including:

- An increase in administrative cost to the COE for a department chair and two Directors of Undergraduate Studies; and
- Start-up costs associated with establishing and co-locating a new department and the addition of new faculty and staff.



Also, there is a risk associated with creating and administering a new academic department and programs. For example, it will take some time for the new department to fit into the culture of the college, develop the administrative rhythms that make the unit work well. If this drags out, the department could fail to launch. Besides, the following needs to be addressed quickly to make sure the department is successful:

- take aggressive steps to strengthen enrollment,
- develop a plan that helps incoming students and employers understand the difference between engineering technology and engineering science degree tracks
- produce strong graduating classes that are sought after by employers.

Failure to do these will hurt the development and success of the program.

**3. Describe the organization of the current structure and how the proposed structure will be different and better. Current and proposed organizational charts are often helpful in illustrating reporting lines.**

The UK-COE currently consists of the following eight (8) academic departments, offering ten (10) undergraduate degrees:

1. Biomedical Engineering
2. Biosystems and Agricultural Engineering
3. Chemical and Material Engineering
4. Civil Engineering
5. Computer Science
6. Electrical and Computer Engineering
7. Mechanical Engineering
8. Mining Engineering

Within this current structure, a separate Department of Engineering Technology offering two (2) undergraduate degrees, is proposed, bringing the total number of academics departments within the UK-COE to nine (9) and undergraduate degree programs to twelve (12).

**4. How does the change fit with department, College, and/or university objectives and priorities?**

The new Department of Engineering Technology and its proposed undergraduate BS degrees in Computer Engineering Technology and Lean Systems Engineering Technology supports the objectives of the UK-COE Strategic Plan:

- offer a new Engineering Technology Program for Kentucky high school students who would otherwise have to go outside the Commonwealth to have the opportunity and to create a seamless transfer experience for KY. Community College graduates to obtain their BS degrees in Engineering Technology.
- provide the manufacturing industry within the Commonwealth a pool of highly trained, fundamentally sound, and motivated personnel that will ameliorate their talent and skills shortage, which, in turn, is envisioned to encourage the founding or relocation of new business

and manufacturing operations in the Commonwealth.

- increase program offerings and enrollment for the UK-COE in line with the UK's and UK-COE's strategic initiatives.
- create a distinctive Engineering Technology program in collaboration with the BCTC, Toyota Motor North America, and a host of other industry partners.

5. *How does this change better position the proposers relative to state and national peers, as well as University Benchmark Institutions? How does the change help UK meet the goals of its strategic plan?)*

Throughout the United States, most Engineering Technology academic units in research one universities can be roughly grouped into four categories:

- (1) They are housed in separate Colleges/Schools of Engineering Technology. For example, the benchmark institution, Purdue University, has a School of Engineering Technology, and the New Jersey Institute of Technology has a School of Applied Engineering and Technology.
- (2) They are housed in the same College of Engineering. For example, the benchmark institution, Texas A&M University, has a Department of Engineering Technology and Industrial Distribution in their College of Engineering, Oklahoma State University has a Division of Engineering Technology in their College of Engineering, Architecture, and Technology, and Temple University has Engineering Technology Departments within the College of Engineering.
- (3) Engineering Technology programs offered through Satellite campuses. For example, The benchmark institution, Pennsylvania State University, has its engineering technology programs at satellite campuses.
- (4) The Engineering Technology programs are housed in the same engineering science departments. For example, at the University of Cincinnati, the Department of Electrical Engineering and Computer Science houses both a BS in Electrical Engineering and a BS in Electrical Engineering Technology; similarly, its Department of Mechanical & Materials Engineering houses both a BS in Mechanical Engineering and a BS in Mechanical Engineering Technology.

We propose the Department of Engineering Technology to be a separate department within the UK-COE to allow it to manage its own research and outreach projects directly without another layer of administration. This structure would establish the UK-COE Department of Engineering Technology, a strategic, viable identity within the Commonwealth, affording it a premier position to define and spearhead Engineering Technology initiatives within the Commonwealth.

6. *Who are the key personnel associated with the proposed unit? Provide qualifications of these personnel in a brief form. A complete curriculum vitae is not needed, although pertinent information in tabular format is helpful*

All the faculty who will become members of the Department of Engineering Technology will hold at least a master's degree in their specialty areas. However, individuals with a bachelor's degree with significant industry experience may be considered. As faculty positions are approved, the department will seek qualified candidates who will contribute directly to the mission of the Department of Engineering Technology, the UK-COE, UK, and the Commonwealth of Kentucky.

The following faculty with Ph.D. degrees were involved in the development of the program curricula for the two bachelors of science (BS) degrees to be offered by the proposed department. They would be involved in the new department, in various capacities, including teaching, research, outreach/service duties.

Faculty and staff hiring will begin in earnest as new positions are approved. The initial hiring will target senior faculty hires who will serve as a faculty of record and have voting authority within the program and teaching, research, outreach/service duties.

<b>Nelson Akafuah</b>	<p>Nelson is a Faculty Fellow in the UK-COE and the Chair of the Engineering Technology Implementation Committee. He is also the Associate Director of the Institute of Research for Technology Development (IR4TD) and a Lecturer within the Department of Mechanical Engineering. He holds the following degrees:</p> <ul style="list-style-type: none"> <li>• Ph.D., Mechanical Engineering, University of Kentucky</li> <li>• Executive MBA, Jack Welch Management Institute, Strayer University</li> <li>• MS, Mechanical Engineering, University of New Orleans</li> <li>• B.Sc., Mechanical Engineering, KN. University of Science and Technology, Ghana</li> </ul>
<b>David Parsley</b>	<p>David is an Industry Extension Specialist and Lead Instructor, the Institute of Research for Technology Development’s Lean Systems Program. He holds the following degrees:</p> <ul style="list-style-type: none"> <li>• Ph.D., Mechanical Engineering, University of Kentucky</li> <li>• MS, Manufacturing Systems Engineering, University of Kentucky</li> <li>• BS, Mechanical Engineering, University of Kentucky</li> </ul>
<b>Michael Abbot Maginnis</b>	<p>Abbot is the Institute of Research for Technology Development’s Lean Systems Program Academic Coordinator, Director, Lean Graduate Certificate Program, and Adjunct Assistant Professor, Department of Mechanical Engineering. He holds the following degrees:</p> <ul style="list-style-type: none"> <li>• Ph.D., Mechanical Engineering, University of Kentucky</li> <li>• MS, Manufacturing Systems Engineering, University of Kentucky</li> <li>• BS, Mechanical Engineering, University of Louisville</li> </ul>

**7. Discuss leadership and selection process for appointing a chair, a director, or interim leader and search process**

It is the intent to initiate the advertisement of faculty positions in the Department of Engineering Technology following the approval of the programs. A search committee, consisting of faculty selected from existing departments within the UK-COE would then begin to interview prospective faculty candidates for two new tenure track faculty positions and two new Lecturer positions with an estimated start date of July/August 2021. Dr. Nelson Akafuah will continue to provide leadership through the implementation of the new department until a Chair is appointed.

**8. What is the function of the faculty/staff associated with the proposed change, and how is that relationship defined? Discuss DOE, adjunct, full-time, voting rights, etc.**

The faculty and lecturers within the department will manage the curriculum course load during the first

year. Their DOEs will be devoted primarily to instruction, curriculum development, and administration, as appropriate to rank and tenure status. Additional hires are planned for the second year after the program launch. The Faculty of Record will have full voting rights per the UK-COE Rules.

## **Staff**

The program development committee has completed an evaluation of staffing needs for the new department. Currently, it appears that, with adjustments in assignments and responsibilities, most of the staffing needs for the new department can be met through existing staff support currently allocated to the Institute of Research for Technology Development (IR4TD). Three new hires will also be made in the first year of the program—an Academic Advisor and two Laboratory Technicians.

### **9. Will the proposed change involve multiple schools or colleges?**

No, the proposed change will not involve multiple schools or colleges within UK. However, the proposed change involves a partnership with the BCTC. Please find attached the Memorandum of Agreement (MOA)

### **10. If the proposed change will involve transferring personnel from one unit to another, provide evidence that the donor unit is willing and able to release the personnel.**

A Business Officer and an Administrative Staff Officer from the Institute of Research for Technology Development will devote a percentage of their DOE to support the new department. Please see attached support letter from the Director of IR4TD.

### **11. What is the arrangement of faculty associated with the proposed change, and how is that relationship defined? Discuss faculty DOE and status as adjunct, tenure track, or tenured. Describe the level of faculty input in the policy-making process, including voting rights and advisory.**

New faculty hires dedicated to the Department of Engineering Technology will be full-time tenured or tenure track with their DOE allocated 100% to the department. Faculty described in the aforesaid #6 will have a certain percentage of their DOE devoted to the new department. All faculty carry a vote regarding concerns of the new Engineering Technology Program. Specific faculty rules and statements of evidence for promotion and tenure will be developed during the first year of the program with the help of the Faculty of Record and the College Faculty Council.

Because all current academic units in the UK-COE have advisory boards, it is the desire and intent of the Department of Engineering Technology to also appoint an Advisory Board during its first year of operation. The members of the Board shall be identified through consultancies with the Faculty of Record and relevant members of the UK-COE leadership team; in general, it is anticipated that the Board membership will consist of notable people and scholars from the field of manufacturing and/or with experience in industry, government, and academia.

### **12. Discuss any implications of the proposal for accreditation by SACS and/or other organizations.**

The Office of Strategic Planning & Institutional Effectiveness (OSPIE) is working with SACSCOC to evaluate the new programs for compliance. The new degree offerings by the Department of Engineering Technology will be accredited by the Engineering Technology Accreditation Commission (ETAC) of ABET.

**13. What is the timeline for key events in the proposed change? Student enrollments, graduates, moved programs, closed courses, new faculty and staff hires.**

It is anticipated that the first cohort of students for the department will be in the fall of 2021, with an initial cohort size of 10 students per degree, i.e., a total cohort size of 20 students. The initial faculty and staff hires will start work on July 1, 2021.

**14. If the proposal involves degree changes\*, describe how the proposed structure will enhance students' education and make them more competitive. Discuss the impact on current and future students. State assumptions underlying student growth and describe the plans for student recruitment.**

The program-specific details, including learning outcomes, are included in the two new program proposals. With regards to the underlying assumptions regarding enrollment and student growth, assuming 75 new students per year (based on similar programs enrollment) entering each of the two programs at BCTC, that is a total of 150 students. Also, assuming 50 students per year, mainly at the freshman and sophomore level switching within COE's engineering programs to the engineering technology program, that is a total of 200 students per year. Assuming a 75 % retaining rate entering the Junior year of the engineering technology program, that translates to 150 junior per year. Assuming another 93 % retention rate from Junior to Senior year, that is 140 Senior students. That gives a total of 290 students in steady-state in the Engineering Technology program at UK-COE.

The program is designed for students to jointly apply to BCTC and UK, with BCTC been the home institution until students complete all requirements for the AAS degree. Students who complete their AAS degree requirements within a designated three-year period, who also meet the admission requirements as established by the University of Kentucky and College of Engineering, will not be required to reapply to the UK. At that point, UK would become their home institution. The UK catalog year for these students shall be based on the year in which each student was enrolled in the joint program. Please refer to the attached Memorandum of Agreement for the framework of cooperation and modes of operations involving UK and BCTC for purposes of offering two joint Programs in Engineering Technology.

Under this arrangement, both UK and BCTC will participate in coordinated recruitment effort into the Joint program.

**15. Include evidence that adequate financial resources exist for the proposed unit to be viable. A general description of the new costs and funding should be provided. A letter from the Provost, Dean, or other relevant administrators may affirm commitment to provide financial resources as appropriate. An exhaustive budget is not expected.**

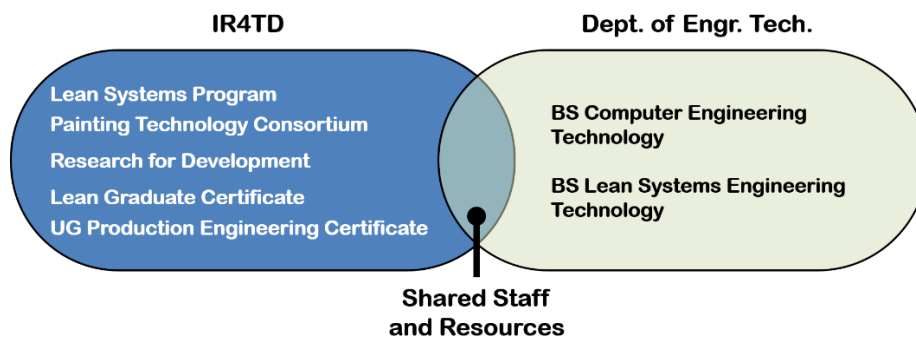
The UK-COE has received pledge for a financial gift of \$4.25 million from Toyota Motor North

America to support the establishment of the new department, and per the donor's will are allocated as follows:

- A \$2 million endowment to create the Toyota Engineering Technology Diversity Scholarship.
- A \$1 million endowment to create the Toyota Engineering Technology Distinguished Professorship.
- \$1.25 million for Engineering Technology Laboratory Enhancement, faculty recruitment, and general expenses.

Please find attached the fully executed gift agreement for the non-scholarship portion of the gift. Note: the \$2 million scholarship gift is pending approval as of the submission of the proposal.

The Department of Engineering Technology will partner with the Institute of Research for Technology Development (IR4TD) and will share resources. IR4TD will make available \$1.5 million for support of faculty hires and initial start-up costs. The expected relationship between IR4TD and the ET department is illustrated as follows:



Additionally, revenue will be obtained through the assessment of the UK-COE program fee to include incoming Engineering Technology majors. From this anticipated revenue, the UK-COE will allocate operational funds to the Department of Engineering Technology for its FY22 budget.

16. The proposal should document any faculty votes and departmental or school committee votes as appropriate, leading up to this point in the process. The SAOSC recommends that faculty votes be by secret ballot. Include in your documentation of each vote taken the total number of eligible voters and the number that actually voted along with the break-down of the vote into numbers for, against, and abstaining. A Chair or Dean may appropriately summarize supporting and opposing viewpoints expressed during faculty discussions.

#### **A. The College of Engineering Undergraduate Study Committee Vote Summary**

- a) I approve the motion to establish the Department of Engineering Technology (ET)
- 10 approve
  - 1 abstain
  - 1 no response by deadline

- 0 not approve
- b) I approve the motion to establish the BS in Lean Systems Engineering Technology within ET
- 10 approve
  - 1 abstain
  - 1 no response by deadline
  - 0 not approve
- c) I approve the motion to establish the BS in Computer Engineering Technology within ET
- 10 approve
  - 1 abstain
  - 1 no response by deadline
  - 0 not approve

**B. The College of Engineering Faculty Vote Summary**

The voting for the three motions coming forward from the Engineering Technology committee closed at 4 pm Tuesday, September 1, 2020.

The results from the electronic ballot are as follows:

- a) Question: I approve the motion to establish the Department of Engineering Technology (ET)
- 150 invited to vote
  - 11 abstained
  - 115 voted (so 126 returned a response to this question).

Answer	Count
Yes (A1)	83
No (A2)	32
Abstain (A3)	11
Not displayed/No answer	0

- b) Question: I approve the motion to establish the BS in Lean Systems Engineering Technology within ET
- 150 invited to vote
  - 18 abstained
  - 108 voted (so 126 returned a response to this question).

Answer	Count
--------	-------

Yes (A1)	84
No (A2)	24
Abstain (A3)	18
Not displayed/No answer	0

c) Question: I approve the motion to establish the BS in Computer Engineering Technology within ET

- 150 invited to vote
- 19 abstained
- 107 voted (so 126 returned a response to this question).

Answer	Count
Yes (A1)	77
No (A2)	30
Abstain (A3)	19
Not displayed/No answer	0

Quorum requirements were met for the virtual meeting and vote participation. Based on the voting results, all three motions have carried.

Please see that attached letter summarising the votes and the opposing and supporting opinions expressed by faculty.

**17. The committee will want to see evidence of academic merit and support from key parties. Letters of support (or opposition) are encouraged from the relevant senior faculty and administrators. Relevant faculty and administrators include those in units directly involved in the proposed change (including existing units from which a new unit may be formed.**

Attached are the following letters of support:

1. Letter of administrative feasibility from the College Dean
2. Letter of administrative feasibility from the Provost
3. Letter summarizing votes and supporting and opposing opinions of faculty
4. Letters of support from Department Chairs within the college

**18. Indicate how the new structure will be evaluated as to whether it is meeting the objectives for its formation. Timing of key events is helpful.**

An Assessment Plan for the program will be developed, and the Faculty of Record will follow guidelines set up in this approved document in addition to developing and following new faculty rules that will become part of the existing College Rules document.

**19. Letters of support from outside the University may be helpful in understanding why this change helps people beyond the University.**



This page is intentionally left blank.

## Follow-up questions for Engineering Technology proposal

*Members of SAOSC,*

*Thank you for reviewing the proposal to establish the Engineering Technology department within the College of Engineering, providing detailed feedback and questions.*

*Here we respond to the questions in blue font, numbered 1 through 51. Attachments are arranged in the order they are referenced.*

### Questions related to “Overview” section (pp. 1-2)

Please identify and describe the “Economic Modeling, LLC” (p.1) and identify organizations, corporations, educators, key individuals, that are involved in the LLC. Please share with us a copy of the “EMSI” report that was presented to the KY CPE. And also, please share with us the response of the CPE, if any, to the report.

#### RESPONSE #1

The CPE commissioned Economic Modeling, LLC (EMSI) to conduct an “Engineering Sector Analysis in Kentucky—Labor Market Information, Program Demand Gap Analysis, & Migration Analysis.” The report is publicly available at the CPE website at the following link <http://cpe.ky.gov/data/reports/engineeringreport.pdf>. A copy of the full report is attached for your reference, including a PowerPoint summary of the report presented at the KYCPE’s Council for Chief Academic Officers (CCAO) Meeting on April 28, 2020.

Since this is a CPE commissioned report and therefore a CPE publication, there is no response from CPE to be shared.

The proposal states (p.2) that this department will “increase enrollment to 5,000 undergraduate students by 2025.” How many students does that entail?

#### RESPONSE #2

For clarification, the direct quote in the proposal is, “*It also will align with the UK-COE growth strategy to increase enrollment to 5,000 undergraduate students by 2025.*” The proposed department is one of several initiatives the College is pursuing as its growth strategy outlined in the UK-COE 2019 strategic plan. This is explained in the proposal and stated as part of the Engineering Technology Department’s mission to “*Align with the COE’s 2019 strategic plan growth strategy and expand engineering education and technical job opportunities for students.*”

A copy of the UK-COE 2019 strategic plan is attached for your reference.

## Questions related to SAOSC Guidelines Responses (pp. 3-14)

### Question 1: (pp. 3-5)

On page 4, the proposal states that the BS-LST degree “is to become the first program of its kind in the United States.” Does that mean, the first degree of its kind, in the US? And - is there a comparable degree in any other part of the world? And if, yes, please identify such program with a link to its degree and curricular requirements.

### RESPONSE #3

The UK BS-LST Program will be the only undergraduate program of its kind that we are aware of at the moment. As a background, UK-COE, through its Lean Systems Program (LSP) (<https://www.engr.uky.edu/true-lean>), has a 26 years relationship with Toyota in teaching the Toyota Production System (TPS) commonly referred to as “lean” in the broader business community. The UK LSP offers a 3-week certificate series to industry professionals, which currently graduates 234 students per year.

As far as academics degrees, there are several programs at the graduate level. For example:

- Master of Science Lean Manufacturing from the Kettering University <https://online.kettering.edu/programs/masters/lean-manufacturing-masters-online>
- Dual Master of Business Administration/Master of Science in Lean Manufacturing, University of Michigan, Flint <https://www.umflint.edu/som/dual-mba-ms-lean-manufacturing>

The field of Lean Manufacturing has been intensely invested in by the business community and is growing rapidly. However, no supporting undergraduate academic programs currently exist. The proposed BS-LST program is a response to this gap in educational programming, to train undergraduates in the theory, knowledge, and practicalities of the Toyota Production System (TPS), commonly referred to as Lean. The graduates will be employed in roles such as:

- Continuous Improvement Engineers/Specialist
- Lean Manufacturing Engineers/Specialists
- Manufacturing Production Technicians/Technologists.

The graduates of the BS in LST program will possess the skills and tools needed in lean principles to improve production processes. It includes training in and the understanding of workflow layouts at macro and micro levels necessary for an effective Lean operation.

The proposed program will incorporate unique partnerships with industry to instill university scholarly knowledge with the needed, practical industrial experiences and applications. It develops the skills required by students to be career-ready. The strategic

partnerships with industry enable close collaborations and foster a deeper understanding of the technology and market to create more compatible, enlightened course offerings that better prepare the program's graduates for success and continuous learning.

Also, on page 4, the proposal states that the same (degree) "program" was "Developed in collaboration with Toyota Motor Manufacturing North America and several other industrial partners." Please identify the "other industrial partners" and identify, within those businesses, individuals who have academic credentials in Engineering Technology. Were any academics involved in the collaborative development of this "program" (degree)? If yes, please identify them, their academic credentials, including expertise in Engineering Technology and/or Lean Systems Engineering Technology.

#### **RESPONSE #4**

The task force described on page 2 of the proposal was responsible for creating a curriculum framework. The task force comprises senior faculty and staff from across the COE and other units within UK and BCTC. As outlined in the proposal, the task force met every other week from February to August 2019, at the end of which a draft curriculum was created. A report was presented to the COE Dean's Executive Committee comprised of the Dean, Associate Deans, Department Chairs, and senior college administrators on August 8, 2019.

The following were members of the task force from both UK and BCTC:

- **UK**
  - **Nelson Akafuah**, Ph.D. and MBA (Chair) (Associate Director of the Institute of Research for Technology Development, Faculty Fellow College of Engineering, Director of the UG Production Engineering Certificate, and Lecturer in the Department of Mechanical Engineering)
  - **Kimberly Anderson**, Ph.D. (Professor, Chemical and Materials Engineering, and Associate Dean for Administration and Academic Affairs)
  - **Michael Montross**, Ph.D. (Professor and Chair, Department of Biosystems and Agricultural Engineering)
  - **Michael Johnson**, Ph.D. (Professor and Chair, Department of Electrical and Computer Engineering)
  - **Michael Renfro**, Ph.D. (Professor and Chair, Department of Mechanical Engineering)
  - **Reginald Souleyrette**, Ph.D. (Professor and Chair, Department of Civil Engineering)
  - **Douglas Kalika**, Ph.D. (Professor of Chemical Engineering, Faculty Fellow; Interim Director of First-Year Engineering)
  - **David Silverstein**, Ph.D. (Professor of Chemical Engineering and Director of the Paducah Campus)
  - **Farzad Taghaddosi**, Ph.D. (Lecturer Mechanical Engineering)
  - **Larry Grabau**, Ph.D. (Professor, College of Agriculture, Food, and Environment)

- **Thomas Novak**, Ph.D. (Professor, Mining and Mineral Engineering)
- **Kozo Saito**, Ph.D. (Professor, Mechanical Engineering, and Director of the Institute of Research for Technology Development)
- **Susan Herrick** (Director of Student Success and Freshman Advisor College of Engineering)
- **Douglas Klein** (First-Year Engineering Lecturer, Director of Innovation Center)
- **Ilka Balk** (Director of Engineering Career Development)
- **Sara Price** (Transfer Admissions Director, UK)
- **Suzy Wampler** (Student Affairs Officer, Civil Engineering)
- **Dale Davis** (Academic Advisor, Civil Engineering)
- 
- **BCTC**
  - **Gregory Feeney**, Ph.D. (Provost)
  - **Karen Mayo** Ph.D. (Associate Vice President, Academics and Workforce Development)
  - **Ralph Potter** (Assistant Dean, Advanced Manufacturing)

After the August 8, 2019 meeting, the College hired a consultant, **Dr. Tim Brower**, to review the draft curriculum; Dr. Brower has experience as a Program Evaluator (PEV) for the Engineering Technology Accreditation Commission (ETAC) of ABET. The curriculum vitae of Dr. Brower and the review report is attached for your reference.

The ET development team also had a benchmarking visit to Eastern Tennessee State University (ETSU); ETSU has a successful ABET ETAC accredited ET program. Please note, while ETSU is not a peer institution, their ET program is very successful with strong partnerships with area companies - elements of which we wanted to build into our program. Please find attached the trip report for that visit for your reference.

As you will expect from a program designed to address critical industry workforce needs within the Commonwealth of Kentucky, several UK-COE industry partners were consulted during the task force meetings and subsequently during the program development effort. Please note that although the COE is partnering with these companies and organizations, they are not directly involved in curricula development.

The goal of these industrial partnerships and collaborations are threefold:

1. To hear from them as employers of future graduates to understand the “voice of the customer” and the types of skill sets they would like to see and need in graduates from the program.
2. To partner with the College through both financial and in-kind support, e.g., through equipment donations.
3. To provide advice for program development to ensure students obtain the necessary skills coupled with engineering principles that contribute to their employer’s success immediately upon graduation.

Please note that all successful ET programs surveyed have significant industry partnerships and engagements. Hence UK-COE has and is aggressively pursuing partnerships and collaborations with industry for this program. Our current partners who have been actively involved with the COE during the development of this program are:

- Toyota Motor Manufacturing North America. Note, they pledged \$4.25 million support for program development and scholarships.
- The National Association of Manufacturers (NAM) and the Manufacturing Institute (MI) (<https://www.nam.org/>). As a note, their team participated in the college faculty meeting on August 25, 2020, to answer faculty questions and provide a scope of the nation’s workforce needs.
- The Federation of Advanced Manufacturing Education FAME, <https://fame-usa.com/>
- Enova Premier, LLC
- Lexmark International
- Curtis Maruyasu America, Inc.
- Tempur Sealy International, Inc.
- Summit Polymers, Inc.
- AGC Glass, North America
- Mubea, North America

*Note:* The Federation for Advanced Manufacturing Education (FAME) is a national network of nearly 400 companies in 13 states that partner with community colleges. FAME is a classic apprenticeship program that combines classroom learning with paid on-the-job experience, teaching skills in demand across industry. I am sharing with you a recent study of FAME by the Brookings Institute (<https://www.brookings.edu/>) and Opportunity America (<https://opportunityamericaonline.org/> )

During the development of the program, the following ETAC Accredited programs from R1 institutions were benchmarked:

School Name	Program and Degree Name
New Jersey Institute of Technology	BS in Construction Option in Engineering Technology BS in Electrical and Computer Option in Engineering Technology BS in Mechanical Option in Engineering Technology BS in Surveying Option in Engineering Technology
Oklahoma State University	BS in Engineering Technology: Construction Engineering Technology BS in Engineering Technology: Electrical Engineering Technology BS in Engineering Technology: Fire Protection and Safety Engineering Technology BS in Engineering Technology: Mechanical Engineering Technology

Pennsylvania State University	BS in Electrical Engineering Technology BS in Electro-Mechanical Engineering Technology
Purdue University at West Lafayette	BS in Aeronautical Engineering Technology BS in Electrical Engineering Technology BS in Industrial Engineering Technology BS in Manufacturing Engineering Technology BS in Mechanical Engineering Technology
Temple University	BS in Construction Engineering Technology BS in Construction Management Technology BS in Engineering Technology (General)
Texas A&M University	BS in Electronic Systems Engineering Technology BS in Manufacturing and Mechanical Engineering Technology
University of Cincinnati	BS in Electrical Engineering Technology BS in Mechanical Engineering Technology

*Note:* the initial recommendation was to have one BS in Engineering Technology with five tracks or concentrations. However, after many consultations, the decision was made by the Dean to pursue two bachelor’s degree programs—BS-LST and BS CPT.

Page 4: “The curriculum is based on a solid academic foundation....” First, please share with us “the curriculum” that is being mentioned here. We note that the degree requirements are identified later in this proposal but have not seen any curriculum (for example, syllabi, learning outcomes, etc.) materials in the proposal document. Second, please elaborate on the “solid academic foundation” for this particular degree. Again, please identify academics, and their credentials, that were involved in the creation of this new degree program and also please identify the underlying support (‘the solid academic foundation’) for this degree.

**RESPONSE #5**

The proposal for the BS-LST and the BS-CPT and their associated courses and syllabi were submitted simultaneously with the department creation proposal and are available on curriculog and are going through the appropriate senate committees for review and approval.

The curriculum’s underlying support has been elaborated on in the previous responses (*response #5*).

Based on the curriculum framework developed by the task force described earlier, and with feedback from the consultant, the following individuals, having decades of experience in teaching lean and coaching various organizations to implement lean, worked on the final curriculum and proposal document:

- Kozo Saito, Ph.D. (*Professor, Mechanical Engineering, and Director of the Institute of Research for Technology Development*)

- Dr. Nelson Akafuah, (*Faculty Fellow in the College of Engineering, and Lecturer in Mechanical Engineering*)
- Dr. David Parsley (*Instructor, Lean Systems Program*)
- Dr. Abbot Maginnis (*Instructor, Lean Systems Program, and adjunct assistant professor in Mechanical Engineering*)

Please note the BS-LST program is unique, and the UK COE has a significant resident talent within the Lean Systems Program (<https://www.engr.uky.edu/true-lean>)

Page 4: It is noted that the AAS-IET degree “is the feeder (degree) program for the BS-LST degree.” Has this associate degree already been approved by BCTC? Is this an existing program? If yes, please identify the faculty (including their highest degree, series/rank) and number of students already enrolled and briefly describe the history of the degree program, number of graduates, and if possible, the diversity of the student cohort (e.g., women, BIPOC).

Page 4: It is noted that the AAS-IET degree will include embedded certificates. Have those certificates already been approved by BCTC? If yes, please provide links.

### **RESPONSE #6**

The BS-LST and BS-CPT are designed as partnerships in which students earn an Associate degree from the Bluegrass Community and Technical College (BCTC) and then a BS from the University of Kentucky COE. In this arrangement, the UK-COE will offer only the upper-division coursework (Junior and Senior level).

While UK-COE worked closely with BCTC on the program development, BCTC is responsible for their portion of the curricula, including certificates. The AAS-IET and its certificates are not new, having been adopted from the FAME curriculum, but were adapted with minor changes to prepare students for Transfer from the BCTC into the UK program. As such, the proposed changes in the AAS-IET is going through the KCTCS program approval process.

Page 4: Is the BS-CPT degree a new degree in the United States? If no, please identify other similar degree programs with links.

### **RESPONSE #7**

The BS-CPT degrees are well-established in several schools around the country. Attached is a Microsoft Excel spreadsheet of ABET ETAC BS-CPT accredited programs in the US.

Page 4: With regard to BS-CPT: “The curriculum is based on a solid academic foundation....” First, please share with us “the curriculum” that is being mentioned here. We note that the degree requirements are identified later in this proposal, but have not seen any curriculum (for example, syllabi, learning outcomes, etc.) materials in the proposal document. Second, please elaborate on the “solid academic foundation” for this particular degree. Again, please identify academics, and



their credentials, that were involved in the creation of this new degree program and also please identify the underlying support (“the solid academic foundation”) for this degree.

### **RESPONSE #8**

The underlying support for the curriculum has been elaborated in previous responses (response #5). The core team that worked on the final BS-CPT curriculum and syllabi with support from colleagues from within their departments are:

- Dr. James Lumpp (*Professor, Electrical and Computer Engineering, and the Director of Undergraduate Studies*)
- Dr. Jerzy W. Jaromczyk (*Associate Professor, Computer Science, and the Director of Undergraduate Studies*)
- Dr. Nelson Akafuah (*Faculty Fellow in the College of Engineering and Lecturer in Mechanical Engineering*) served as a coordinator

Page 4: It is noted that the AAS-CET degree “is the feeder (degree) program for the BS-LST degree.” Has this Associates degree already been approved by BCTC? Is this an existing program? If yes, please identify the faculty (including their highest degree, series/rank) and number of students already enrolled and briefly describe the history of the degree program, number of graduates, and if possible, the diversity of the student cohort (e.g., women, BIPOC).

### **RESPONSE #9**

It is assumed that this question is referring to AAS in Computer Engineering Technology (AAS-CET) from BCTC as a feeder to BS in Computer Engineering Technology (BS-CPT).

The BCTC AAS-CET is a new program developed as part of the current arrangement to establish the Engineering Technology program at UK. It is currently going through the KCTCS program approval process.

Page 4-5: It is noted that the AAS-CET degree will include embedded certificates. Have those certificates already been approved by BCTC? If yes, please provide links.

### **RESPONSE #10**

Please see response #9

### **Question 2: (pp. 5-6)**

Please revise the answer to include the benefits and weaknesses of the proposed unit with specific emphasis on the academic merit of the new academic unit.

## RESPONSE #11

The ABET describes the difference between Engineering and Engineering Technology in which they are recognized as separate but intimately related professions. The following lists some of the ways they differ:

- Engineering undergraduate programs include more mathematics courses and higher-level mathematics than Engineering Technology programs.
- Engineering undergraduate programs often focus on theory, while Engineering Technology programs usually focus on application.
- Once they enter the industrial workforce, Engineering graduates typically spend a significant amount of their time planning. In contrast, Engineering Technology graduates spend a significant amount of their time adjusting and implementing the plans.
- At ABET, Engineering and Engineering Technology programs are evaluated and accredited by two separate accreditation commissions using two separate sets of accreditation criteria. Engineering is accredited by the Engineering Accreditation Commission (EAC), and Engineering Technology is accredited by the Engineering Technology Accreditation Commission (ETAC).
- Graduates from engineering programs are called engineers, while graduates of Engineering Technology programs are often called technologists.
- However, graduates from Engineering Technology programs are often hired as engineers.

The Engineering graduate typically requires a period of ‘internship’ since engineering educational programs typically stress fundamentals and theory. However, Engineering Technology graduates are more prepared to immediately begin technical assignments since Engineering Technology programs emphasize current industrial practices and design procedures with engineering principles.

The benefit of having Engineering Technology within the COE includes recognizing and developing students who can learn best by visualizing concepts through hands-on practices, using the unique strengths of learning-by-doing. This population of students is currently not well served. The proposed unit will cater to these types of students.

All current undergraduate programs within COE, except for Computer Science, are accredited by ABET EAC (*the criteria for accreditation are attached for your reference*). Computer Science is accredited by the Computer Accreditation Commission (CAC) of ABET (*the criteria for accreditation are attached for your reference*). The proposed Engineering Technology programs will seek accreditation from ABET ETAC (*the accreditation criteria are attached for your reference*).

At the time that the proposal was finalized and sent out to faculty for voting approval – was it known that the Provost would not provide funds for the department and degree programs out of his office and that the economic viability of the unit depends on the “net tuition sharing model” and the finding and allocation of resources by and within the COE? (See 9/23/20 Provost letter

included in proposal) If no, how does that information affect the answer to this question. That is, viewed through the lens of economic viability, what are the benefits and weaknesses of this proposed academic unit?

### **RESPONSE #12**

The Dean was in constant communication with the Provost's office regarding these programs. The statement in the Provost's letter (with the full quote below) was not unusual or surprising.

*“It should be noted that my support for these proposals is not a direct commitment of financial resources from my office. However, the University is developing revenue share models. Although the details on the revenue share models are not final yet, the College of Engineering is very familiar with the draft models being discussed and has been working closely with the Office of the Provost in estimating growth and revenue potential for these degree programs. The University Senate's review of these curricula should not be contingent on the financial viability of the programs, as it is the responsibility of the College to find and allocate resources to pursue strategic opportunities and priorities.”*

As stated in the provost letter, it is the College's responsibility to find and allocate resources to pursue strategic opportunities and priorities. The five-year budget attached shows the financial viability of the proposed department and its programs. Please note, the budget was developed separately for each of the degree programs—BS CPT and BS LST.

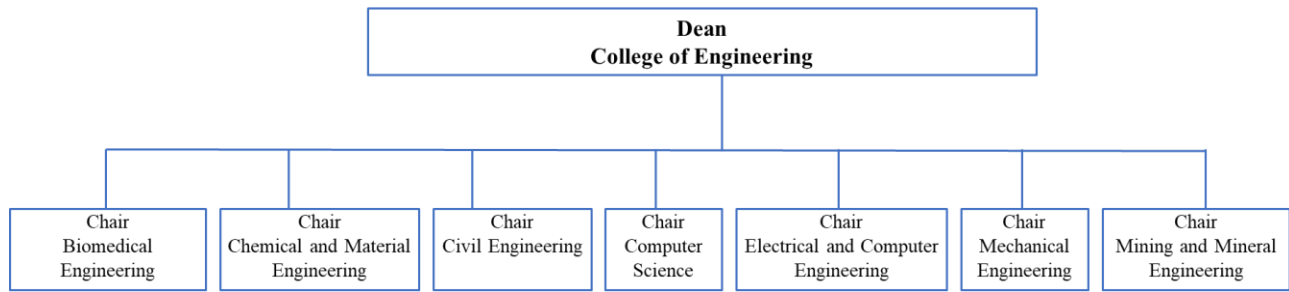
### **Question 3: (p. 6)**

Please completely answer the question. That is, explain - “How the proposed structure will be different and better.” Also, please provide the organizational charts and reporting lines – or, at least provide a written description of those reporting lines.

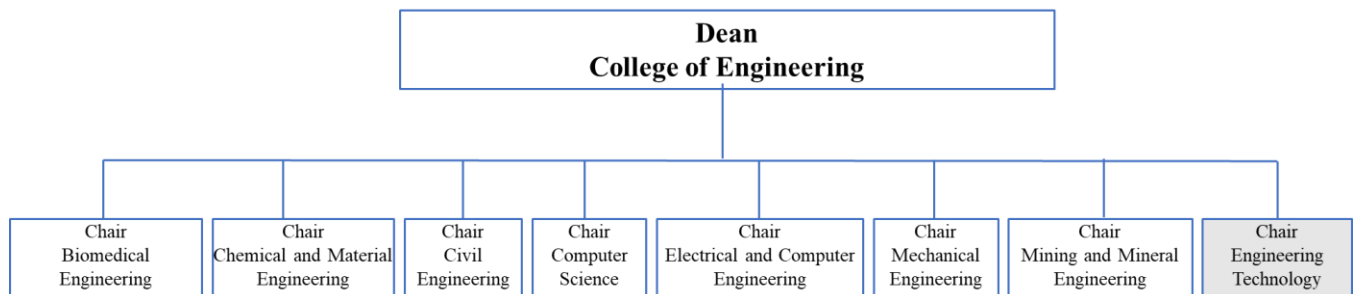
### **RESPONSE #13**

The COE currently has eight academics departments. However, the Chair of the Department of BioSystems & Agricultural Engineering (BAE) reports to the Dean of the College of Agriculture, Food and Environment, and its students count as COE students. Therefore, BAE is not included in the current reporting lines of the chart in Figure 1.

The proposed Department of Engineering Technology (ET) and its reporting line are shown in Figure 2. It will be a separate department within the COE and manage its own research and outreach projects directly without another administration layer. This structure would establish the Department as a strategic, viable identity within the commonwealth, affording it a premier position to define and spearhead Engineering Technology initiatives. The chair of ET will report directly to the Dean, similar to the chair of current departments within the college.



**Figure 1:** The current COE departments and reporting lines.



**Figure 2:** Proposed COE departments after the Department of Engineering Technology is established.

**Question 5: (p. 7)**

Do any benchmark institutions offer degree programs in Engineering Technology in this 2 plus 2 configuration? That is, please identify other extant Engineering Technology degree programs where an Associates Degree is offered at a community college and a connected bachelor degree is offered at a university? Please provide links.

**RESPONSE #14**

The University of New Hampshire at Manchester <https://manchester.unh.edu/engineering> (UNH Manchester), has had this 2 plus 2 arrangement since 1980. However, beginning in the fall of 2020, UNH Manchester’s engineering technology program has offered a four-year bachelor’s degree program in addition to the established ABET-accredited 2 plus 2 dual admission program. The 2 plus 2 is designed for those who have earned an associate degree at a community college to complete the final two years of a bachelor’s degree at UNH Manchester.

**Question 6: (pp. 7-8)**

Page 7: “All the faculty who will become members of the Department of Engineering Technology will hold at least a master’s degree in their specialty areas.” Is this the norm for minimal degree requirements for faculty in other engineering departments at UK? BCTC?

Benchmark institutions? If yes, provide documentation/links. Do relevant accrediting agencies (ABET) have a standard minimal degree requirement for engineering faculty?

### **RESPONSE #15**

The ABET Engineering Technology Accreditation Commission criteria for accrediting Engineering Technology programs is attached for your reference. The criterion which defines faculty member are summarized as follows:

***Criterion 6. Faculty:*** Each faculty member teaching in the program must have expertise and educational background consistent with the contributions to the program expected from the faculty member. The competence of faculty members must be demonstrated by such factors as education, professional credentials and certifications, professional experience, ongoing professional development, contributions to the discipline, teaching effectiveness, and communication skills. Collectively, the faculty must have the breadth and depth to cover all curricular areas of the program.

Several of the other programs reviewed as part of developing the ET program have faculty with Ph.D. and/or MS degrees and are appointed to ranks and series based on their educational background.

Page 7: “However, individuals with a bachelor’s degree with significant industry experience may be considered.” Again, is this a norm for other engineering departments at UK? BCTC? Benchmarks? If so, what are some examples of “significant industry experience” that have been applied for other engineering department faculty? And, is there any guidance from ABET on this issue? Last, who will have the authority to determine this degree requirement exception? The chair? In consultation with Faculty of Record?

### **RESPONSE #16**

Several benchmarked ET programs have faculty with a bachelor’s degree and significant industrial experience serving as Adjunct or Professor’s of Practice. A hiring committee will review such an individual’s curriculum vitae, and a recommendation made to appoint them to an “appropriate” rank or series.

Page 8: 3 faculty members who were involved in the development of the program curricula “would be involved in the new department, in various capacities.” Please identify those capacities, including their anticipated series (lecturer, professor), rank, and administrative role (if any).

### **RESPONSE #17**

The new Department’s formation is a bit of a “chicken and egg exercise.” It needs faculty members to approve new faculty appointments. However, there are no ET faculty members yet. Therefore, the Associate Dean for Faculty Affairs and Facilities, Dr. Sue Nokes ([sue.nokes@uky.edu](mailto:sue.nokes@uky.edu)), will assemble an ad-hoc committee to evaluate candidates

for appointment to the ET Department, if the program is approved. This committee will need to function no longer than about two years or until the ET faculty have enough members and appropriate rank to approve new faculty appointments.

Here is the tentative composition of the ET faculty hiring committee:

1. **Dr. Suzanne Smith** – Professor, Mechanical Engineering, and Director, UK Unmanned Systems Research Consortium
2. **Dr. Julie Whitney** – First-Year Engineering Lecturer
3. **Dr. Mike Johnson** – Professor and Chair, Electrical and Computer Engineering
4. **Dr. Jim Lumpp** – Professor and Director of Undergraduate Studies, Computer Engineering
5. **Dr. Sebastian Bryson** – Hardin-Drnevich-Huang Associate Professor of Civil Engineering, Joint Appointment in Earth and Environmental Sciences
6. **Dr. Jeff Seay** – PJC Board of Trustees Engineering Professor, Chemical Engineering, Paducah Campus
7. **Dr. Kozo Saito** – Tennessee Valley Authority Professor of Mechanical Engineering; Director, Institute of Research for Technology Development (IR4TD)

The Ad-hoc hiring committee will evaluate the dossier of the faculty members involved in developing the program curricula. Based on that evaluation, a recommendation will be made with respect to the rank and series for their appointment.

Page 8: “The initial hiring will target senior faculty hires who will serve as a faculty of record.”

Who will have the authority to make those hiring decisions? In the next Question response, it is noted that Dr. Nelson Akafuah, a Lecturer in the Dept of Mechanical Engineering “will provide leadership through the implementation of the new department until a Chair is appointed.” With that in mind – who will make hiring decisions at the unit level, until a full faculty of record, and chair, is appointed?

Please identify the number of faculty and series and rank of each of these “senior faculty hires.”

## **RESPONSE #18**

Please refer to *response #17* above.

Depending on enrollment in the program and the availability of resources, the ET Department will have five tenured/tenured track faculty and three lecturers, including at least one full professor.

In the Charitable Gift Agreement, dated 9/8/2020, that is included in the proposal, it is noted that \$1 million (of the total gift of \$2.5 million) “shall be used to establish and support the endowed

‘Toyota Engineering Technology Distinguished Professorship’ fund. The Dean of the College shall appoint the Toyota Engineering Distinguished Professor and determine his his/her duties and responsibilities in accordance with the applicable University policies, procedures and guidelines.”

Why isn’t this endowed professorship included in the discussion of faculty hires in this proposal? What is the minimal degree requirements, series and rank for this particular faculty hire? Last, if \$1 million of the \$2.5 million gift (\$1m is to go to lab enhancement, and \$.5m to admin support) that is seeding this proposal, is to be dedicated to only 1 faculty hire, where will the rest of the funds to support all the other faculty lines come from?

### **RESPONSE #19**

The endowment will be used to attract a senior hire at a full professor rank. Please note that the endowed professorship charitable gift, though approved, was not yet fully executed when the proposal was voted on in the College. On August 25, 2020, the College voted to approve the proposal, and the Charitable Gift Agreement was executed on September 8, 2020.

Please see the attached 5-year budget for the program’s financial viability and how additional faculty hires will be funded.

### **Question 7:**

Page 8: “a search committee, consisting of faculty selected from existing departments within the UK-COE would then interview faculty candidates for two new tenure track faculty positions and two new Lecturer positions....” Who will select the members of the search committee? How many of such faculty members be UK-COE tenured/tenure track professors and what percentage of the total number of search committee members will be UK-COE tenured/tenure track professors?

### **RESPONSE #20**

Please refer to *response #17* above.

In the letter of support of the UK-COE Dean, dated 9/23/20, (in the proposal) Dean Buchheit states: “Three initial instructional faculty appointments...Prospective faculty and staff appointees for 2021 already hold appointments in the College or IR4TD.” Those current faculty include 1 Lecturer, 1 Adjunct Assistant Professor and 1 “Extension Specialist and Lead Instructor.” How does this statement align with the statements put forth in the proposal regarding faculty hires? Will it be 3 or 4? And what will be the series/rank for those hires? Does this comment by the Dean suggest that the 3 faculty currently developing the proposal will be appointed as Lecturer or Assistant Professors? Will there be a national search? Will there be review by a faculty search committee made up of tenure track/tenured members of the UK-COE faculty?

## **RESPONSE #21**

Please refer to *responses #17 & 19* above. As already stated, the number of faculty will depend on enrollment and the availability of resources.

The Dean also states in that letter of support: “Two additional instructional faculty appointments are planned for 2022.” Please describe the minimal degree requirements, series, rank of each of these appointments, and the process for hiring said faculty (national search, faculty search committee, etc.).

## **RESPONSE #22**

Faculty hiring will follow established procedures within ARs & GRs, and within the UK-COE; a national search will be conducted for all appointments.

Please describe how these 4-6 faculty members will be able to handle all of the various proposed courses for an eventual cohort of 290 students?

## **RESPONSE #23**

Please refer to response#18. At the projected 290 student capacity, the program will have five tenured/tenured track faculty and three lecturers. The faculty will have a (2+2) and a lecturer a (3+3) teaching load.

Please note that the ET Program will only have junior and senior-level students and no graduate student education. As such, the instructors will have higher teaching DOEs.

What is the selection process for appointing a chair of this new department?

## **RESPONSE #24**

Please see response #17 about the Search Committee. Appointing a Department chair is an important process. Hence, the committee will follow established COE procedures for selecting a chair, including a national search.

### **Question 8:**

Page 9: “The faculty and lecturers within the department will manage the curriculum course load during the first year.” By “manage” do you mean deliver – as in teach the curriculum? And who will create the curriculum course load that will be delivered? Again, note questions above about the Senate review process and timeline for new academic programs and curriculum.

## **RESPONSE #25**

“Manage the curriculum course load” refers to administering the curriculum, including delivering/teaching the courses.



Please note, the program was initially planned to be launched in the Fall of 2022, after appropriate approvals. However, it was accelerated to a Fall 2021 launch to help alleviate any COVID-related enrollment drops. The College is keenly aware of the Senate review process and the timeline for new academic programs and curriculum approval. As such, the launch will be the semester after approval.

Page 9: “Their (faculty and lecturers) DOEs will be devoted primarily to instruction, curriculum development, and administration, as appropriate to rank and tenure status.” For these first 4 hires, 2 tenure track, 2 lecturers, what about research and service in their DOEs? Also, please provide us with the apportionment of efforts within the DOE for each hire (for example, assistant professor, 40% research, 40% instruction, 10% service).

### **RESPONSE #26**

Please refer to response #23; the ET Program is a strictly undergraduate education and training program with a significant emphasis on instruction.

As you are aware, several factors influence faculty DOE. But as a rule of thumb for the ET Department, here are anticipated DOE's:

- Tenure/ Tenure Track Faculty (60% instruction, 30% research, 10% service)
- Lecturer (75% instruction, 25% Teaching Related Activities including Professional Development and Service)

As to curricular development - will the 4 faculty members appointed in the first year of the program, be responsible for the creation of the curriculum, notably, syllabi with learning objectives, lecture materials, reading lists, etc. and the responsibility for shepherding the proposals through the UK Senate curriculum approval process? Note that curriculum proposals usually take a full academic year to make their way through that process.

### **RESPONSE #27**

Program proposals, including syllabi for all new courses, were submitted simultaneously with the Department creation proposal to the Senate and are going through appropriate Senate committees for review and approval.

Page 9: “Additional hires are planned for the second year after the program launch.” Please provide us with the number of such hires and the minimal degree/experience requirements, series, rank for each anticipated faculty hire. And, again, please describe the hiring procedure (search committee composition, who appoints the search committee, etc. (see Question 7 above).

### **RESPONSE #28**

Please refer to responses #17, 18, and 19.

**Question 9:**

Since the proposed department will involve multiple schools or colleges within the bluegrass region – please discuss the following:

At BCTC, are faculty members already in place, to handle the courses related to the Associate degree programs that will feed into the Bachelor degree programs? If no, who will be involved in that hiring process? And, what are the faculty degree requirements, number of faculty, series and rank of the faculty hires? And who will be charged with making those hires? What faculty of record (extant or to be created) will be involved in the hiring process, including decision-making.

If new faculty need to be hired at BCTC, or are already appointed, how will the faculty of record of the proposed UK department of engineering technology relate to the faculty of record of the associates degree programs at BCTC? Will they ALL be considered to be faculty of record within the proposed UK department? With voting rights? The same/equal voting rights? Please provide a chart or narrative that will describe the reporting lines/organizational structure governing faculty at UK and BCTC within this department.

**RESPONSE #29**

As per the program agreement signed between UK and BCTC, each institution is responsible for establishing their infrastructure, including personnel, to effectively enable students to fulfill their institution’s Engineering Technology degree requirements.

As a signatory to the agreement, it is incumbent on BCTC to meet that responsibility. BCTC faculty will not be part of the UK faculty of record.

**Question 10: (p. 9)**

Identify the specific percentage of DOE, for the Business Officer and Administrative Staff Officer that will be dedicated to the new department.

**RESPONSE #30**

The Business Officer and the Administrative Staff Officer will devote 25% DOE to the ET Department. Please note, as the Department’s program grows and responsibilities are concomitantly increased, these positions will be filled with full-time employees who will devote 100% DOE to the ET Department.

**Question 11: (p. 9)**

Page 9: “New faculty hires...will be full-time tenured or tenure track with their DOE allocated 100% to the department.” Previously in the proposal, it is noted that the new faculty hires will include 2 lecturers. Which statement accurately reflects the plans for new faculty hires, in the first year, and beyond.

### **RESPONSE #31**

The ET department's two-year faculty hiring plan comprises five tenured/tenured track faculty and three lecturers, depending on enrollment and resource availability.

Page 9: "Faculty described in the aforesaid #6 will have a certain percentage of their DOE devoted to the new department." Those 3 identified faculty include 1 Lecturer housed in the Dept of Mechanical Engineering, 1 "Industry Extension Specialist and Lead Instructor" for the "Institute of Research for Technology Department's Lean Systems Program" and 1 "Adjunct Assistant Professor" for the Dept of Mechanical Engineering. Please specify the DOE percentage (including teaching, research, service, and situs of work (ME or Institute and new dept)) for each of these 3 faculty members.

### **RESPONSE #32**

As mentioned in response #17, the dossier of these faculty will be evaluated. A recommendation will be made as to rank and series for their appointment to the ET Department. They will maintain a joint appointment as appropriate with their current departments, with the ET Department being the primary department to which they will devote at least 60% of DOE for teaching ET courses.

Page 9: An "Advisory Board" is to be appointed during the first year of operation of the proposed department. In the proposal, in the Memorandum of Agreement between UK and BCTC, dated 9/15/20, under "Article 8: Advisory Board" it is noted that UK and BCTC will "work together to seek a balanced representation from postsecondary education, business and industry, government agencies and other organizations where appropriate."

"The main purpose of the advisory board is to advise on curriculum development...The board will also be tasked with many other responsibilities such as strategic planning, advocating for accreditation, setting up grants or funds to meet financial needs and to serve as mentors for students."

How will the Advisory Board will impact the policy making process of the new department? How will the Advisory Board relate to faculty governance and faculty input in the policy making process? Are there similar advisory boards in UK-COE with similar advisory capacity and responsibilities? If yes, please identify and provide links.

### **RESPONSE #33**

The Advisory Board shall provide non-binding strategic advice and will not be involved in policymaking or governance. Policymaking and governance are the prerogatives of the ET Department faculty.

All the departments within the COE have an Advisory Board, as does the College itself. Examples are at the following links:

- the UK Department of Mechanical Engineering Advisory Board’s page: <https://www.engr.uky.edu/research-faculty/departments/mechanical-engineering/about/me-advisory-board>
- the UK Department of Civil Engineering Advisory Board’s page: <https://www.engr.uky.edu/research-faculty/departments/civil-engineering/about/external-advisory-boards>

**Question 12: (p. 9-10)**

How does the proposal align with accreditation requirements for the Engineering Technology Accreditation Commission of ABET?

What is the current status of the evaluation of “the new programs for compliance” at SACSCOC?

**RESPONSE #34**

Please see response #11 about ABET ETAC accreditation. The ETAC accreditation guidelines are attached for your reference. The College will seek accreditation for both the BS CPT and the BS LST with ABET ETAC.

The required documentation have submitted to OSPIE for new program compliance with SACSCOC

**Question 13: (p. 10)**

The timeline for the creation of this new department and 2 degree programs is fall of 2021, with new faculty beginning work on July 1, 2021 and 20 students in the first cohort. Again, in light of the Senate approval process for degree programs and curriculum, how is this timeline at all feasible? And, again, who is responsible for creating the curriculum for all of the courses that would be delivered in the fall of 2021?

Also, please provide us with answers to this question as it pertains to key events (student enrollments, new faculty and staff hires, etc.) that will occur at BCTC.

**RESPONSE #35**

Please refer to responses #5, 8, and 29.

**Question 14: (p. 10)**

Please completely answer the question: “describe how the proposed structure will enhance students’ education and make them more competitive.”

Also, “Discuss the impact on current and future students.” Please be specific as you discuss the impact of this new department and 2 new degree programs on current UK-COE students.

Also, “describe the plans for student recruitment.” You have identified the enrollment goal – 290 additional students, but please discuss how you will achieve that recruitment goal.

### **RESPONSE #36**

Some of these issues have been addressed in earlier responses. It must be noted that Engineering Technology appeals to different types of skill sets in students than the Engineering degree programs. The ET Department will target a diverse demography of students who learn best through hands-on practice and industry practicums.

Th ET Program may also appeal to current engineering students who struggle with the heavy math and theory-based engineering education; it is envisioned the ET Program’s hands-on focus may allow these students to thrive.

The COE has a robust recruitment office led by the Director of Recruitment, Tony Jackson. Tony and his team have been discussing and working on recruitment strategies to allow the ET Program to reach its recruitment goal if the program is approved. Because of the 2 plus 2 nature of the program, Tony’s office also plans to coordinate some recruitment events with their BCTC counterparts.

### **Question 15: (pp. 10-11)**

Please provide us with “evidence that adequate financial resources exist for the proposed unit to be viable.” It is noted in the question that “an exhaustive budget is not expected” but it would be helpful to the review process if we were given more information about the cost and expenses of the department for the first 5 years, including faculty and staff salaries (including benefits), materials and office expenses.

In the September 11, 2020 letter from Kimberly Ward Anderson, Associate Dean for Academic Affairs, that summarizes the faculty vote on the proposal, it is stated: “A balanced 5 year budget with a detailed accounting of revenues and expenses was included with proposal materials and was available to faculty for review.” There is also mention of the budget in the Dean’s letter. Please provide us with a copy of that 5 year budget with detailed accounting of revenues and expenses.

### **RESPONSE #37**

The five-year budget is attached for your reference.

To the extent that you have provided us with information about revenue streams and financial commitments, please provide further details as to:

“\$2 million endowment to create the Toyota Engineering Technology Diversity Scholarship,” It is noted in the proposal (p. 11) that “the \$2 million scholarship gift is pending approval as of the submission of the proposal.” Please inform us where in the Gift Agreement from Toyota, that is included in the proposal, where there is a mention of the \$2 million Diversity Scholarship and where is there mention of the conditional nature of the gift? If details (endowment retained, funds paid out annually, number of students receiving scholarships, amounts of each scholarship, description of eligible students) about the \$2 million Diversity Scholarship are contained in other documents, please provide us with a copy.

### **RESPONSE #38**

Please note, the \$2 million scholarship is a separate gift agreement that has not yet been executed as negotiations about framework and modalities are ongoing. Nevertheless, a considerable exchange of information and discussions has occurred between Toyota and the UK about this scholarship. A **draft agreement** is attached for your reference.

Please note that the scholarship’s final approval was received on December 11, 2020; the approval email notification is attached for your reference. The COE will be working with UK Philanthropy and Toyota to finalize and execute the attached draft agreement.

And, to reiterate the key question, above (Question 6), about the \$1 million earmark for one faculty hire - an endowed professorship (Toyota Engineering Technology Distinguished Professor) – where will the money come from to support the other anticipated faculty lines?

### **RESPONSE #39**

Please see earlier responses; also, the five-year budget is attached for your reference.

Page 11: “IR4TD will make available \$1.5 million for support of faculty hires and initial start-up costs.” How many faculty hires are included? And is the recurring support funds? What financial support is available for faculty hires in the 2<sup>nd</sup> year of the program and thereafter?

### **RESPONSE #40**

Please refer to the attached 5-year program budget.

Page 11: “revenue will be obtained through the assessment of the UK-COE program fee to include incoming Engineering Technology majors. From this anticipated revenue, the UK-COE will allocate operational funds to the Dept of Engineering Technology for its FY 22 budget.” How much potential revenue is involved here, how does this alteration in the UK-COE program fee allocation impact other students and departments within COE, does “operational funds” include faculty salaries, and will this allocation continue after FY 22?

## **RESPONSE #41**

Please refer to the attached 5-year program budget.

### **Question 16: (pp. 11-13)**

Briefly describe the voting process. Were faculty members sent copies of this entire proposal prior to the vote? How much time were they given to review the proposal? Was there a faculty meeting/congress convened to discuss the proposal?

The summary of votes that was compiled by Associate Dean Anderson (contained in proposal) includes descriptions of concerns expressed by faculty about the proposal. Please provide us with all comments (pro or con, and keeping them anonymous) included in the voting process.

## **RESPONSE #42**

Here a summary of the voting process:

- May 5, 2020, an overview of the proposed Program was presented to the entire UK-COE faculty and staff to solicit input and feedback. Here is a link to the recording for this meeting if it will be of value to the committee ([https://lucky-my.sharepoint.com/:v/g/personal/djmead3\\_uky\\_edu/EdeHAjptGN5GisOh2qW6WUgBu4di9zznMx9zw0QicK\\_jPQ?e=GSifPT](https://lucky-my.sharepoint.com/:v/g/personal/djmead3_uky_edu/EdeHAjptGN5GisOh2qW6WUgBu4di9zznMx9zw0QicK_jPQ?e=GSifPT))
- August 10, 2020, the full proposal package was made available to the entire UK-COE faculty and staff for review and feedback. The email and link to the proposal package are attached for your reference. The feedback received before the voting are attached in the excel file.
- August 25, 2020, eligible faculty voted to approve the program. Here is a link to the recording for this meeting if it will be of value to the committee (<https://youtu.be/JIz61V3rzKQ>)

After the votes were tallied, the Dean requested Department Chairs for feedback from faculty who might have voted against or abstained, or voted yes but had reservations. The feedback was received on September 8, 2020, and is attached for your reference.

Were faculty given the opportunity to vote on this proposal within their departments?

## **RESPONSE #43**

The College has a process for voting on new or changing programs within a department in which the process begins with the home Department faculty voting on the proposed changes. Since the ET Program involves creating a new department that does not yet have faculty, the voting started at the College level, i.e., faculty did not vote on a proposal within their own departments but at the College level.

Letters from Chairs of the UK-COE departments (contained in the proposal) express support for the proposal. Did those Chairs consult with their department faculty directly on this issue and receive feedback? If yes, please forward summaries of those comments (pro or con, anonymous) to the committee.

#### **RESPONSE #44**

Throughout the almost two years process of developing the ET Program, department chairs discussed the new Department within their own departments. If any comments or discussions were for or against the ET Department proposal, they were not shared.

#### **Question 17: (p. 13)**

Please provide us with “evidence of academic merit and support from key parties” including “relevant senior faculty” in units directly involved and “existing units from which a new unit may be formed.” You have provided us with documentation of support from key administrators, including the Provost, Dean and Chairs – but please also provide us with letters from relevant senior faculty within UK-COE that can speak to the academic merit (not just the financial benefits) of this proposal.

#### **RESPONSE #45**

The evidence of academic merit has been addressed in earlier responses. Senior faculty involvement in drafting the new Program’s framework and the curriculum was also presented in previous responses.

#### **Memorandum of Agreement Between UK and BCTC, dated 9/15/20**

#### **Article 7 (p. 5)**

It is stated: “Course requirements within this program can be changed by mutual agreement between the Dean of the UK-COE and Chief Academic Officer of the BCTC, upon recommendation of the faculties of the Programs at UK and BCTC.” Note that program changes at UK are reviewed and approved (or not approved) by unit faculty, college faculty, and the University Senate review process. It is not a “recommendation.”

#### **RESPONSE #46**

It is well understood that all program changes will have to go through the faculty Senate for review and approval. However, proposed changes and/or additions will have to start with a faculty recommendation to initiate the process and then send the proposal to the Senate for review and approval.

#### **Joint Program Curricula**

Who created these degree program requirements?



How do they align with benchmark institutions/Engineering Technology programs?  
Who created these course sequences?

**RESPONSE #47**

The program creation and the people involved in the process were addressed in the foregoing. The ABET ETAC criteria were used as a guide and are attached for your reference.

Are UK Core and GCCR graduation requirements sufficiently included in these course sequences?

**RESPONSE #48**

Yes, please refer to the BS CPT and BS LST program proposal; it has been reviewed by appropriate Senate committees and is available in curriculog.

How many of the courses included in the course sequences include new courses that will need unit and College faculty and university senate approval?

**RESPONSE #49**

There are 12 new courses for BS LST and 12 for BS CPT, and 4 cross-listed courses between LST and CPT, making a total of 28 new courses. The proposal for these courses was submitted in curriculog and was approved by the college faculty, and currently with the appropriate senate committee for review and approval.

Note that SAPC and SAASC will have further questions about the degree requirements and course curriculum.

**Charitable Gift Agreement, dated 9/8/2020**

***Naming (p. 2)***

Is the SAOSC being asked to approve the naming of the “Toyota Engineering Technology Laboratory”?

**RESPONSE #50**

This is a question for UK administration and philanthropy with regards to the handling of gifts and namings. However, acceptance of the gift is contingent upon the program’s approval by the Senate, Board of Trustees, and CPE.

***Stewardship (p.2)***

A gift impact committee, comprised of the Dean of UK-COE and “up to two (2) College faculty members with direct knowledge of the Program, and a Donor representative.” The committee may convene “to appropriately evaluate the impact of the Program, the uses of the contributions made pursuant to this Agreement, and to discuss potential changes.” Are there examples of other donor stewardship committees in other UK programs or departments? If yes, please provide examples and links to relevant documents.

**RESPONSE #51**

We will refer this question to UK philanthropy.

This page is intentionally left blank.

Attached are letters of support from the following industry partners:

1. TempurSealy, International
2. Mubea North America
3. Curtis Maruyasu America, Inc
4. Summit Polymers, Inc
5. Enova Premier, LLC
6. Lexmark International
7. Bullard



**University of Kentucky**  
**College of Engineering**  
Office of the Dean  
353 Ralph G. Anderson Bldg.  
Lexington, KY 40506  
P: 859-257-1687  
F: 859-257-5727 www.uky.edu

September 23, 2020

Dr. Nelson Akafuah  
Department of Mechanical Engineering  
University of Kentucky  
Lexington, KY 40502

Dear Nelson,

I am pleased to support the creation of the Bachelor of Science in Lean Systems Engineering Technology, the Bachelor of Science in Computer Engineering Technology, and the Department of Engineering Technology's creation to house these programs.

I believe that these programs, offered in partnership with Bluegrass Community and Technical College, and with the support of Toyota Manufacturing North America, reconnect us with our obligation as a Land Grant institution to teach practical aspects of our field of Engineering in support of industry and society.

I note that in April of this year, the Kentucky Council on Post-Secondary Education published results of a study it commissioned showing significant unmet workforce needs in the Kentucky Tech Sector for Engineering Technologist talent<sup>1</sup>. The focus on manufacturing through the Lean System Program and computer technology through the Computer Technology Program address two essential disciplinary needs identified in that report. Indeed, this finding is supported by your survey of regional industry partners as detailed in your feasibility study and by the letters of support from the regional industry endorsing your program proposals.

Significantly, these programs respond to the call for expanded access to engineering education by opening pathways to individuals with a broader range of skills and interests than has been the case previously. Because these programs will have a lower cost profile than our other Engineering Science degree programs, they will expand access to those whose financial ability would otherwise prevent them from pursuing an engineering education at the University of Kentucky. I also believe this program will increase the retention and graduation of engineering talent from the university by providing an alternate pathway to an engineering degree should a student discover along the way that the Engineering program is not the fit they initially thought. By expanding access and promoting retention, I believe the College will expand and diversify its production of high-quality engineering talent.

Launching new academic programs and a new academic department is a resource-intensive exercise that must be conducted and evaluated carefully in view of our current economic conditions and the fiscal health of the College and university. I want to express my appreciation for the diligence with which you researched the opportunity, the critical appraisal you have applied in making the recommendation to proceed with program creation, and the detail with which you have negotiated our

---

<sup>1</sup> "Engineering Sector Analysis in Kentucky-Labor Market Information, Program Demand Gap Analysis & Migration Analysis", Kentucky Council on Post-Secondary Education, April (2020).

partnership with BCTC. I believe the rationale for program creation is sound and the plan well-conceived. I agree with the 5-year budget plans that show how one-time funds will support department and program creation until enrollment growth and instructional revenue make the programs self-sustaining.

We are extremely fortunate that these new academic programs grow from our longstanding and successful Lean Systems educational programming and our Institution of Research for Technology Development (IR4TD) program. We are similarly fortunate that these new technology programs are aligned with strong science programs in Mechanical Engineering, Computer Science, and Electrical Engineering and Computer Engineering. The core faculty and staff needed to deliver these programs already hold appointments in the College, thereby reducing initial personnel expenses. I note that Lean Systems/IR4TD has pledged \$1.5 million in one-time cash to support nucleation of the department and programs, and Toyota Manufacturing North America has pledged \$4.25 million to support scholarships, faculty support, facilities modification, and departmental and program operations. The magnitude of this support has a large shielding effect on the College budget at a time of significant budget sensitivity.

Three initial instructional faculty appointments and seven partial staff appointments (2.5 FTE total) shared with IR4TD are planned for the new department in 2021. Prospective faculty and staff appointees for 2021 already hold appointments in the College or IR4TD. Two additional instructional faculty appointments are planned for 2022. Funding commitments for all anticipated 2021 and 2022 appointments are in hand.

The formal appointment of the new faculty members will be carried out in accordance with relevant university Administrative and Governing Regulations (ARs and GRs) under the direction of an Ad Hoc ET Faculty Appointment Committee comprising faculty members selected from across the College of Engineering. This committee will remain constituted until the ET faculty size and composition is sufficient to carry out faculty appointment actions in accordance with University ARs and GRs.

For 2023 and beyond, a student to instructional faculty ratio of 24:1 will be used as guidance to determine the need to appoint new faculty members to the ET department.

I believe the creation of these programs is the right move at the right time. They will focus on the practical aspects of the engineering discipline in alignment with our institutional mission, and they will serve a clear workforce need. You have also secured budgetary resources sufficient for launching these degree programs and the departmental unit that will serve as their home. I thank you for your considerable work to lead this effort to this point.

I look forward to the launch of these programs and the positive impact they will have on our graduates, and the benefit they will bring to business and industry in Kentucky.

Sincerely,



Rudolph G. Buchheit  
Professor, Chemical and Materials Engineering  
Dean, College of Engineering



University of Kentucky  
Office of the Provost

105 Main Building  
Lexington, KY 40506-0032  
P: 859-257-2911  
www.uky.edu

September 23, 2020

Rudolph Buchheit, Ph.D., Dean College of Engineering  
Nelson Akafuah, Ph.D., Coordinator of the Proposed Department of Engineering  
Technology, Bachelor of Science in Lean Systems Engineering Technology, and Bachelor  
of Science in Computer Engineering Technology

Dear Drs. Buchheit and Akafuah,

I write this letter offering my support for the creation of the Bachelor of Science in Lean Systems Engineering Technology (LST), the Bachelor of Science in Computer Engineering Technology (CPT), and the Department of Engineering Technology (ET) within the College of Engineering to house these programs. I believe these new programs will support the University's goal of increasing enrollment. These programs are expected to attract students from a broad geographical region. Furthermore, at other institutions, the engineering technology student body has twice the number of under-represented minority students in contrast to many other engineering disciplines. Thus, these programs are expected to increase the diversity of the student body in the College of Engineering and of the University.

The new LST and CPT programs will help meet several of the 2019 College of Engineering Strategic goals, including: 1) expanding program offerings to students with a specific target of launching the LST and CPT programs in 2021; 2) growing the College's undergraduate enrollment to 5,000 students by 2025, and 3) increasing diversity and the number of women engineers. Furthermore, such programs can strengthen linkages between the College of Engineering, industry, and our community college partners.

These new programs will help meet industry need for creative, talented, technically competent engineering technologists, and will strengthen the engineering industry in Kentucky. The proposed programs will be developed and taught in close collaboration with Bluegrass Community and Technical College with the support of Toyota Manufacturing North America. The collaboration is a new opportunity for economic development in Kentucky and contributes to our land-grant mission.

My support for these proposals is not a direct commitment of financial resources from my office. However, the University's net tuition revenue sharing model will enable the College to support these programs. It is the responsibility of the College to find and allocate resources to pursue strategic opportunities and priorities such as these programs.

I believe these programs are financially viable and will contribute to the career success of our students and economic development of the Commonwealth. Thus, I support these proposals.

Sincerely,



David W. Blackwell  
Provost





Office of the Dean  
College of Engineering  
351 Ralph G. Anderson Building  
Lexington, KY 40506-0503  
859 257-1687  
Fax 859 257-5727  
[www.engr.uky.edu](http://www.engr.uky.edu)

September 11, 2020

TO WHOM IT MAY CONCERN:

The attached proposal for the creation of a Department of Engineering Technology within the College of Engineering and to house two proposed undergraduate degrees was approved as follows:

1. Creation of the Department of Engineering Technology (ET). The College of Engineering Undergraduate Education Team (10 in favor, 1 abstained, and 0 opposed), and by the College of Engineering faculty (83 in favor, 32 opposed, and 11 abstained). Quorum requirements were met, and based on the voting results, the motion has carried.
2. The creation of the BS in Lean Systems Engineering Technology (LST) within the Department of Engineering Technology. The College of Engineering Undergraduate Education Team (10 in favor, 1 abstained, and 0 opposed), and by the College of Engineering faculty (84 in favor, 24 opposed, and 18 abstained). Quorum requirements were met, and based on the voting results, the motion has carried.
3. The creation of the BS in Computer Engineering Technology (CPT) within the Department of Engineering Technology. The College of Engineering Undergraduate Education Team (10 in favor, 1 abstained, and 0 opposed), and by the College of Engineering faculty (77 in favor, 30 opposed, and 19 abstained). Quorum requirements were met, and based on the voting results, the motion has carried.

A summary of supporting and opposing opinions expressed by faculty are as follows:

- **Supporting Opinions:**
  - The programs are a promising approach by the college to addressing industry needs through partnering with the community college systems. It will address critical skill shortages in the workforce.
  - It will help with recruitment to boost the pipeline for transfer students.
- **Opposing Opinions:**
  - Concern was expressed that the college should not be doing this now because of funding uncertainty due to the pandemic.
  - **Response.** One-time cash resources of \$5 million from the Lean Systems Program and Toyota Motors Manufacturing have been committed to supporting the creation of the ET department and its programs. A balanced 5-year budget with a detailed accounting of revenues and expenses was included with proposal materials and was available to faculty for review.

see blue.

An Equal Opportunity University

- Concern was expressed that Engineering and Engineering Technology (ET) are different things, and having ET will harm the quality and ranking of Engineering.
- **Response.** Benchmarking research does not substantiate this concern.
- Support for the program was expressed, but there was disagreement with the partnership with BCTC. Concern was expressed about resource drain and losing faculty lines to a new program.
- **Response.** The BCTC partnership brings considerable teaching capacity and expertise as well as a unique manufacturing teaching and demonstration facility that UK cannot replicate.
- Concern was expressed that this is a threat to the concept of a professional engineer.
- **Response.** Over the past decade, NCEES has steadily moved towards professional licensure of those holding ET degrees. Today half of all regions nationally permit licensure of ET degree holders.
- Concern was expressed that the ET programs will create a two-class system within these fields. –
- **Response.** This issue will require careful on-going management as the program evolves.
- Concern was expressed about the difficulty of explaining the difference between Engineering Technology and “regular” engineering degree to prospective students.
- **Response.** This issue will require careful on-going management as the program evolves.

These concerns will continue to be addressed as the program evolves.

Sincerely,

*Kimberly W. Anderson*

Kimberly Ward Anderson, Ph.D.  
Associate Dean for Academic Affairs  
Director, NSF/REU Program in Bioactive Interfaces and Devices  
Professor, Chemical Engineering

see blue.

An Equal Opportunity University



**University of Kentucky**

**College of Engineering**

*F. Joseph Halcomb III, M.D.*

*Department of Biomedical*

*Engineering*

522 Robotics and Manufacturing

Building

143 Graham Avenue

Lexington, KY 40506-0108

[www.bme.uky.edu](http://www.bme.uky.edu)

P: 859-323-7217

F: 859-257-1856

[guigen.bme@uky.edu](mailto:guigen.bme@uky.edu)

September 7, 2020

Dr. Nelson Akafuah  
Department of Mechanical Engineering  
University of Kentucky  
Lexington, KY 40502

Dear Nelson,

I am writing to offer my support and that of the F. Joseph Halcomb III, M.D. Department of Biomedical Engineering (BME) for the creation of the Bachelor of Science in Lean Systems Engineering Technology (LST), Bachelor of Science in Computer Engineering Technology (CPT), and the creation of the Department of Engineering Technology (ET) within the College of Engineering to house these programs.

I am convinced that these new LST and CPT programs at UK will help meet several of the 2019 College of Engineering Strategic goals and strengthen linkages between the College of Engineering, industry, and our community college partners.

In discussion with the BME faculty, I noted some concerns over the financial aspect of these proposals, particularly in view of the urgent needs for resources in both faculty lines and teaching facility to meet the rising demands of our newly launched BS program in BME. With the understanding that these proposed programs in Engineering Technology will not impede any efforts by the college in meeting the needs to ensure the success of the BS program in BME in serving our students, the BME Department is supportive of these new degree proposals and the creation of the ET Department.

Sincerely,

Guigen Zhang, Ph.D.  
Professor and Chair

**see blue.**

*An Equal Opportunity University*



**Department of Chemical and  
Materials Engineering**

*177 Anderson Hall  
Lexington, KY 40506-0046  
(859) 257-4063  
[Thomas.dziubla@uky.edu](mailto:Thomas.dziubla@uky.edu)*

September 9, 2020

Dr. Nelson Akafuah  
Department of Mechanical Engineering  
University of Kentucky  
Lexington, KY 40502

Dear Dr. Akafuah,

I write this letter offering my support for the creation of the Bachelor of Science in Lean Systems Engineering Technology (LST), and Bachelor of Science in Computer Engineering Technology (CPT) ), and the creation of the Department of Engineering Technology (ET) within the College of Engineering that will be supported by a financial agreement with Toyota.

Engineering Tech Degrees are an important step in enhancing the career opportunities for Kentuckians and these new programs are also a key approach to meeting several of the strategic goals as outlined in the 2019 College of Engineering Strategic plan. These include an expansion of the number of engineering students within the college and increasing the diversity of our student population.

As a college of engineering, it is important that we create long lasting links to industry and the community. I see the formation of these new programs and department made possible by the collaboration with Toyota and Bluegrass Community and Technical College as an exciting step towards achieving this vision. Given the multiple benefits the BS in LST and a BS in CPT offer to students, the college and university, the Department of Chemical and Materials Engineering is supportive of these new degree proposals and the formation of the department.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Thomas D. Dziubla', with a horizontal line extending to the right.

Thomas D. Dziubla, Professor and Chair  
Department of Chemical and Materials Engineering



**University of Kentucky**  
**Department of Civil Engineering**  
161A Oliver H. Raymond Bldg.  
Lexington, KY 40506-0281  
P: 859-257-4856  
F: 859-257-4404  
[www.engr.uky.edu/ce](http://www.engr.uky.edu/ce)

September 9, 2020

Dr. Nelson Akafuah  
Department of Mechanical Engineering  
University of Kentucky  
Lexington, KY 40502

Dear Dr. Akafuah,

I write to offer the Department of Civil Engineering's administrative feasibility support for the creation of the Bachelor of Science in Lean Systems Engineering Technology (LST) and the Bachelor of Science in Computer Engineering Technology (CPT) programs.

These new LST and CPT programs at UK will help meet several of the 2019 College of Engineering Strategic goals, including 1) expanding program offerings to students with a specific target of launching the LST and CPT programs in 2021; 2) growing the College's undergraduate enrollment to 5,000 students by 2025, and 3) increasing diversity and the number of women in the Engineering College by offering a broader offering of career paths. This program will no-doubt strengthen linkages between the College of Engineering, industry, and our community college partners. I am particularly excited about the partnership with KCTCS and the support from Toyota.

I believe these new programs will help meet industry need for hands-on engineering technologists, and has the potential to contribute to the strengthening of the engineering industry, promotion of commercialization of ideas, and increasing economic opportunity in Kentucky.

In summary, the Department of Civil Engineering is supportive of these new degree proposals.

Sincerely,

A handwritten signature in blue ink that reads "Reg Souleyrette".

Reginald R. Souleyrette, Ph.D., P.E.  
Chair and Commonwealth Chair Professor  
E-mail: [souleyrette@uky.edu](mailto:souleyrette@uky.edu)



## University of Kentucky

College of Engineering  
Computer Science Department  
329 Rose Street  
Davis Marksbury Building  
Lexington, KY 40506-0633  
[www.cs.uky.edu](http://www.cs.uky.edu)

4 September 2020

Dr. Nelson Akafuah  
Department of Mechanical Engineering  
University of Kentucky  
Lexington, KY 40502

Dear Dr. Akafuah:

I write this letter of support on behalf of the Computer Science Department regarding your proposal to create the Bachelor of Science in Lean Systems Engineering Technology (LST), Bachelor of Science in Computer Engineering Technology (CPT), and the creation of the Department of Engineering Technology (ET) within the College of Engineering to house these programs.

These new LST and CPT programs at UK will synergistically expand the offerings of the College of Engineering, helping us to meet important goals from our current strategic plan. We specifically launched an effort to expand offerings for students, and the new LST and CPT programs align with that goal. Along with the program launch will come enrollment growth, which is another strategic objective. Perhaps most importantly, the program creation/launch promises to help us increase diversity among our student demographic. I believe we will see clear enrollment growth, improvements in the diversity of our student population, and stronger alliances between units in the College of Engineering and with our partners in industry and in the community colleges.

We expect these new programs to continue to promote the diffusion of basic computational skills and computational thinking into the student population and the workforce, helping to meeting industry needs for well-prepared, “computationally savvy” engineering technologists, who can work across disciplinary boundaries and use current computer-based tools. I understand that the programs are collaborative with Bluegrass Community and Technical College, supported by generous funding from Toyota Manufacturing North America. No doubt those partnerships are crucial at launch and will offer critical support and leadership going forward, creating opportunities for growth here in the Bluegrass.

I believe that new ET Department and the proposed new programs offer strong benefits to the College of Engineering, the residents of Kentucky, and our students. The Computer Science Department is strongly supportive.

Sincerely,

W. Brent Seales  
Professor and Chair

see blue.

Nelson Akafuah  
Chair, Engineering Technology Implementation Committee  
College of Engineering  
University of Kentucky

Re: ECE Support for Engineering Technology(ET) Department Creation and new BS programs in  
Lean Systems Engineering Technology (LST) and Computer Engineering Technology (CPT)

September 9, 2020

Dear Dr. Akafuah,

On behalf of the Electrical and Computer Engineering (ECE) Department, it is my pleasure to express strong support for the creation of a new Department of Engineering Technology within the College of Engineering as well as the establishment of two new academic programs to be housed in that department, the Bachelor of Science in Lean Systems Engineering Technology (LST) and the Bachelor of Science in Computer Engineering Technology (CPT).

I believe that these new programs are in the best interest of both UK College of Engineering and the Commonwealth of Kentucky, meeting strong industry demand for graduates in Engineering Technology disciplines as well as providing a larger diversity of educational opportunities for our students. The fact that these programs have been developed and taught in close collaboration with Bluegrass Community and Technical College (BCTC), and with the financial support of Toyota Manufacturing North America, is a clear indication of the broad support for these new programs.

More specifically, these new programs have the potential to help address several different strategic goals for the department, including expanding program offerings, growing undergraduate

see blue.

enrollment, increasing diversity including the number of women and underrepresented minority students within our college, and strengthening collaboration between the college and both industry and community college partners.

Because of these benefits, ECE is pleased to support the proposal to create a new Department of Engineering Technology as well as the two academic program proposals for the BSLST and BSCPT undergraduate degrees. I and the faculty in ECE look forward to working together with the College of Engineering and the new ET department to make these programs successful.

Sincerely,

A handwritten signature in black ink that reads "Michael T. Johnson". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Michael T. Johnson  
Professor and Chair, Electrical and Computer Engineering  
University of Kentucky  
<http://johnson.engineering.uky.edu/>

see blue.



September 8, 2020

Dr. Nelson Akafuah  
Department of Mechanical Engineering  
University of Kentucky  
Lexington, KY 40502

Dear Dr. Akafuah,

I write to offer my support and the support the Department of Mechanical Engineering for the creation of the Bachelor of Science in Lean Systems Engineering Technology (LST) program, the Bachelor of Science in Computer Engineering Technology (CPT) program, and the Department of Engineering Technology (ET) within the College of Engineering that will house these programs.

These new LST and CPT programs at UK will help meet several of the 2019 College of Engineering Strategic goals, including 1) expanding program offerings to students with a specific target of launching the LST and CPT programs in 2021; 2) growing the College's undergraduate enrollment to 5,000 students by 2025, and 3) increasing diversity and the number of women engineers. Furthermore, such programs can strengthen linkages between the College of Engineering, industry, and our community college partners.

As you know, the Lean Systems certificate program that has existed for a number of years has been very successful at training working engineers in Lean Systems principles. The UK Lean program has become well known from industries both within the state and across the country. That program has resulted in several courses that have been cross-listed in Mechanical Engineering as electives for our students and it has been a popular and valuable option that is well coupled to the needs of Kentucky industry. The full BS in LST and in CPT offer to reach a whole new set of students and fill an important gap in training and education for students.

It is expected that these new programs will help meet industry need for creative, talented, technically competent engineering technologist, and has the potential to contribute to the strengthening of the engineering industry in Kentucky. The proposed programs developed and taught in close collaboration with Bluegrass Community and Technical College, and with the support of Toyota Manufacturing North America, offers a new opportunity for Kentucky-based commercial development. The synergy between these new programs, our existing engineering programs and the collaboration with BCTC is compelling.

see blue.

I believe that these proposed programs, a BS in LST and a BS in CPT, offers multiple benefits to students, the College of Engineering, the University, the profession of engineering, and the state of Kentucky. In short, the Department of Mechanical Engineering is supportive of these new degree proposals and the creation of the ET Department to house them.

Sincerely,

A handwritten signature in blue ink that reads "Michael W. Renfro". The signature is written in a cursive style with a large initial 'M'.

Michael W. Renfro  
Professor and Chair of the Mechanical Engineering Department  
University of Kentucky  
153 Ralph G. Anderson Building  
Lexington, KY 40506

September 7, 2020

Dr. Nelson Akafuah  
Department of Mechanical Engineering  
College of Engineering  
University of Kentucky  
Lexington, KY 40506

Dear Nelson,

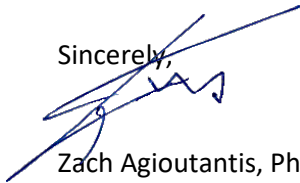
With this letter I offer my support and that of the Department of Mining Engineering for the creation of the Bachelor of Science in Lean Systems Engineering Technology (LST), Bachelor of Science in Computer Engineering Technology (CPT), and the creation of the Department of Engineering Technology (ET) within the College of Engineering to house these programs.

These new LST and CPT programs at the University of Kentucky will help meet several of the 2019 College of Engineering Strategic goals, including (1) expanding program offerings to students with a specific target of launching the LST and CPT programs in 2021; (2) growing the College's undergraduate enrollment to 5,000 students by 2025, and (3) increasing diversity and the number of women engineers. Furthermore, such programs can strengthen linkages between the College of Engineering, industry, and our community college partners.

It is expected that these new programs will help meet the industry need for creative, talented, technically competent engineering technologists, and have the potential to contribute to the strengthening of the engineering industry in Kentucky. The proposed programs developed and taught in close collaboration with Bluegrass Community and Technical College, and with the support of Toyota Manufacturing North America, offer a new opportunity for Kentucky-based commercial development.

I believe that the proposed BS in Lean Systems Engineering Technology and the proposed BS in Computer Engineering Technology, offer multiple benefits to students, the College of Engineering, the University, the profession of engineering, and the state of Kentucky. In short, the Department of Mining Engineering is supportive of these new degree proposals and the creation of the Department of Engineering Technology to house them.

Sincerely,



Zach Agioutantis, PhD, PE  
Mining Engineering Foundation Professor and Department Chair  
Director of Graduate Studies

see blue.

August 2, 2020

Dr. Nelson Akafuah  
Associate Director of IR4TD and  
The Chair of Engineering Technology Implementation Committee

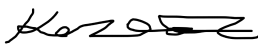
Dear Nelson,

In reference to the creation of a new Department of Engineering Technology, I, as the Director of IR4TD, is writing this letter to pledge the following. It is my understanding that each of all the individuals listed below agreed on their new assignment when the new Engineering Technology Department becomes a reality.

If you have any questions on my pledge, please let me know. I wish you success in this new Engineering Department, which I believe can bring unprecedented unique opportunities to our future students and our Institution.

1. IR4TD will allocate \$1.5 million to support the creating of the Engineering Technology Department.
2. IR4TD will maintain a close and collaborative relationship with the Engineering Technology Department.
3. The following IR4TD personnel will play expanded roles for administrative support for the Engineering Technology Department: Brian Stephen (Business officer); Sandra Dunn (Administrative Assistant); Melanie Smith & Debbie Gayhart (both Administrative Services Assistant)
4. Dr. David Parsley and Dr. Abbot Maginnis, both are currently serving as an instructor in the Lean Systems program will become faculty in the Engineering Technology Department.

With my regards,



K. Saito  
Director and Tennessee Valley Authority Professor in Mechanical Engineering

see blue.



July 29, 2020

Rudolph Buchheit,  
Dean, College of Engineering  
University of Kentucky  
355 Ralph G. Anderson Building  
Lexington, KY 40502

Dear Rudolph Buchheit,

This letter is to demonstrate my full support for the creation and implementation of the Lean Systems Engineering and Computer Engineering Technology programs. The need for both programs is vast in our industry.

Our industry is on the precipice of a breakthrough in new technology and automation. This achievement will only come to fruition if we have an engaged workforce equipped to meet the challenge.

These proposed programs by the University of Kentucky will fill this void in our industry and allow us to stay competitive. It will also provide career opportunities for students.

I hope you will agree with me that both programs are worthy of obtaining accreditation.

Regards,

A handwritten signature in black ink, appearing to read 'Michael T. Crawford', is written over a light blue horizontal line.

Michael T. Crawford  
President of Business Operations

July 27, 2020

Rudolph Buchheit,  
Dean, College of Engineering  
University of Kentucky  
355 Ralph G. Anderson Building  
Lexington, KY 40502

Dear Dean Buchheit,

As representatives of Lexington-based Tempur Sealy International, Inc., we are writing this letter of support for the creation of the Engineering Technology program in the College of Engineering, in partnership with Bluegrass Community and Technical College.

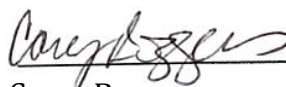
Tempur Sealy recognizes the value of developing our next generation of engineers with a challenging, hands-on program, designed to emphasize the core values of Lean manufacturing. The best talent is not always showcased in the typical classroom setting, so the development of this program will increase the likelihood of identifying those talented engineering students.

At Tempur Sealy, we fully support the efforts of Dr. Akafuah and the College of Engineering to develop this alternative to a standard engineering degree. Tempur Sealy is committed to implementing lean practices in our North American manufacturing facilities. Our Operations Excellence team could potentially benefit greatly from having access to a new stream of talented young individuals readied for the workforce. Thank you.

Sincerely,



**Drew Millar**  
VP, North American Human Resources  
Tempur Sealy, International, Inc.



**Carey Boggess**  
Supply Chain & Logistics Network Manager  
Tempur Sealy, International, Inc.



**SAFETY. SINCE 1898.™**

Rudolph Buchheit,  
Dean, College of Engineering  
University of Kentucky  
355 Ralph G. Anderson Building  
Lexington, KY 40502  
Telephone: 859-257-1687  
e-mail: [Rudolph.buchheit@uky.edu](mailto:Rudolph.buchheit@uky.edu)

Dear Rudolph Buchheit,

On behalf of E.D. Bullard Company, I am excited to write a letter of support for the UK-BCTC Joint Engineering Technology Program.

Bullard is a leading manufacturer of high quality personal protective equipment including thermal imagers, hard hats, fire & rescue helmets, and respiratory protection products.

During the pandemic, Bullard was able to apply lean manufacturing tools in order to increase production of much needed personal protective equipment in warp speed. We know that without lean tools and systems it would have been impossible to meet customer needs.

Having a program that is based on the Toyota Production System with hands-on training for students is of great interest for us. Graduates from the program will be able to enter the workforce with much needed lean manufacturing skills that will benefit the students and the companies they are looking to work for.

Bullard is focused on lean operations management to continue to service its customers and work on its mission to advance human safety. I am convinced that the partnership between UK and BCTC will result in qualified engineers that will support Kentucky's manufacturing industry.

We look forward to future interaction with these programs

Carlos R. López  
Director of Operations  
1898 Safety Way  
Cynthiana, KY 41031  
Telephone: 859-234-6616 ext. 288

---

Bullard Center  
2421 Fortune Drive  
Lexington, KY 40509 • USA  
877-BULLARD (285-5273)  
Tel: +1.859.234.6616  
Fax: +1.859.246.0243

Americas Operations  
1898 Safety Way  
Cynthiana, KY 41031 • USA  
877-BULLARD (285-5273)  
Tel: +1.859.234.6616  
Fax: +1.859.234.8987

Bullard GmbH  
Dieselstrasse 8a  
53424 Remagen • Germany  
Tel: +49.2642.999980  
Fax: +49.2642.9999829

Bullard Asia Pacific Pte. Ltd.  
51 Changi Business Park Central 2  
#03-04 The Signature  
Singapore 486066  
Tel: +65.6745.0556  
Fax: +65.6797.0299

Bullard Technology Center  
Darix Sàrl  
Chemin du Closel 3  
1020 Renens • Switzerland  
Tel: +41.21.515.2910



Molded & Decorated Plastic Systems

---

July 20<sup>th</sup>, 2020

Rudolph Buchheit,  
Dean, College of Engineering  
University of Kentucky  
355 Ralph G. Anderson Building  
Lexington, KY 40502  
telephone: 859-257-1687  
e-mail: rudolph.buchheit@uky.edu

Dear Rudolph Buchheit,

I would like to offer our support for creation of the new Computer Engineering Technology (CPT) and the Lean Systems Engineering Technology (LSET) programs. At Summit Polymers we are a plastic injection molding and decorating facility for the automotive industry. For the past 30 years we have developed and implemented Summit Lean Manufacturing Systems (SLMS) that is based on TPS practices. To have a university that is developing curriculum based on these Lean systems will give students entering the job force a leg up when they start working in a facility that is either already practicing, or is looking to implement Lean Production.

We at Summit are always looking for Co-op or Engineer in Training (EIT) candidates. UK having a program that is developing the correct curriculum for these candidates will benefit the students and the companies they are looking to work for. We look forward to the future interaction with these programs.

Sincerely,

Aaron Franke  
Manufacturing Manager  
Summit Polymers, Inc.  
160 Clarence Dr.  
Mt. Sterling, KY 40353  
afranke@summitpolymers.com





06/24/20

Rudolph Buchheit,  
Dean, College of Engineering  
University of Kentucky  
355 Ralph G. Anderson Building  
Lexington, KY 40502

Rudolph Buchheit:

On behalf of Curtis Maruyasu America, David and I would like to thank the University of Kentucky, Dr. Akafuah, and Mr. Keown for taking time to outline the upcoming Engineering Technology curriculum to us. We are excited to support the College of Engineering in developing this curriculum and look forward to seeing both our company and other industries in Kentucky quickly realize the benefits.

Recruitment and retention of talented engineers is always highly competitive. The likelihood of long term retention is increased whenever local industries can hire local engineers. By offering curriculums in the areas of Lean Systems Engineering Technology and Computer Engineering Technology, UK will provide qualified engineers to Kentucky's diverse manufacturing industry with the skillsets needed to ensure the long term success of our industry.

These additional engineering technology degrees will only strengthen the already successful traditional engineering degrees offered by UK. By including a more hands-on curriculum option, those students whom otherwise would not succeed in traditional engineering will have a path to their personal success. Their success in turn becomes our success and contributes to the overall success of Kentucky as a whole.

Please accept this letter as a statement of our support. We look forward to seeing this curriculum develop and are ready to assist in any way possible to promote its success.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Eddie Marrett'.

Eddie Marrett  
Assistant General Manager of  
Sales and Pre-Production Engineering  
Curtis Maruyasu America  
*(2001 UK Mechanical Engineering Alumni)*

A handwritten signature in blue ink, appearing to read 'David Sparks'.

David Sparks  
President  
Curtis Maruyasu America  
*(1994 UK Mechanical Engineering Alumni)*



Lexmark

Lexmark International  
740 New Circle Road  
Lexington, Kentucky 40511  
Tel: +1 (859) 232-2000

June 21, 2020

Rudolph Buchheit,  
Dean, College of Engineering  
University of Kentucky  
355 Ralph G. Anderson Building  
Lexington, KY 40502  
telephone: 859-257-1687  
e-mail: [rudolph.buchheit@uky.edu](mailto:rudolph.buchheit@uky.edu)

Dear Rudolph Buchheit:

I am excited to write a letter of support for the UK-BCTC Joint Engineering Technology Program, led by Dr. Akafuah. As more job openings require hands-on engineering technology experience and training, we are faced with a deficit of available candidates to fill those roles. Students currently have choices of seeking employment with minimal training after high school or seeking degree paths that may be unaffordable or not quite a match to develop their technology training and expertise. This program provides a technical, flexible and affordable alternative for many students. There is already an Industry Advisory Board in place that is committed to partner with faculty to develop curriculum and experiences that are relevant for both industry and academia.

The partnership between UK and BCTC will strengthen both institutions because of the strong pipeline of students who will add to the learning experiences at each campus. The program is designed for the students to seamlessly complete their course of studies starting at BCTC and then enrolling at UK. There is the benefit of gathering stackable certificates and work experiences in case their higher education plans are temporarily interrupted or stopped.

I lead Lexmark's supply chain organization, and we are focused on lean operations management to remain competitive and to meet customer expectations in terms of our ability to deliver the right product to right place at right time. The focus on lean system thinking will only grow in the short and long term. Having a curriculum in Kentucky to train and educate the workforce will be an advantage for current statewide employers, for growing regional startups, and for future companies evaluating Kentucky as a potential site location for their growth plans.

I hope this program is approved, and funds invested to make it successful for future students who will make technology advancements in our nation and in the global marketplace as well.

Best Regards,

Tonya H Jackson  
SVP and Chief Supply Chain Officer  
Email: [tonya.jackson@lexmark.com](mailto:tonya.jackson@lexmark.com)  
Cell: 859-492-3734

Rudolph Buchheit,  
Dean, College of Engineering  
University of Kentucky  
355 Ralph G. Anderson Building  
Lexington, KY 40502  
telephone: 859-257-1687  
e-mail: [rudolph.buchheit@uky.edu](mailto:rudolph.buchheit@uky.edu)

Dear Rudolph Buchheit,

I am contacting you to communicate our support for the UK-BCTC joint engineering technology program.

The hands on training for these students is of great interest to us. We currently recruit engineering student co-ops from UK and other local colleges. These students have a passion for spreadsheets and databases but lack the skills to investigate and gather facts from the shop floor. The ability to see waste and understand root cause of problems in the real manufacturing world is paramount to us. We believe that an engineer should spend most of his/her time on the shop floor not at a desk.

This is not to say that data collection, analysis and storage are not important but the right data, from the Lean perspective, is everything. Engineers that can look at data as a means to eliminating waste and finding root causes to problems are in short supply.

This marriage of the Toyota Production System and the curriculum for the LST is very encouraging. I am excited to see courses titled: Problem Solving, Workplace organization, Built in Quality, Just-in-Time Operations, Material and Information Flow Charts, Small Lot Production / Changeover process, Managing the shop floor and leading kaizen... These are topics that we usually must teach on the job after hiring new engineers.

This program would fill a much needed role here in our company when it comes to hiring and retaining engineers that could make a contribution to our company from day one.

Regards,

Wayne Dickens  
Continuous Improvement Training Manager  
Mubea North America  
8224 Dixie Highway  
Florence, KY, 10042  
Telephone: 513-240-5160  
e-mail: [wayne.dickens@mubea.com](mailto:wayne.dickens@mubea.com)

**A MEMORANDUM OF AGREEMENT  
BETWEEN  
THE UNIVERSITY OF KENTUCKY  
AND  
THE BLUEGRASS COMMUNITY AND TECHNICAL COLLEGE**

**PREAMBLE**

This Memorandum of Agreement (Agreement hereafter) is made between the University of Kentucky (UK) and the Bluegrass Community and Technical College (BCTC) to offer joint Programs and award degrees in Engineering Technology. The Programs will be offered and administered on the UK Lexington campus and on the BCTC's campuses.

This agreement defines the framework of cooperation and modes of operations involving UK and BCTC for purposes of offering two joint Programs in Engineering Technology in which students will enroll and earn a degree in one of two degree programs, as follows:

- i. An Associate of Applied Science (AAS) Degree in Integrated Engineering Technology (IET) from BCTC and a Bachelor of Science (BS) Degree in Lean Systems Engineering Technology (LST) from the University of Kentucky.
- ii. An Associate of Applied Science (AAS) Degree in Computer Engineering Technology (CPT) and a Bachelor of Science (BS) Degree in Computer Engineering Technology (CPT) is from the University of Kentucky.

These undergraduate engineering programs bridge the gap between industry and academia with strategic partnerships to develop the skills needed by students for career-ready employment in the 21st-century economy. It is envisioned and agreed upon by the UK and BCTC that these Programs will be of significant advantage for students who want to be involved in and solve practical engineering problems, and who learn best when experiencing hands-on educational processes. Included in the Program offerings at the BCTC are embedded certificates allowing stackable credentials that will be accumulated over time to allow for levels of employment as well as students stepping back into the program. These pathways consist of a sequence of coursework and credentials that support skill attainment and employment.

In contemplation of the relationship to be established and for valuable consideration, the parties agree as follows:

**ARTICLE 1: Objectives of the Engineering Technology Programs**

The primary objectives of the UK and BCTC Programs are to:

- A. cooperatively create academic curricula and structures involving courses taken at either or both institutions that meet the institutions' shared curriculum requirements of an AAS in IET or CPT from the BCTC and a BS in LST or CPT from the UK; and
- B. establish the infrastructure at UK and BCTC that effectively enables students to fulfill their Engineering Technology degree requirements.

These programs are required to:

- C. satisfy the admission and graduation requirements at UK and BCTC;
- D. facilitate a seamless transfer of credits between UK and BCTC; and
- E. enable the development and implementation of a sequence of courses defined in the shared curricula at both the UK and BCTC.

Based on this academic structure, each institution shall grant a separate academic degree bearing its name, seal, and appropriate signatures.

## **ARTICLE 2: The Agreement and Termination Responsibilities**

The agreement, as formulated and mutually agreed upon, defines the responsibilities integral to the implementation and management of the joint Engineering Technology Programs at the UK and BCTC.

### **A. Term of the Agreement**

This agreement shall take effect on the date of its signing by appropriate administrative representatives of the UK and BCTC. It shall continue to be in effect for an initial term of five (5) years unless its renewal is agreed to in writing by the parties before the term of the agreement. Either party may terminate this agreement at any time by providing six (6) month's notice to the other party in writing.

### **Termination Responsibilities of the Agreement**

If a termination request is delivered by either institution to the other all current students enrolled in the courses of study within the Engineering Technology Program will be allowed to complete their coursework toward an AAS degree in IET or CPT from the BCTC and a BS degree in LST or CPT from the UK.

Furthermore, because both the UK and BCTC agree that the Engineering Technology Program will be of significant benefit to students and integral to the institutions' missions within the Commonwealth of Kentucky, they shall attempt to resolve all disputes or disagreements that initially prompted the request for termination before the agreement is finally terminated.

## **ARTICLE 3: Admission Processes and Requirements**

Students shall jointly apply to BCTC and UK, with BCTC becoming the home institution until students complete all requirements for an AAS degree in IET or CPT. Students who complete their AAS degree requirements within a designated three-year period, who also meet the admission requirements as established by the University of Kentucky and College of Engineering, will not be required to reapply to the UK. At that point, UK will become their home institution.

- i. The UK catalog year for these students shall be based on the year in which each student was enrolled in the joint program.
- B. Students enrolled in the UK BS Engineering degree programs who decide to change majors from Engineering to Engineering Technology:
  - i. shall consult with their academic advisor and follow the process for a change in their major as required by the UK COE; and
  - ii. shall be required to apply to the joint program and fulfill its requirements within the guidelines of the UK and BCTC.
- C. Students enrolled in the BCTC AAS degree who decide to change majors to AAS in IET or CPT:
  - i. shall consult with their academic advisor and follow the process for a change in their major as required by BCTC; and
  - ii. shall be required to apply to the joint program and fulfill its requirements within the guidelines of the UK and BCTC.

#### **ARTICLE 4: Tuition and Financial Aid**

Students:

- A. shall pay tuition based on the rate of their home college, including all mandatory fees; and
- B. will be awarded financial aid only through their home institution.

Furthermore, both the UK and BCTC will collaborate on building financial aid and scholarships for the program to support underrepresented populations.

#### **ARTICLE 5: Advising**

Program Advisor(s) for the Engineering Technology Program and the College of Engineering  
Director of Student Records:

- a. shall have access to and appropriate advising level permissions in both BCTC and UK information systems; and
- b. shall meet the professional expectations and responsibilities within both the UK and BCTC.

To ensure and assist student's progression towards a degree.

#### **ARTICLE 6: Degree Program Offerings.**

The degrees to be awarded within the joint Engineering Technology Programs of the UK and BCTC are briefly described in the following.

1. Bachelor of Science in Lean Systems Engineering Technology (BS-LST)

The BS-LST is the only program of its kind in the United States. Developed in collaboration with Toyota Motor Manufacturing North America (TMNA) and several other industry partners, it gives students the skills needed to improve quality output, streamline processes and reduce waste. The LST prepares students to thrive in a highly competitive global marketplace by developing advanced skills in Just-In-Time manufacturing, problem-solving, project management, lean enterprise development, logistics, and material and information flowcharting. The curriculum is based on a solid academic foundation, with intensive classroom and laboratory experiences, and in-depth instruction in Just-In-Time processes, built-in-quality, and productivity improvement.

2. The Associate in Applied Science in Integrated Engineering Technology (AAS-IET) is a feeder program for the BS-LST degree. The AAS-IET degree will include embedded certificates in:
  - a. Electrical Engineering Technology; and
  - b. Mechanical Engineering Technology.

3. Bachelor of Science in Computer Engineering Technology (BS-CPT)

The BS-CPT provides in-depth knowledge of hardware and software design, development, applications, and maintenance. It is based on a solid academic foundation with intensive classroom and laboratory experiences. Students gain strong backgrounds in cutting-edge developments and applications, and programming languages currently used in industry. Students learn and experience industrial-standard approaches to developing application software as well as state-of-the-art problem-solving techniques for code and firmware development with networking and web operations. The hardware focus of the curriculum is in digital systems design and development. From low-level gate design to high-end microprocessors and current/advancing bus standards, students gain an architectural understanding of computer systems. The curriculum includes in-depth design and analysis of combinational logic, sequential logic and state machines, microcontroller systems, microprocessor systems, and state-of-the-art computer technology.

4. The Associate in Applied Science in Computer Engineering Technology (AAS-CPT) is the feeder program for the BS-CPT program. The AAS-CPT has the following embedded certificates:
  - a. A+ Prep;
  - b. Computer Tech Basic;
  - c. Informatics Programming; and
  - d. Net+ Prep.
  - e. Computer Maintenance Technician

**ARTICLE 7: Curricula and Credits**

- A. Course requirements within this program can be changed by mutual agreement between the Dean of the UK-COE and the Chief Academic Officer of the BCTC, upon recommendation of the faculties of the Programs at UK and BCTC.
- B. Changes to the curriculum at UK or BCTC must be appropriately approved by the institution offering the courses and must meet the established degree requirements and accreditation standards of the program.
- C. Students completing Full General Education Certification at the BCTC will be considered to have fulfilled the General Education requirements and University Foreign Language requirements at the UK.
- D. It is agreed that upon fulfillment, quantitatively and qualitatively, of the requirements of the curriculum prescribed in the Programs, the BCTC will grant to the students its degree of AAS degree in IET or CPT, and the UK will grant to the students its degree of BS in LST or CPT.
- E. The curricula are presented in the following.

**JOINT PROGRAM CURRICULA**  
**Associate of Applied Science degree in Integrated Engineering Technology,**  
**Bluegrass Community and Technical College (Five Semesters )**  
**Bachelor of Science Degree in Lean Systems Engineering Technology, University**  
**of Kentucky (Four Semester)**

<b>1<sup>st</sup> Year (Fall semester)</b>			<b>1<sup>st</sup> Year (Spring Semester)</b>		
MAT 126 /(MAT 150)	Technical Mathematics or higher level Quantitative Reasoning course	3	IET 206	Controls and Instrumentation	4
ENG 101	English	3	IET 108	Mechanical Drive Systems	5
IET 1301	Lean safety Culture	1	IET 1303	Total Production System	1
IET 201	Electro-hydraulics/Pneumatics	4	PHY 151 or 152	Natural Science	3
	Social and Behavioral Science (Not SOC)	3	ENG 102	English	3
<b>Total Credit Hours</b>		<b>14</b>	<b>Total Credit Hours</b>		<b>16</b>

<b>1<sup>st</sup> Year (Summer Semester)</b>		
IET 104	Blueprint Reading/Schematics	2
IET 120	Machine Tool Operations	3



IET 1302	Workplace Organization Process (5S)	1
<b>Total Credit Hours</b>		<b>6</b>

<b>2<sup>nd</sup> Year (Fall semester)</b>			<b>2<sup>nd</sup> Year (Spring Semester)</b>		
IET 102	Preventive Maintenance	2	IET 110	Welding and Fabrication	5
IET 203	Programmable Logic Controllers	4	IET 205	Robot Maintenance	4
IET 1304	Problem Solving	1	ET 1305	Maintenance Reliability	1
COM 181	Oral Communications	3	HIS 109	Heritage	3
	Digital Literacy	3	SOC 101	Social and Behavioral Science	3
<b>Total Credit Hours</b>		<b>13</b>	<b>Total Credit Hours</b>		<b>16</b>
			<b>Total AAS in IET Credit Hours</b>		
			<b>65</b>		

<b>3<sup>rd</sup> Year (Fall semester)</b>			<b>3<sup>rd</sup> Year (Spring Semester)</b>		
LST 255 (ME 205)	Computer Aided Engineering Graphics	3	LST 303	Introduction to Abnormality Management (Jidoka)	4
WRD 204	Technical Writing	3	LST 304	Introduction to Productivity Improvement	4
UK Core	Arts & Creativity	3	LST 305	System of Quality Assurance & Built-in-Quality	4
LST 301	Introduction to Just-in-Time Operations	3	LST 306	Kaizen of Standardized Work	4
LST 302	Manufacturing Simulation & Material and Information Flow Charts	4			
<b>Total Credit Hours</b>		<b>16</b>	<b>Total Credit Hours</b>		<b>16</b>

4 <sup>th</sup> Year (Fall semester)			4 <sup>th</sup> Year (Spring Semester)		
LST 409	Capstone I	3	LST 410	Capstone II	3
LST 402	Problem Solving II	4	LST 404	Logistics	3
LST 403	Production Instruction, Small Lot Production & Change over Processes	4	LST 405	Managing the Shop Floor and Leading kaizen	4
	Technical Elective	3		Technical Elective	3
				Technical Elective	3
<b>Total Credit Hours</b>		<b>14</b>	<b>Total Credit Hours</b>		<b>16</b>
			<b>Total Program BS in LST Credit Hours</b>		<b>127</b>

Technical Electives		
CPT/LST 400	Engineering Economics	2
CPT/LST 425	Project Management	3
CPT/LST 300	Analytic Methods in Engineering Technology	3
CPT/LST 402	Fundamentals Of OSHA	2
CPT/LST 401	Engineering Analysis & Applications	3

**Associate of Applied Science degree in Computer Engineering Technology,  
Bluegrass Community and Technical College (Five Semesters)  
Bachelor of Science Degree in Computer Engineering Technology, University of  
Kentucky (Four Semesters)**

1 <sup>st</sup> Year (Fall Semester)			1 <sup>st</sup> Year (Spring Semester)		
ENG 101	Writing I	3	ENG 102	Writing II	3
MAT 170	Elementary Calc & Its Applications	3	STA 296	Statistical Methods and Motivations	3
CIT 111	Introduction to Software and Hardware	4	CHE 170	Gen College Chemistry I	4
	Social and Behavioral Science Course	3		Oral Communication Course	3
CIT 120	Computational Thinking	3	CS 115	Introduction to Computer Programming	3

<b>Total Credit Hours</b>		<b>16</b>	<b>Total Credit Hours</b>		<b>16</b>
<b>2<sup>nd</sup> Year (Summer Semester)</b>					
Any Heritage	Any Heritage		3		
CIT 170	Database Design Fundamentals		3		
<b>Total Credit Hours</b>				<b>6</b>	

<b>2<sup>nd</sup> Year (Fall Semester)</b>			<b>2<sup>nd</sup> Year (Spring Semester)</b>		
MA 162	Finite Math & Its Applications	3	PHY 201+211	General Physics	5
CS 215	Introduction to Pgm Design Abstraction/prob solv	4		Social and Behavioral Science Course * Needs to be different discipline than the first	3
	Humanities	3	ELT 120	Digital Logic + Lab	3
ELT 110	DC Circuits + Lab	5	CIT 160/161	Introduction to Networks	4
<b>Total Credit Hours</b>		<b>15</b>	<b>Total Credit Hours</b>		<b>15</b>
<b>Total AAS in CPT Credit Hours</b>					<b>68</b>

<b>3<sup>rd</sup> Year (Fall Semester)</b>			<b>3<sup>rd</sup> Year (Spring Semester)</b>		
CPT 223	AC Circuits + Lab	4	CPT 314	Wireless Communication	3
CPT 313	Data Acquisition and Instrumentation	3	CPT 315	Digital System Design	3
CPT/LST 300	Analytic Methods in Engineering Technology	3	CPT 316	Electronics Prototyping and Construction	4
CPT 287	Introduction to Embedded System + Lab	4	CPT 317	Software Engineering Process and Methods	3
			WRD 204	Technical Writing	3
<b>Total Credit Hours</b>		<b>14</b>	<b>Total Credit Hours</b>		<b>16</b>

4 <sup>th</sup> Year (Fall Semester)			4 <sup>th</sup> Year (Spring Semester)		
CPT 409	Capstone I	3	CPT 410	Capstone II	3
CPT 419	Signals, Systems and Transforms + Lab	3	CPT/LST 402	Fundamentals Of OSHA	2
CPT 420	Embedded Applications	4	CPT/LST 425	Project Management	3
CPT/LST 400	Engineering Economics	2		Technical Elective	3
	Technical Elective	3		Technical Elective	3
<b>Total Credit Hours</b>		<b>15</b>	<b>Total Credit Hours</b>		<b>14</b>
			<b>Total Program BS in CPT Credit Hours</b>		<b>127</b>

Technical Electives		
CPT 430	Digital Signal Processing	4
CPT 401	Engineering Analysis & Applications	3
CS 371	Introduction to Computer Networking	3
CS 498	Software Engineering for Senior Project	3
CS 405G	Introduction to Database Systems	3
CS 316	Web Programming	3
CS 564	Computer Security	3
CS 470G	Introduction to Operating Systems	3
CS 572	Network Security	3

#### **ARTICLE 8:** Advisory Board

In making appointments to the Advisory Board, the UK and BCTC will work together to seek a balanced representation from postsecondary education, business and industry, government agencies, and other organizations where appropriate. The main purpose of the advisory board is to advise on curriculum development to ensure that students graduate with the necessary skills to contribute to the success of their employers immediately. The board will also be tasked with many other responsibilities such as strategic planning, advocating for accreditation, setting up grants or funds to meet financial needs and to serve as mentors for students who are working on industry-sponsored projects.

**ARTICLE 9: Accreditation**

Both institutions are accredited by the Southern Association of Colleges and Schools (SACS), and both Programs will be accredited through ABET's Engineering Technology Accreditation Commission (ETAC).

**ARTICLE 10: Student Support Services**

Students at both institutions who pay the required full-time mandatory UK fees will have full access to student support services. Services include but are not limited to, academic advising, counseling, financial aid, academic support, library services, and computer labs.

**ARTICLE 11: Assessment**

The outcomes of this agreement shall be reviewed and assessed bi-annually by the Dean of the UK-COE and the Chief Academic Officer of the BCTC. This assessment is to include an in-depth review of the Programs' operations, successes and shortfalls, and of student learning assessment plans in place for the respective degrees at each institution.

**ARTICLE 12: Amendment of Agreement**

No amendments to this agreement shall be promulgated unless they are in writing and executed by the authorized representatives of both institutions.

**ARTICLE 13: Force Majeure Termination**

Either party has the right, upon proper notice, to terminate its obligations under this agreement for reasons of force majeure. "Force majeure" are circumstances beyond the control of an institution that effectively prevent the institution from performing its obligations under the agreement.

**ARTICLE 14:** This Agreement is validated by the responsible administrative officers of the Bluegrass Community and Technical College and the University of Kentucky, who have placed their signatures below.

*\* Signature Page Follows \**



---

**Dr. David W. Blackwell**, Provost of  
University of Kentucky

Date: 9/15/2020



---

**Dr. Koffi C. Akakpo**, President of the  
Bluegrass Community and Technical  
College

Date: 09/15/2020



---

**Dr. Rudolph G. Buchheit**, the Dean of  
the University of Kentucky College of  
Engineering

Date: 9/7/2020



---

**Dr. Gregory J. Feeney**, the Provost of the  
Bluegrass Community and Technical  
College

Date: 9/16/20

## Finalization Memo

September 11, 2020

To: Jana Kennelly

Cc: Mike Richey  
Susannah Denomme  
Craig Kahn  
Tom Barker  
Nikki Russell  
Jamie Risen  
Leslie Young  
Jordan Perrin  
Lori Wilson  
Alec Holman  
Wayne Rogers  
Endowment Services  
Megan Gatlin  
Sarah Simpson  
Alli Feldmann

From: Laurel Unseld

RE: Toyota Motor Engineering & Manufacturing North America, Inc. - the *Engineering Technology Program* in the College of Engineering.

---

Please find enclosed the fully executed agreements for Toyota Motor Engineering & Manufacturing North America, Inc. (Millennium ID: 0980002716) in support of the new *Engineering Technology Program* in the College of Engineering.

Charitable Gift Agreement - The donor agrees to make, transfer, or cause to be made or transferred, charitable contributions totaling \$2,250,000 to the university, in accordance with the Payment Schedule attached as Exhibit A. These contributions shall be used as follows:

- A total of \$1,000,000 (\$700,000 from the new contributions and \$300,000 transferred from the "*Toyota Automotive Production Engineering Certificate Faculty Fellowship*" fund) shall be used to establish and support the endowed "**Toyota Engineering Technology Distinguished Professorship**" fund in the College of Engineering.
- A total of \$1,000,000 shall be added to a new gift account in the College of Engineering to be used for laboratory enhancements.

- A total of \$250,000 shall be added to a new gift account in the College of Engineering to provide administrative support for the Engineering Technology Program.

Termination Agreement – This agreement terminates the Endowed Faculty Fellowship Agreement, dated October 26, 2017. The balance of the “*Toyota Automotive Production Engineering Certificate Faculty Fellowship*” fund (\$300,000) shall be transferred to the “**Toyota Engineering Technology Distinguished Professorship**” fund.

In recognition of these contributions, the university agrees to name a laboratory space in the College of Engineering the “Toyota Engineering Technology Laboratory.”

**Jana:** Please send the agreements to the donor and contact your business officer about this account.

**Alec:** Please review the donor information to determine Fellows Society eligibility.



●● PROTECTED 関係者外秘

Last Modified 8/13/2020



## CHARITABLE GIFT AGREEMENT

9/8/2020

This Agreement (the "**Agreement**") is made and entered into on \_\_\_\_\_ (the "**Effective Date**") by and between Toyota Motor Engineering & Manufacturing North America, Inc, 1001 Cherry Blossom Way Mail, Georgetown, Kentucky 40324 (the "**Donor**"), and the University of Kentucky, William B. Sturgill Philanthropy Building, Lexington, Kentucky 40506-0015 (the "**University**").

1. **Charitable Gift Purpose.** The University's College of Engineering (the "**College**"), in collaboration with the Donor, is developing a new Engineering Technology program (the "**Program**") in the College. The Program will introduce students to engineering technology core processes through hands-on, project-based learning to bridge the gap between industry and academia with strategic partnerships to develop the skills needed by students for career-ready employment in the 21st-century economy.
2. **Charitable Contributions.** The Donor agrees to make, transfer, or cause to be made or transferred, charitable contributions totaling \$2,250,000 (the "**Contributions**") to the University in accordance with the schedule attached hereto as Exhibit A. The University shall receive and administer the Contributions in accordance with the terms of this Agreement, the policies of the University, and all applicable laws.
3. **Program Support.** The College shall use the Donor's Contributions, as follows, to support the Program. The Donor or other individuals, organizations, or business entities may make additional contributions to the following endowment or gift accounts at any time.
  - (A) Toyota Engineering Technology Distinguished Professorship. \$700,000 from the Contributions, and \$300,000 from the Donor's previous gifts as further described in Exhibit A and the Termination Agreement of even date herewith, a copy of which attached Exhibit B, (for a total of \$1,000,000) shall be used to establish and support the endowed "*Toyota Engineering Technology Distinguished Professorship*" fund. The Dean of the College shall appoint the Toyota Engineering Technology Distinguished Professor and determine his/her duties and responsibilities in accordance with the applicable University policies, procedures and guidelines. An outstanding performance consistent with the level of this faculty position is expected. Periodic evaluation of this faculty position shall be made by the Dean of the College in a manner consistent with University policy.
  - (B) Toyota Engineering Technology Laboratory Enhancement. \$1,000,000 shall be added to a gift account to be used for laboratory enhancement. Laboratory enhancement may include, but is not limited to, expenses for: renovation; expansion; equipment; software; licenses; and/or other improvement(s) to support the Program's laboratory(ies), as determined by the Dean of the College in his/her sole discretion. Such determinations shall be in accordance with the normal operations, policies, procedures and guidelines of the University.

■■ PROTECTED 関係者外秘

- (C) Administrative Support. \$250,000 shall be added to a gift account to be used to provide administrative support for the Program. Administrative support may include, but is not limited to, expenses for: salary(ies); recruitment; office space(s); equipment; maintenance; and/or other administrative support for the Program, as determined by the Dean of the College in his/her sole discretion. Such determinations shall be in accordance with the normal operations, policies, procedures and guidelines of the University.
4. **Naming**. In recognition of the Donor's philanthropic impact on the College, the parties agree as follows.
- (A) Naming. A mutually agreed upon laboratory space in the College (the "**Lab**") shall be named the "*Toyota Engineering Technology Laboratory*" (the "**Naming**").
- (B) Signage. Appropriate signage referencing the Naming will be affixed to a public section of the Lab to commemorate the Donor's generosity. The signage shall be in a form mutually agreed to by the University and the Donor. The Donor shall demonstrate regular and timely payments in accordance with this Agreement, prior to the installation of the signage.
- (C) Naming Term. The Naming shall continue for so long as the Lab is in existence.
- (D) Other Donor Recognition. In order to make additional private philanthropy successful, the Donor acknowledges that the University may allow other donors to create endowed and non-endowed funds to support the Lab that bear the donor's or another designated party's name. In addition, the University may name spaces in the building and surrounding grounds where the Lab is located, to acknowledge and recognize private gifts to the University. Any such naming shall not detract from the Naming and any other recognition as may be afforded to the Donor.
- (E) University Approvals. The Naming is subject to applicable University approvals, regulations, policies, procedures and guidelines, as may be amended from time to time.
5. **Stewardship**. The parties agree to form a gift impact committee (the "**Committee**") comprised of the Dean of the College, up to two (2) College faculty member(s) with direct knowledge of the Program, and a Donor representative. The Committee may be formed in the second year after the Program is established, and reconvened every other year thereafter, to appropriately evaluate the impact of the Program, the uses of the contributions made pursuant to this Agreement, and to discuss potential changes.
6. **Endowment Policies**. The University shall invest, manage and administer the endowed *Toyota Engineering Technology Distinguished Professorship* fund in accordance with the University's endowment investment and spending policies approved annually by the University's Board of Trustees. Any unused spending distribution may be returned to the endowed fund. If, by December 31, 2027, the contributed value of the endowed fund fails to reach \$1,000,000 then it shall be treated as non-endowed and spent in accordance with the terms hereof until exhausted, at which time it shall terminate.
7. **Change in Circumstances**. The Donor desires that the *Toyota Engineering Technology Distinguished Professorship* fund will be administered to benefit the University in perpetuity. However, should the fulfillment of the purposes stated in this Agreement

●● PROTECTED 関係者外秘

- become unlawful, impracticable, impossible to achieve, wasteful, or obsolete, as determined by the Board of Trustees of the University, then the *Toyota Engineering Technology Distinguished Professorship* fund shall be expended to the point of exhaustion, or the spending distribution redirected for a purpose most in keeping with the Donor's intent, upon recommendation of the University's President after consultation with the Dean of the College.
8. **Board of Trustee Approval.** The parties acknowledge and agree that the University's acceptance of the charitable contribution(s) under this Agreement is subject to the approval by the University's Board of Trustees. If in the unlikely event this charitable gift is not approved by the University's Board of Trustees, this Agreement shall immediately terminate.
  9. **RCTF.** If the state legislature approves an additional allocation of state funds for the Commonwealth of Kentucky Research Challenge Trust Fund ("RCTF"), or any successor donor match program, and in the event the Donor's gift meets the RCTF program eligibility requirements, the University agrees to use its best efforts to secure a match for the Donor's gift and will add said match to the Fund created herein. In the event such a match occurs, any spending distribution from the Fund shall be subject to RCTF guidelines.
  10. **Publicity.** For purposes of publicizing this charitable gift, the University will have the right, without charge, to photograph the Donor's representatives and use its, or any subsidiary(ies)'s name, likeness, and image in photographic, audiovisual, digital or any other form of medium (the "**Media Materials**") and to use, reproduce, distribute, exhibit, and publish the Media Materials in any manner and in whole or in part, including in press releases, brochures, website postings, informational and marketing materials, and reports and publications describing University's philanthropy and business activities. The University agrees to develop a press release announcing the charitable gift, which will be provided to the Donor for its review and approval prior to official release.
  11. **University Tax Status; Donative Intent.** The University is an agency and instrumentality of the Commonwealth of Kentucky and is an organization described in §§ 170(b)(1)(A)(ii) and 170(b)(1)(A)(v) of the United States Internal Revenue Code of 1986, as amended ("IRC"), when contributions are made to it in furtherance of its public mission of education, research and service. The University is not a private foundation within the meaning of § 509 of the IRC or a 501(c)(3) organization. The parties intend that all contributions made to the University in furtherance of the purpose of this Agreement shall qualify as charitable contributions under the applicable provisions of the IRC.
  12. **Entire Agreement; Binding Agreement.** This Agreement contains the entire agreement of the parties with respect to the subject matter hereof and supersedes any prior oral or written agreements or communications between us regarding this purpose. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.
  13. **Amendment.** This Agreement may not be changed orally, but only by an amendment in writing signed by the parties hereto.
  14. **Counterparts; Electronic Signatures.** This Agreement may be executed in one or more counterparts, including by electronic signature, each of which shall be deemed to be an original, but all of which shall constitute one and the same instrument. A signed copy of

●● PROTECTED 関係者外秘

this Agreement transmitted by facsimile, email or other means of electronic transmission shall be deemed to have the same effect as delivery of an original executed copy.

[Signature page follows]

●● PROTECTED 関係者外秘

IN WITNESS WHEREOF, the parties have entered into this Agreement as of the Effective Date listed above.

**DONOR**

**TOYOTA MOTOR ENGINEERING & MANUFACTURING NORTH AMERICA, INC.**



By: Tadahisa Isono  
Toyota Executive Vice President


**UNIVERSITY OF KENTUCKY**





Eli I. Capilouto,  
President


**RECOMMENDED FOR APPROVAL BY:**

Examined for Form and Legality  
Office of Legal Counsel  
University of Kentucky

DocuSigned by:  
  
3675734900EE44D8...  
G. Thomas Barker,  
Associate General Counsel

DocuSigned by:  
  
F3DA698CAFA4445...  
D. Michael Richey,  
Vice President for Philanthropy and  
Alumni Engagement

DocuSigned by:  
  
CCA655AC55E7406...  
Penny Cox,  
Treasurer

DocuSigned by:  
  
E01B20CD1892456...  
Rudy Buchheit,  
Dean, College of Engineering

● PROTECTED 関係者外秘

**Exhibit A**  
Payment Schedule

		Comments
<b>Transfer Date (On or before)</b>	<b>Transfer Amount</b>	
12/31/2020	\$300,000	<b>The University will transfer the balance of the <i>Toyota Automotive Production Engineering Certificate Faculty Fellowship</i> fund to the new <i>Toyota Engineering Technology Distinguished Professorship</i> fund.</b>
<b>Total</b>	<b>\$300,000</b>	
<b>New Payment Date (On or Before)</b>	<b>Annual Payment Amount</b>	
12/31/2020	\$100,000	<b>Completion of previous pledge (\$200,000)</b>
12/31/2021	\$100,000	
12/31/2022	\$350,000	<b>New Engineering Technology Program pledge</b>
12/31/2023	\$350,000	
12/31/2024	\$350,000	
12/31/2025	\$350,000	
12/31/2026	\$350,000	
<b>Total</b>	<b>\$1,950,000</b>	
<b>GRAND TOTAL</b>	<b>\$2,250,000</b>	

●● PROTECTED 関係者外秘

Revised 8/13/2020



## TERMINATION AGREEMENT

This Termination Agreement (the "**Termination**") is made and entered into on 9/8/2020 (the "**Effective Date**") by and between Toyota Motor Engineering & Manufacturing North America, Inc., 1001 Cherry Blossom Way Mail, Georgetown, Kentucky 40324 (the "**Donor**"), and the University of Kentucky, William B. Sturgill Philanthropy Building, Lexington, Kentucky 40506-0015 (the "**University**").

1. **Original Agreement.** On or about October 26, 2017, the Donor and the University entered into the Endowment Agreement attached hereto as Exhibit A (the "**Original Agreement**"), to establish the "**Toyota Automotive Production Engineering Certificate Faculty Fellowship**" (the "**PE Fund**") in the College of Engineering (the "**College**"). The parties now wish to terminate the Original Agreement, and hereby agree as follows:
  - A. The PE Fund's entire balance of \$300,000 shall be transferred to and accounted for in the new endowed fund named the "*Toyota Engineering Technology Distinguished Professorship*" fund in the College as described in the agreement of even date herewith, a copy of which is attached hereto as Exhibit B, as may be amended from time-to-time; and
  - B. The PE Fund is hereby extinguished, and the Original Agreement is declared null and void.
2. **Counterparts; Electronic Signatures.** This Termination may be executed in one or more counterparts, including by electronic signature, each of which shall be deemed to be an original, but all of which shall constitute one and the same instrument. A signed copy of this Termination transmitted by facsimile, email or other means of electronic transmission shall be deemed to have the same effect as delivery of an original executed copy.

[Signature page follows]

●●PROTECTED 関係者外秘

Revised 8/13/2020

IN WITNESS WHEREOF, the parties have entered into this Agreement as of the Effective Date listed above.


**DONOR**

**TOYOTA MOTOR ENGINEERING &  
MANUFACTURING NORTH AMERICA, INC.**




By: Tadahisa Isono  
Toyota Executive Vice President


**UNIVERSITY OF KENTUCKY**


DocuSigned by:  
  
F30A698CAFA4445...  
D. Michael Richey,  
Vice President for Philanthropy and  
Alumni Engagement

**RECOMMENDED FOR APPROVAL BY:**

Examined for Form and Legality  
Office of Legal Counsel  
University of Kentucky

DocuSigned by:  
  
3C757349CCE44D8...  
G. Thomas Barker,  
Associate General Counsel

DocuSigned by:  
  
CCA656AC55E7406...  
Penny Cox,  
Treasurer

DocuSigned by:  
  
E01B26CD1892456...  
Rudy Buchheit,  
Dean, College of Engineering



●●PROTECTED 関係者外秘

Revised 8/13/2020

**Exhibit A**

Endowment Agreement

**EXHIBIT A**

**UNIVERSITY OF KENTUCKY  
ENDOWED FACULTY FELLOWSHIP AGREEMENT  
TOYOTA AUTOMOTIVE PRODUCTION ENGINEERING CERTIFICATE FACULTY  
FELLOWSHIP**

THIS AGREEMENT is made and entered into this the 26<sup>th</sup> day of October, 2017, by and between TOYOTA MOTOR ENGINEERING & MANUFACTURING NORTH AMERICA, INC., 1001 Cherry Blossom Way, Georgetown, Kentucky 40324 (hereinafter referred to as the “**Donor**”), and the UNIVERSITY OF KENTUCKY, William B. Sturgill Philanthropy Building, Lexington, Kentucky 40506-0015 (hereinafter referred to as the “**University**”).

WITNESSETH:

WHEREAS, the Donor desires to establish an endowed faculty fellowship fund, hereinafter referred to as the “**Fund**,” in the College of Engineering (the “**College**”) to support the Automotive Production Engineering Certificate Program (the “**Program**”) in the College’s Institute of Research for Technology Development; and

WHEREAS, the University agrees to receive and administer the Fund in accordance with the purposes and provisions as set forth in this Agreement and the policies of the University.

NOW, THEREFORE, in consideration of the foregoing and the terms and conditions hereinafter set forth, the Donor and the University do hereby mutually agree as follows:

- (1) The Fund shall be known as the “**Toyota Automotive Production Engineering Certificate Faculty Fellowship.**”
- (2) Pursuant to a Charitable Gift Agreement of even date herewith, Toyota has agreed to contribute \$500,000 to the University through a series of five (5) annual installments of \$100,000, beginning in 2017 and ending in 2021, to establish the

Fund. At any time, the Donor or other individuals, organizations, or business entities may make additional contributions to the Fund.

- (3) The contributed value shall be invested by the University and the spending distribution therefrom will be used as described in this Agreement, consistent with the endowment spending policy of the University. Spending distribution from the Fund's investments shall be distributed in accordance with the endowment spending policy, approved annually by the Board of Trustees of the University. The total return generated by the Fund in excess of the amount allocated for spending shall be added to the Fund. The Fund shall be invested by the University in accordance with its policy for the investment of endowed funds.
- (4) The purpose of the Fund shall be to support one or more annual fellowship(s) to aid in recruitment and retention of faculty members in the Program. Permitted uses include, without limitation, compensation for professorial faculty, teaching assistants, post-doctoral students or others, and partial summer salaries and teaching buyouts. The fellowship recipient(s) and amount(s) shall be determined by the Director of the Program, in consultation with the Dean of the College.
- (5) Any unused spending distribution may be added to the endowed Fund.
- (6) The University shall advise the Donor of the recipient's name and the uses of the spending distribution each year.
- (7) If the Kentucky General Assembly authorizes an additional allocation of state funds for the Commonwealth of Kentucky's Research Challenge Trust Fund (RCTF) or any successor donor match program, and in the event the Donor's contribution to the Fund meets the program eligibility requirements, the University agrees to use

its best efforts to secure a match for the Donor's gift and will add said match to enhance the Fund created herein.

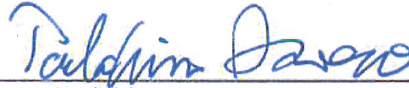
- (8) This Agreement may be duplicated through photocopying, microfilming, electronic scanning or other means. Any such copy shall have the same force and effect of this original Agreement.
- (9) The Donor and the University expressly agree that this Fund is gratuitous in nature, and that the Donor is under no legal duty or obligation to make further additions to the above-mentioned Fund.
- (10) It is the desire of the Donor that this Fund will benefit the University in perpetuity. Notwithstanding, if for any reason all or part of the Fund cannot be usefully applied to the purposes stated herein, then it will be expended for another use to be designated by the Board of Trustees of the University upon recommendation of the University's President after consultation with the Dean of the College in order to most nearly carry out the desire of the Donor.

[signature page follows]

WITNESS the signatures of the parties hereto this the 26<sup>th</sup> day October, 2017.

**DONOR**

**TOYOTA MOTOR ENGINEERING &  
MANUFACTURING NORTH AMERICA, INC.**




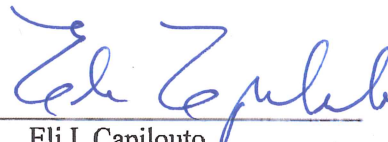
By: Tadahisa Isono  
Its: Executive Vice President  
Toyota Motor North America, Inc.

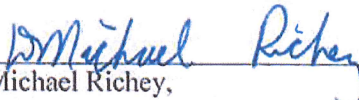
**RECOMMENDED FOR APPROVAL BY:**

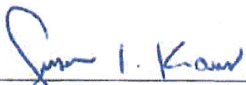
Examined for Form and Legality  
Office of Legal Counsel  
University of Kentucky

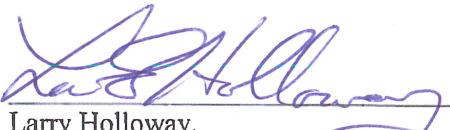
**UNIVERSITY OF KENTUCKY**

By:   
G. Thomas Barker,  
Attorney at Law

By:   
Eli I. Capilouto,  
President

  
D. Michael Richey,  
Vice President for Philanthropy and  
Chief Philanthropy Officer

  
Susan I. Krauss,  
Treasurer

  
Larry Holloway,  
Interim Dean, College of Engineering