Brothers, Sheila

From: Schroeder, Margaret <m.mohr@uky.edu>
Sent: Thursday, April 26, 2018 9:14 PM
To: McCormick, Katherine; Brothers, Sheila
Cc: Akafuah, Nelson K
Subject: Proposed New Undergraduate Certificate in Production Engineering
Attachments: Production Engineering UG Certificate-new (revised 42618).pdf

Proposed New Undergraduate Certificate in Production Engineering

This is a recommendation that the University Senate approve the establishment of a new Undergraduate Certificate: Production Engineering, in the Department of Mechanical Engineering within the College of Engineering.

Rationale:
The Production Engineering Certificate (PEC) encompasses development of students' experiences and knowledge, and the application of engineering and scientific principles, in automotive manufacturing. It enhances capstone senior design projects, promotes student understanding of key automotive production processes, and involves students in capstone projects that develop knowledge of problems in and potential solutions for automotive production process design. Design projects within the Core Courses are developed through proposals from industry or an engineering organization.

The PEC will be established through a new UK-Toyota collaboration. It will offer TMNA engineers the opportunity to interact with UK faculty and to transfer practical knowledge to the classroom through team teaching of PEC courses; it will improve Kentucky's workforce and economic development opportunities through the targeted STEM training program embodied within the PEC. Furthermore, it is envisioned that the UK faculty-Toyota interactions and collaborations will foster new concepts of value to automotive production and
research which faculty will undertake. The PEC Program will help to establish UK as a center of excellence in automotive production engineering; no
other program like it exists in the US. It will be the first to educate and train students in automotive production engineering principles and practices.

They anticipate enrolling approximately 20 students each year. Toyota Engineering North America has committed funds to the project as indicated in the support letter.

The revised proposal is attached.

Thanks!
Margaret

Margaret J. Mohr-Schroeder, PhD | Associate Professor of STEM Education - Mathematics | SAPC University Senate Committee Chair | University Senator/Senate Council Member | STEM PLUS Program Co-Chair | Department of STEM Education | University of Kentucky | www.margaretmohrschroeder.com | Schedule a Meeting with Me

An Undergraduate Certificate is an integrated group of courses (as defined here 12 or more credits) that are 1) cross-disciplinary, but with a thematic consistency, and 2) form a distinctive complement to a student's major and degree program, or 3) leads to the acquisition of a defined set of skills or expertise that will enhance the success of the student upon graduation. Undergraduate Certificates meet a clearly defined educational need of a constituency group, such as continuing education or accreditation for a particular profession; provide a basic competency in an emerging area within a discipline or across disciplines; or respond to a specific state mandate.

After the proposal receives college approval, please submit this form electronically to the Undergraduate Council. Once approved at the academic council level, the academic council will send your proposal to the Senate Council office for additional review via a committee and then to the Senate for approval. Once approved by the Senate, the Senate Council office will send the proposal to the appropriate entities for it to be included in the Bulletin. The contact person listed on the form will be informed when the proposal has been sent to committee and other times, subsequent to academic council review.

Please click here for more information about undergraduate certificates.

1. GENERAL INFORMATION				
1a	Date of contact with Institutional Effectiveness (IE)[1]:	11-21-17		
	☒ Appended to the end of this form is a PDF of the reply from Institutional Effectiveness.			
1b	Home college: College of Engineering			
1c	Home educational unit (department, school, college[2]): *Department of Mechanical Engineering*			
1d	Proposed certificate name: *Production Engineering*			
1e	CIP Code[3]: *15.0699*			
1f	Requested effective date:	☒ Fall semester following approval.	OR	☐ Specific Date[4]: *Fall 20*
1g	Contact person name: *Nelson K. Akafuah*	Email: *nelson.akafuah@uky.edu*		Phone: *8592180702*
2. OVERVIEW				
2a	Provide a brief description of the proposed new undergraduate certificate. *(300 word limit)*			
	The Production Engineering Certificate (PEC) encompasses development of students' experiences and knowledge, and the application of engineering and scientific principles, in automotive manufacturing. It enhances capstone senior design projects, promotes student understanding of key automotive production			

[1] You can reach Institutional Effectiveness by phone or email (257-2873 or institutionaleffectiveness@uky.edu).
[2] Only cross-disciplinary certificates may be homed at the college level.
[3] In consultation with the Undergraduate Council Chair and Registrar, identify the appropriate CIP code(s) *prior* to college-level approval.
[4] Certificates are typically made effective for the semester following approval. No program will be made effective unless all approvals, up through and including University Senate approval, are received.

	processes, and involves students in capstone projects that develop knowledge of problems in and potential solutions for automotive production process design. *Design projects within the Core Courses are developed through proposals from industry or an engineering organization. Through collaboration with automotive OEMs, course instructors will identify and select projects to solve current engineering problems that impact production or introduce engineering advancements that would benefit production; these projects will integrate seamlessly into the scope of the PEC Program. Students will integrate their knowledge with creative and imaginative thinking under the guidance of the university instructors and OEM personnel. Students will cooperatively perform these projects within group-based and stepwise procedures that:* *(1)Identify problems/processes;* *(2)Select appropriate methodology;* *(3)Execute the methodology to develop and preliminarily implement a solution;* *(4)Report on results and implications to the instructor with OEM participation.* *The Core Courses also include a Lean Operations Management requirement in which the students will learn and experience the principles within effective and efficient planning and implementation for industrial production. The Elective Courses include three operation-based aspects vitally important in automotive manufacturing, including automotive painting, body welding and automotive powertrain. Each of these are to be updated as new technologies emerge, and new electives will be assessed for future implementation by collaborating with the industrial OEM's.*
2b	This proposed undergraduate certificate (check all that apply):
	☒ Is cross-disciplinary[5].
	☐ Is certified by a professional or accredited organization/governmental agency.
	☒ Clearly leads to advanced specialization in a field.
2c	**Affiliation.** Is the undergraduate certificate affiliated with a degree program? Yes ☒ No ☐
	If "yes," include a brief statement of how it will complement the program. If it is not affiliated with a degree program, incorporate a statement as to how it will provide an opportunity for a student to gain knowledge or skills not already available at UK. *(300 word limit)*
	At its inception, the PEC certificate will be affiliated with the undergraduate degree programs in the Departments of Chemical & Materials Engineering (CME), Electrical & Computer Engineering (ECE) and Mechanical Engineering (ME). Automotive industries have the largest, most demanding and most advanced mass production activities in the world that require the employment of all of these types of degreed engineers. Other types of engineers and scientists are also employed in the automotive industry; hence, after initial success, the Director of the PEC Program in consultaion with automotive OEM's will assess ongoing automobile production needs and opportunities to determine whether the inclusion of other disciplines would further strengthen the value of the PEC and the success of students who were awarded it. *Students awarded a PEC will learn of and be exposed to the basics of new vehicles design and production, and the thought processes and technologies needed for improving existing automotive production methods. The basics rely on an understanding and then the application of underlying engineering and science priciples that are covered in the degree requirements of the affiliated university departments. The PEC Program complements these degree programs as students apply their educational proficiencies to create and then cooperatively establish new solutions and/or visions impacting the efficiency and productivity of automotive manufacturing processes/systems and, thereby, the concomitant safety, fuel economy, reliability and appearance of*

[5] An undergraduate certificate must be cross-disciplinary and students must take courses in at least two disciplines, with a minimum of three credits to be completed in a second discipline.

	automobiles. As a result, the students will provide potentially helpful progress in actual production engineering but, more importantly, gain a new appreciation for and insight into the principles and value of their discipline.
2d	**Duplication.** Are there similar regional or national offerings? Yes ☐ No ☒
	If "Yes," explain how the proposed certificate will or will not compete with similar regional or national offerings.
2d	**Rationale and Demand.** Explain the need for the new undergraduate certificate (e.g. market demand and cross-disciplinary considerations). *(300 word limit)*
	Recently, Toyota Motor Engineering & Manufacturing North America (TMNA) moved its engineering head office to Georgetown, Kentucky where its largest automotive production facility is located. Its engineering design and production activities produce over 2000 Camry, Avalon and Lexus each day in Georgetown. This close proximity to the university in conjunction with proposed unique PEC Program offers unparalleled opportunities for UK students who will benefit from an access to and instruction from TMNA engineers that enhances their future employment opportunities. *The PEC will be established through a new UK-Toyota collaboration. It will offer TMNA engineers the opportunity to interact with UK faculty and to transfer practical knowledge to the classroom through team teaching of PEC courses; it will improve Kentucky's workforce and economic development opportunities through the targeted STEM training program embodied within the PEC. Furthermore, it is envisioned that the UK faculty-Toyota interactions and collaborations will foster new concepts of value to automotive production and research which faculty will undertake.* *The PEC Program will help to establish UK as a center of excellence in automotive production engineering; no other program like it exists in the US. It will be the first to educate and train students in automotive production engineering principles and practices. It is envisioned that PEC will improve the academic standing and international recognition/reputation of the UK and will attract highly motivated students within KY and from all over the world who value PEC for their future career development. The PEC will provide an opportunity for UK faculty members, and existing departments and centers, to participate and collaborate in developing unique educational and research programs in automotive production.*
2e	**Target audience.** Check the box(es) that apply to the target student population.
	☒ Currently enrolled undergraduate students.
	☐ Post-baccalaureate students.
2f	Describe the demographics of the intended audience. *(150 word limit)*
	Students accepted for the PEC Program must be pursuing or have pursued an accredited university degree. For UK students, 24 credits completed and a minimum cumulative GPA of 2.5 are required; in the case of transfer students into UK, 24 credits completed and a minimum cumulative GPA of 2.5 are required from all other institutions. We expect a diverse group of both male and female students consistent with what is currently found in Mechanical, Electrical, and Chemical & Material Engineering programs; students in the PEC Program from other disciplines would offer additional educational breadth to the students' experiences.
2g	**Projected enrollment.** What are the enrollment projections for the first three years?

	Year 1	*Year 2*	*Year 3*

			(Yr. 1 continuing + new entering)	*(Yrs. 1 and 2 continuing + new entering)*
	Number of Students	*30*	*50*	*65*

2h	**Distance learning (DL).** Initially, will any portion of the undergraduate certificate be offered via DL?	Yes ☐	No ☒
	If "Yes," please indicate below the percentage of the certificate that will be offered via DL.		

	1% - 24% ☐	25% - 49% ☐	50% - 74% ☐	75 - 99% ☐	100% ☐

	If "Yes," describe the DL course(s) in detail, including the number of required DL courses. *(200 word limit)*

3. ADMINISTRATION AND RESOURCES

3a	**Administration.** Describe how the proposed undergraduate certificate will be administered, including admissions, student advising, retention, etc. *(150 word limit)*
	The Director of PEC is responsible for admitting students into the certificate program, approving each student's curriculum for completing the certificate, and notifying the registrar when certificate requirements have been completed. Faculty from ME, CME, EE will all provide general information and advising about PEC to their interested students. The Director will reach out to students semi-annually to evaluate their progress towards completing the Certificate.
3b	**Faculty of Record.** The Faculty of Record consists of the undergraduate certificate director and other faculty who will be responsible for planning and participating in the certificate program. Describe the process for identifying the certificate director. Regarding membership, include the aspects below. *(150 word limit)* • Selection criteria; • Whether the member is voting or non-voting; • Term of service; and • Method for adding/removing members.
	The PEC Program Director will be appointed for a three year term by the Dean upon recommendations from the Chair's of the departments contributing to the certificate courses. Members of the initial Faculty of Record will be appointed for a three year term by the Chair's of the participating departments, with one voting faculty member from each department. After initial formation of, at the end of the term for or in the event of resignation from, the Faculty of Record, the voting members of the Faculty of Record through the Director will determine candidates to be considered as Faculty of Record members for apppointment by the department Chairs. The Director, after advisement from the Faculty of Record, shall devise member composition that enhances department participation and quality of the PEC Program. Faculty of Record members can be removed by their department chair upon the recommendation of the Director.
3c	**Advisory board.** Will the undergraduate certificate have an advisory board[6]? Yes ☒ No ☐
	If "Yes," please describe the standards by which the faculty of record will add or remove members of the advisory board. *(150 word limit)*

[6] An advisory board includes both faculty and non-faculty who advise the faculty of record on matters related to the program, e.g. national trends and industry expectations of graduates.

	The advisory board will include at least seven members, including two faculty within the college who are within the home educational units, and two faculty who are within the college but outside the home educational units, and three other individuals with automotive industry expertise. The Faculty of Record will solicit and then decide on the advisory board members with the Director making the final appointments. Industry advisory and faculty board members will be asked to serve a 3-year term. Advisory board members can be removed by a vote of the Faculty of Record.			
	If "Yes," please list below the <u>number</u> of each type of individual (as applicable) who will be involved in the advisory board.			
	2	Faculty within the college who are within the home educational unit.		
	2	Faculty within the college who are outside the home educational unit.		
		Faculty outside the college who are within the University.		
		Faculty outside the college and outside the University who are within the United States.		
		Faculty outside the college and outside the University who are outside the United States.		
		Students who are currently in the program.		
		Students who recently graduated from the program.		
	3	Members of industry.		
		Community volunteers.		
		Other. Please explain:		
	7	**Total Number of Advisory Board Members**		
3d	**Course utilization.** Will this undergraduate certificate utilize courses from other academic units?		Yes ☒	No ☐
	If "Yes," two pieces of supporting documentation are required. ☒ Check to confirm that appended to the end of this form is a letter of support from the other units' chair/director[7] from which individual courses will be used. The letter must include demonstration of true collaboration between multiple units[8] and impact on the course's use on the home educational unit. ☒ Check to confirm that appended to the end of this form is verification that the chair/director of the other unit has consent from the faculty members of the unit. This typically takes the form of meeting minutes.			
3e	**Financial Resources.** What are the (non-course) resource implications for the proposed undergraduate certificate, including any projected budget needs? *(300 word limit)*			
	This certificate will include student project work specific to Production Engineering that is beyond the student's normal course work. The certificate will also require several new courses be developed. Support for the development of new courses, for ongoing costs associated with offering up to two additional courses per year specific to this curriculum and support for developing student projects has been committed by Toyota Motor Engineering North America (TMNA) (see attached support letter). This fund will be used to establish Toyota Faculty Fellowships for participating faculty and for developing new course materials. As the program grows, support for industry projects will be sought from additional company partners.			
3f	**Other Resources.** Will the proposed undergraduate certificate utilize resources (e.g. departmentally controlled equipment or lab space) from additional units/ programs?		Yes ☒	No ☐
	If "Yes," identify the other resources that will be shared. (*150 word limit*)			

[7] A dean may submit a letter only when there is no educational unit below the college level, i.e. there is no department/school.

[8] Show evidence of detailed collaborative consultation with such units early in the process.

	Student projects as part of the capstone Senior Design courses will utilize existing student design and build spaces in each department and will utilize the facilities in the College of Engineering machine shop and maker spaces. These project spaces are intended for student projects of this type.
	If "Yes," two pieces of supporting documentation are required. ☒ Check to confirm that appended to the end of this form is a letter of support from the appropriate chair/director[9] of the unit whose "other resources" will be used. ☒ Check to confirm that appended to the end of this form is verification that the chair/director of the other unit has consent from the faculty members of the unit. This typically takes the form of meeting minutes.

4. IMPACT

4a	**Other related programs.** Are there any related UK programs and certificates?	Yes ☐	No ☒
	If "Yes," describe how the new certificate will complement these existing UK offerings. *(250 word limit)*		
	If "Yes," two pieces of supporting documentation are required. ☐ Check to confirm that appended to the end of this form is a letter of support from the appropriate chair/director of the unit whose "other resources" will be used. ☐ Check to confirm that appended to the end of this form is verification that the chair/director has input from the faculty members of the unit. This typically takes the form of meeting minutes.		

5. ADMISSIONS CRITERIA AND CURRICULUM STRUCTURE

5a	**Admissions criteria.** List the admissions criteria for the proposed undergraduate certificate. *(150 word limit)*
	To be accepted into the University of Kentucky Production Engineering Undergraduate Certificate, students must be pursuing an undergraduate degree and have completed at least 24 credits with a UK cumulative GPA of at least 2.5. A transfer student can be accepted into the Certificate if he/she has completed a least 24 credits with a weighted cumulative GPA from all other institutions of at least 2.5.
5b	**Core Courses.** List the required courses below.

Prefix & Number	Course Title	Credit Hrs	Course Status[10]
ME 411	*ME Capstone Design I OR*	*3*	No Change
EE 490	*EE Capstone Design I*	*3*	No Change
ME 412	*ME Capstone Design II OR*	*3*	No Change
EE 491	*EE Capstone Design II OR*	*3*	No Change
MSE 480	*Materials Capstone Design*	*3*	No Change
3-6 hours - Core Courses			

5c	**Elective courses.** List the electives below.

[9] A dean may submit a letter only when there is no educational unit below the college level, i.e. there are no departments/schools.

[10] Use the drop-down list to indicate if the course is a new course ("new"), an existing course that will change ("change"), or if the course is an existing course that will not change ("no change").

Prefix & Number	Course Title	Credit Hrs	Course Status[11]
ME 416	*Automotive Paint Technology*	*3*	New
EE 528	*Automotive Body Weld*	*3*	New
CME/MSE 552	*Automotive Plastics*	*3*	New
ME 418	*Automotive Assembly and Quality Control*	*3*	New
			New
			Select one....
		Total Credit Hours:	12

5d	Are there any other requirements for the undergraduate certificate? If "Yes," note below. *(150 word limit)*	Yes ☒	No ☐
	ME 526 Lean Operations Management is a required prerequisite for the Certificate.		
5e	Is there any other narrative about the undergraduate certificate that should be included in the Bulletin? If "Yes," please note below. *(300 word limit)*	Yes ☒	No ☐
	The program requires 12 credit hours minimum to be awarded the certificate, which includes 6 credit hours of capstone design and 6 credit hours of elective courses. However, students from departments or disciplines that do not have two semesters (6 credit hours) of capstone design courses can substitute ME 526 Lean Operations Management (a required prerequisite for the certificate) as an acceptable core course to meet the 6 credit hours requirements. For example, CME/MSE students whose capstone design course is only one semester (3 credit hours), ME 526 Lean Operations Management, can count for one of the core courses or they will be required to take three elective courses (9 credit hours) to satisfy the total of 12 credit hours required. *Students from departments or disciplines that may be interested in the certificate but do not have capstone design as part of their degree requirements, their core course requirement will be assessed by the director on a case by case basis.*		

6. ASSESSMENT

6a	**Student learning outcomes.** Please provide the student learning outcomes for this undergraduate certificate. List the knowledge, competencies, and skills (learning outcomes) students will be able to do upon completion. (Use action verbs, not simply "understand.") *(250 word limit)*
	Upon successful completion of the certificate program, students will: demonstrate knowledge of application of engineering and scientific principles, in automotive manufacturing core processes. This will be assessed through the capstone projects as follows: *(1.) Implement and complete proposed capstone project* *(2.) Draft and revise a final project report, including a summary of project results as well as project assessment* *(3.) Prepare an outline of capstone presentation, revise the outline, rehearse and present it to an audience of their peers and/or faculty members.* *Within the project:* *(4.) Student must demonstrate the breadth of knowledge of automotive production engineering and how their capstone project impacts automotive production or introduces engineering advancements that would benefit production.*

[11] Use the drop-down list to indicate if the course is a new course ("new"), an existing course that will change ("change"), or if the course is an existing course that will not change ("no change").

	(5.) Synthesize and apply knowledge with creative and imaginative thinking under the guidance of the university instructors and OEM personnel.
6b	**Student learning outcome (SLO) assessment.** How and when will student learning outcomes be assessed? Please map proposed measures to the SLOs they are intended to assess. Do not use grades or indirect measures (e.g. focus groups, surveys) as the sole method. Measures likely include artifacts such as course-embedded assessment (e.g., portfolios, research papers or oral presentations); and test items (embedded test questions, licensure/certification testing, nationally or state-normed exams). *(300 word limit)*
	A student will select a capstone course following consultation with the certificate director to determine mutual interests and to identify faculty mentors. The SLOs from these courses are designed to be general (as found in 6a) since student projects are expected to be quite variable. SLOs will be assessed annually with assessment data collected by faculty of record and collated by the Certificate Director. SLO assessment measures will then be discussed annually by the Faculty of Record and recorded per standard UK protocol. *SLOs will be assessed through course-embedded capstone projects completed as part of the required coursework. The capstone project, including rubric, will be consistent between the Capstone courses and must be related to automotive production.*
6c	**Certificate outcome assessment[12].** Describe program evaluation procedures for the proposed undergraduate certificate. Include how the faculty of record will determine whether the program is a success or a failure. List the benchmarks, the assessment tools, and the plan of action if the program does not meet its objectives. *(250 word limit)*
	Assessment of the certificate's effectiveness is whether there is strong demand for its graduates and that graduates find success in employment by the targeted companies. A 20 to 30 percent employment of the graduates of the certificate in the targeted companies will be considered a success. *The students in the certificate program will be surveyed prior to and upon graduation to assess the ways the certificate could be improved. Toward the end of the 5th year of its duration, the Faculty of Record, under the leadership of the Director, shall prepare a report summarizing its status, operations, and certificate awardees during that period of time. As well, the report shall indicate the certificate's prospects for the future and if renewal of the certificate curriculum is sought. The report will be provided to the Dean and to the Associate Provost for Undergraduate Education. If a certificate is suspended or terminated, students currently enrolled in the curriculum shall have a reasonable period of time, not to exceed three years, to complete the requirements for the certificate.*

7. OTHER INFORMATION	
7a	Is there any other information about the undergraduate certificate to add? (*150 word limit)*

8. APPROVALS/REVIEWS			
Information below does not supersede the requirement for individual letters of support from educational unit administrators and verification of faculty support (typically takes the form of meeting minutes).			
	Reviewing Group Name	**Date Approved**	**Contact Person Name/Phone/Email**

[12] This is a plan of how the certificate will be assessed, which is different from assessing student learning outcomes.

8a	(Within College) *In addition to the information below, attach documentation of department and college approval. This typically takes the form of meeting minutes but may also be an email from the unit head reporting department- and college-level votes.*		
	Mechnical Enginering Faculty	*September, 13 2017*	*Michael Renfro / 859-218-0643 / michael.renfro@uky.edu*
	Electrical and Computer Engineering Faculty	*September, 13 2017*	*Michael T. Johnson / 859-257-0717 / mike.johnson@uky.edu*
	Chemical and Material Engineering Faculty	*August, 25 2017*	*Douglass Kalika / 859 257-5507 / douglass.kalika@uky.edu*
			/ /
8b	(Collaborating and/or Affected Units)		
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8c	(Senate Academic Council)	**Date Approved**	**Contact Person Name**
	Health Care Colleges Council (if applicable)		
	Undergraduate Council	*2/23/18*	*Joanie Ett-Mims*

Department of Chemical and Materials Engineering

177 Anderson Hall
Lexington, KY 40506-0046
(859) 257-5507
douglass.kalika@uky.edu

August 25, 2017

Professor Nelson K. Akafuah
Department of Mechanical Engineering
University of Kentucky

Dear Prof. Akafuah,

On behalf of the faculty of the Department of Chemical and Materials Engineering, I am pleased to offer my support for the proposed undergraduate certificate in Production Engineering.

The CME Department is pleased to participate in the certificate in two ways:

(i) Via the inclusion of MSE 480, *Materials Design*, as a core course in the certificate. This will facilitate completion of the certificate requirements by undergraduate students in materials engineering.

(ii) Through the development of a new course, "*Automotive Plastics*". This three-credit hour class will serve as an elective for certificate participants, and will be well-suited for students in chemical engineering, materials engineering and mechanical engineering. The CME department intends to offer this class for the first time during the 2019-2020 academic year.

As per the requirements of the undergraduate certificate approval process, the CME faculty were consulted via e-mail during the week of August 21st, and indicated their support for participation in the certificate, as outlined above.

Sincerely,

Doug Kalika

Douglass Kalika, Professor and Chair
Chemical and Materials Engineering

cc: Prof Mike Renfro; Prof. T. John Balk

University of Kentucky

College of Engineering
Department of Electrical and Computer Engineering

Michael T. Johnson
Electrical and Computer Engineering
453 F. Paul Anderson Tower
University of Kentucky
Lexington, KY 40506

Kozo Saito
Director, proposed Certificate in Production Engineering
Department of Mechanical Engineering
University of Kentucky
Lexington KY 40506

Re: Departmental support for Certificate in Production Engineering

September 13, 2017

Dear Dr. Saito,

It is my pleasure to provide strong support for the proposed Certificate program in Production Engineering, on behalf of the Department of Electrical and Computer Engineering. I believe that the planned cross-disciplinary certificate program is well designed and in the best interests of the college and the university, as well as our students and industrial collaborators.

The Electrical and Computer Engineering department plans to support this certificate in a number of different ways, including supporting team projects in our senior Capstone I and Capstone II courses and through development and implementation of a course in Automotive Welding, led by our faculty member Yuming Zhang who has a great deal of expertise in this area. We also look forward to the opportunity to develop additional courses related to this program, including the area of Automotive Embedded Systems.

The ECE faculty have approved and are strongly supportive of this cross-disciplinary certificate development effort, and we look forward to working with you.

Sincerely,

Mike Johnson
Professor and Chair, Electrical and Computer Engineering
University of Kentucky

UNIVERSITY OF KENTUCKY
College of Engineering

Department of
Mechanical Engineering
151 Ralph G. Anderson Building
Lexington, KY 40506-0503
859 257-6336
fax 859 257-3304
www.engr.uky.edu/me

September 13, 2017

Dr. Nelson Akafuah
Department of Mechanical Engineering
University of Kentucky

Re: Mechanical Engineering commitment to the Production Engineering Certificate Program

Dear Dr. Akafuah,

As per the requirements for certificate programs, I have consulted with faculty in the Mechanical Engineering Department on several occasions about this program including faculty meetings in March and September of 2017. We have discussed how this program aligns with existing courses in our department, with the proposed new electives, and the impact of Toyota support in enabling these course additions. With the commitment from Toyota to fund development of this program over the next five years, the Mechanical Engineering Department is happy to contribute to the certificate by continuing to offer existing courses including: ME 411 ME Capstone Design I, ME 412 ME Capstone Design II, ME 526 Lean Operations Management, and ME 599 Automotive Paint Technology (which will be submitted for a permanent number). We will also develop new electives in the areas of Stamping and Powertrain Manufacturing. Faculty in Mechanical Engineering have agreed to develop these courses for the certificate program.

Sincerely,

Michael W. Renfro
Professor and Chair of the Mechanical Engineering Department
University of Kentucky
153 Ralph G. Anderson Building
Lexington, KY 40506
email: michael.renfro@uky.edu

TOYOTA

Toyota Motor North America
Production Engineering &
Manufacturing Center
151 Engineering Way
Georgetown, KY 40324

July 27, 2017

IR4TD Director Kozo Saito
Mechanical Engineering, 179 RGAN
College of Engineering
University of Kentucky
Lexington, KY 40506-0503

Dr. Saito:

UK and Toyota have continually developed a win-win relationship since Mr. Fujio Cho initiated the relationship more than 25 years ago.

Toyota Motor Engineering North America (TMNA) is pleased to pledge a total of $1,250,000 over the next five years. This fund is to initiate and sustain a joint TMNA-UK Production Engineering program. We expect the initial phase of the support to start the fall of 2017.

Regards,

John Tinney
Group Vice President
Powertrain and Shared Services
Production Engineering

Luis Alcantara
Group Vice President
Vehicle
Production Engineering

Tadahisa Isono
Executive Vice President
Manufacturing

cc: Larry Holloway, Dean of the College of Engineering
Mike Renfro, Dean of Mechanical Engineering

mboire

Monday, July 24, 2017

University of Kentucky
College of Engineering
Office of the Dean

351 Ralph G. Anderson Bldg.
Lexington, KY 40506-0503
P: 859-257-1687
F: 859-257-5727
www.engr.uky.edu

November 3, 2017

To Whom It May Concern:

The College of Engineering faculty reviewed the Undergraduate Certificate for Production Engineering undergraduate certificate via email. There were no concerns or objections raised. The date of approval is November 2, 2017.

Sincerely,

Kimberly Anderson, Ph.D.
Associate Dean for Administration
and Academic Affairs

Brandenburg, Barbara J

From: Pearson, RaeAnne M
Sent: Tuesday, November 21, 2017 2:52 PM
To: Akafuah, Nelson K; Brandenburg, Barbara J
Cc: Weber, Ann D
Subject: RE: UK_SubChange Checklist_Producation.docx

Thank you for the additional information. However, please notify our office should the program begin offering instruction off-campus, the focus of the certificate changes, or if the program expands beyond a certificate program.

Dear Barbara Brandenburg,
Thank you for your email regarding the proposed program, Production Engineering, Certificate **(15.0699).**

My email will serve 2 purposes: 1.) Next steps for SACSCOC, and 2.) Verification and notification that you have contacted OSPIE—a Senate requirement for proposal approval.

1. **Next steps for SACSCOC:** None required However, should the program begin offering instruction off-campus, or the program expands beyond a certificate program, the program should contact the Office of Strategic Planning and Institutional Effectiveness to notify them of these changes.
2. **Verification that OSPIE has reviewed the proposal:** Based on the proposed documentation presented and the Substantive Change Checklist, the proposed program does not constitute a substantive change as defined by the University or SACSCOC, the university's regional accreditor. Therefore, no additional information is required by the Office of Strategic Planning & Institutional Effectiveness at this time. The proposed program may move forward in accordance with college and university-level approval processes.

Should you have questions or concerns about UK's substantive change policy and its procedures, please do not hesitate contacting me.

RaeAnne Pearson, PhD
Office of Strategic Planning & Institutional Effectiveness
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From: Akafuah, Nelson K
Sent: Tuesday, November 21, 2017 2:35 PM
To: Pearson, RaeAnne M; Brandenburg, Barbara J
Cc: Weber, Ann D
Subject: RE: UK_SubChange Checklist_Producation.docx

The program requires 12 Credit hours to be awarded the certificate, 9 credit for core and 3 credit for elective. Except for Material/Chemical Engineering students whose Capstone is only 3 credit hours and therefore will be required to take two elective courses (6 credit hours) to satisfy the total of 12 Credit hours.