

Brothers, Sheila

From: Cramer, Aaron
Sent: Saturday, April 13, 2019 11:41 AM
To: Bird-Pollan, Jennifer; Brothers, Sheila; Ett-Mims, Joanie
Cc: Beck, Matthew
Subject: NEW GC: Advanced Materials Characterization
Attachments: AdvCharCert-NewGradCert_Full-041319.pdf

Proposed New Graduate Certificate: Advanced Materials Characterization

This is a recommendation that the University Senate approve the establishment of a new Graduate Certificate: Advanced Materials Characterization, in the Department of Chemical and Materials Engineering within the College of Engineering.

Rationale: The proposed graduate certificate is built on existing courses in the Materials Engineering graduate programs. The program will teach students fundamental principles and limitations of a range of techniques, sample preparation, and the operation of state-of-the-art equipment in the UK Electron Microscopy Center. The program is directly aligned with recent efforts to promote manufacturing and high-tech/high-impact job readiness in Kentucky, and the proposers have identified a clear need by employers for current and future employees to have a deeper understanding of modern materials characterization techniques. The proposed program, composed of online courses, is initially anticipating the enrollment of five students with growth to 10 students projected.

Aaron

Aaron M. Cramer
Associate Professor, Electrical and Computer Engineering
Director of Graduate Studies, Electrical Engineering
Chair, Senate's Academic Programs Committee
University of Kentucky
859-257-9113
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NEW GRADUATE CERTIFICATE

Certificate Description. A graduate certificate shall have a clear and focused academic topic or competency as its subject, meet a clearly defined educational need of a constituency group, such as required continuing-education or accreditation for a particular profession, respond to a specific state mandate or provide a basic competency in an emerging (preferably interdisciplinary) topic. Certificates are minimally nine graduate credit hours but typically no more than 15.

Approval process. Once approved at the college level, your college will send the proposal to the appropriate Senate academic council (possibly HCCC and/or UC) for review and approval. 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 SC and University Senate. (The contact person listed on the form will be informed when the proposal has been sent to committee and other times as appropriate.) The last step in the process is Senate approval; upon Senate approval, students can enroll in the new certificate.

By default, graduate certificates shall be approved for a period of six (6) years. Re-approvals are also for six years.

1. GENERAL INFORMATION			
1a	Home college: <i>Engineering</i>		
1b	Home educational unit (department, school, college ¹): <i>Department of Chemical & Materials Engineering</i>		
1c	Office of Strategic Planning and Institutional Effectiveness (OSPIE) (Please contact OSPIE (OSPIE@L.uky.edu) for help with questions in this section.)		
	Date of contact with OSPIE: 1/22/2019		
	<input checked="" type="checkbox"/> Appended to the end of this form is a PDF of the reply from OSPIE.		
	<input checked="" type="checkbox"/> Appended to the end of this form is a letter(s) of administrative feasibility from the dean(s) of the college(s) offering the certificate.		
	CIP Code (confirmed by OSPIE): 40.1001		
1d	Proposed certificate name: <i>Graduate Certificate in Advanced Materials Characterization</i>		
1e	Requested effective date:	<input checked="" type="checkbox"/> Fall semester following approval.	OR <input type="checkbox"/> Specific Date ² : <i>Fall 20</i>
1f	Contact person name: <i>Matthew J. Beck</i>	Email: <i>m.beck@uky.edu</i>	Phone: <i>7-0039</i>

2. OVERVIEW	
2a	Provide a brief description of the proposed new graduate certificate. (300 word limit)
	<i>The four course Advanced Materials Characterization Certificate (AMCC) builds on existing courses in the Materials Engineering Program, an in-progress tenure-track faculty hire, and recent multi-million dollar investments in characterization equipment in the UK Electron Microscopy Center (EMC). Taught by active and engaged Materials Engineering faculty and EMC research staff, students will explore characterization techniques for analyzing the atomic-through-mesoscale structure of materials and their surfaces. Students will learn the fundamental principles and limitations of a range of techniques, to prepare samples, and to operate state-of-the-art equipment. The program will provide a direct, hands-on experience to both on-campus and distance learning</i>

¹ Only cross-disciplinary graduate certificates may be homed at the college level.

² 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.

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	<i>participants and be of interest to current professionals and post-baccalaureate students from a range of STEM backgrounds and industries.</i>		
2b	This proposed graduate certificate (check all that apply):		
	<input checked="" type="checkbox"/>	Has a clear and focused academic competency as its subject.	
	<input checked="" type="checkbox"/>	Meets a clearly defined educational need of a constituency group (e.g. continuing education or licensing)	
	<input type="checkbox"/>	Responds to a specific state mandate.	
	<input checked="" type="checkbox"/>	Provides a basic competency in an emerging, preferably interdisciplinary, topic.	
2c	Affiliation. Is the graduate certificate affiliated with a degree program? (<i>related to 3c</i>)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	If "yes," include a brief statement of how it will complement the program. If "no," 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)		
	<i>The four course Advanced Materials Characterization Certificate (AMCC) builds on and extends existing coursework in the Materials Engineering Program. The AMCC will be an appropriate and attractive "add-on" credential for BS graduates from Materials Engineering, current professionals working in Materials Engineering, and for BS graduates of related STEM disciplines. The AMCC consists of content beyond that available in existing Materials Engineering degree offerings or anywhere else on campus.</i>		
2d	Duplication. Are there similar regional or national offerings?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	If "Yes," explain how the proposed certificate will or will not compete with similar regional or national offerings.		
	<i>There are two other graduate certificate programs in Advanced Characterization in the US: one at the University of Florida, and one at Illinois Institute of Technology. In addition, a range of "nanotechnology" graduate certificates are offered at various US institutions that have some limited overlap with the AMCC. The UK AMCC will differentiate itself based on the wide range of characterization techniques covered, the degree of interactive, student-driven experiential content, and a clear focus on industry-relevant skills, knowledge and capabilities.</i>		
2e	Rationale and Demand. State the rationale for the new graduate certificate and explain the need for it (e.g. market demand, student requests, state mandate, interdisciplinary topic). (400 word limit)		
	<i>Cross-cutting technological advances that improve sustainability, health and welfare, and the standard of living depend on the availability of tools and techniques to explore and visualize the relationships between the structure, processing, and performance of natural and engineered materials. Increasingly employers in manufacturing and materials processing, pharmaceuticals and biomaterials, and high technology require employees with knowledge of and experience in advanced techniques for characterizing precisely these materials relationships. The UK Advanced Materials Characterization Certificate (AMCC) will provide students from a wide range of technology-focused backgrounds an in-depth understanding of and training in the methods, principles of operation, and specific applications of state-of-the-art industry-relevant instrumentation for materials characterization.</i>		
	<i>Recent efforts to promote manufacturing and high-tech/high-impact job-readiness in Kentucky directly align with the proposed program, which will train current professionals and post-baccalaureate to understand and apply state-of-the-art tools to investigate, control and design new materials.</i>		
	<i>In addition, the AMCC will leverage \$8M+ of new equipment in the UK Electron Microscopy Center, which currently engages with numerous regional industry partners on a range of research and development projects. The UK EMC's industry partners have made clear that they would like their current and future employees to possess a deeper fundamental and practical understanding of what modern materials characterization techniques can and cannot do, and how to operate state-of-the-art tools. Numerous industry interactions by the team</i>		

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developing this certificate have highlighted a strong desire for “professional development” opportunities focused on understanding operating materials characterization tools. The present certificate is directly aimed at this market, and we estimate that initial enrollment of current professionals would be 5-10 students/year.

2f Target student population. Check the box(es) that apply to the target student population.

Currently enrolled graduate students.

Post-baccalaureate students.

2g Describe the demographics of the intended audience. (150 word limit)

The Advanced Materials Characterization Certificate will be of value both as a professional development opportunity for those already working in industry, and as a post-baccalaureate credential for those seeking to improve job prospects. The certificate will be of interest to individuals working in the manufacturing, metals processing, materials fabrication, composite materials, biomaterials, pharmaceutical, aerospace, automotive and recycling industries.

2h Projected enrollment. What are the enrollment projections for the first three years?

	Year 1	Year 2 (Yr. 1 continuing + new entering)	Year 3 (Yrs. 1 and 2 continuing + new entering)
Number of Students	5	10	10

2i Distance learning (DL). Initially, will any portion of the graduate 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. (300 word limit)

All courses in the certificate will be available as DL courses. Lecture-style course content, including equipment and technique demonstrations, will be recorded as digital videos. Homeworks, quizzes, tests, and projects will be available to both download and submit online. Discussion content will either be video live-streamed or occur in online forums. Instructors will be available during office hours via online video chat and over email. All courses will have time/content benchmarks that will synchronize participation on an approximately weekly basis. All synchronization points will be clearly indicated in the course syllabus. In addition, state-of-the-art characterization equipment located in the UK Electron Microscopy Center will be available for internet-based remote operation allowing "digital hands-on learning" experiences as part of courses in the certificate.

3. ADMINISTRATION AND RESOURCES

3a Administration. Describe how the proposed graduate certificate will be administered, including admissions, student advising, retention, etc. (150 word limit)

The Director of Graduate Studies in Materials Engineering, or his or her designee, will serve as the Certificate Director, and be supported by the chair and staff of the Chemical & Materials Engineering (CME) Department. Student advising will be handled by the professional advising staff in the CME Department. Student admissions and retention activities will be handled by the Certificate Director. Course content and curriculum issues will be managed by the Certificate Director in conjunction with the Faculty of Record.

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3b	Faculty of Record and Certificate Director. <i>(related to 2c)</i> The faculty of record consists of the graduate certificate director and other faculty who will be responsible for planning and participating in the certificate program. The director must be a member of the Graduate Faculty of the University and is appointed by the dean of the Graduate School. The faculty of record must be comprised of three or more faculty. At least three members of the graduate certificate’s faculty of record must be members of the Graduate Faculty.		
	The graduate certificate is affiliated with a degree program.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	If “Yes,” list the name of the affiliated degree program below. If “No,” describe below the process for identifying the faculty of record and the certificate director, including selection criteria, term of service, and method for adding and removing members. <i>(150 word limit)</i>		
	Materials Engineering		
3c	Course utilization. Will this graduate certificate include courses from another unit(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	If “Yes,” two pieces of supporting documentation are required. <input type="checkbox"/> Check to confirm that appended to the end of this form is a letter of support from the other units’ chair/director ³ from which individual courses will be used. The letter must include demonstration of true collaboration between multiple units ⁴ and impact on the course’s use on the home educational unit. <input type="checkbox"/> 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.		
3d	Financial Resources. What are the (non-course) resource implications for the proposed graduate certificate, including any projected budget needs? <i>(300 word limit)</i> <i>None.</i>		
3e	Other Resources. Will the proposed certificate utilize resources (e.g. departmentally controlled equipment or lab space) from additional units/programs?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	If “Yes,” identify the other resources that will be shared. <i>(150 word limit)</i>		
	The AMCC has been developed in conjunction with the UK Electron Microscopy Center (EMC) who will be providing teaching resources, including access to equipment and space in the EMC.		
	If “Yes,” two pieces of supporting documentation are required. <input checked="" type="checkbox"/> Check to confirm that appended to the end of this form is a letter of support from the appropriate chair/director ⁴ of the unit whose “other resources” will be used. <input checked="" type="checkbox"/> 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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	If “Yes,” describe how the new certificate will complement these existing UK offerings. <i>(250 word limit)</i>		

³ A dean may submit a letter only when there is no educational unit below the college level, i.e. there is no department/school.

⁴ Show evidence of detailed collaborative consultation with such units early in the process.

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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 each potentially-affected academic unit administrators.

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 graduate certificate. *(150 word limit)*

An earned Bachelor of Science degree in a STEM field plus experience or prior coursework equivalent to MSE 201 and MSE 301. Applications will be reviewed by the Certificate Director to determine compliance.

5b Core courses. List the required core courses below.

Prefix & Number	Course Title	Credit Hrs	Course Status ⁵
<i>MSE 510</i>	<i>Structure of Materials</i>	3	New
<i>MSE 520</i>	<i>Advanced Materials Characterization: Imaging and Surface Science Techniques</i>	3	New
<i>MSE 521</i>	<i>Advanced Materials Characterization: Spectroscopic and Diffraction Techniques</i>	3	New
<i>MSE 585</i>	<i>Materials Characterization Techniques</i>	3	Change
			Select one....
<i>Total Credit Hours of Core Courses:</i>			

5c Elective courses. List the electives below.

Prefix & Number	Course Title	Credit Hrs	Course Status ⁶
			Select one....
			Select one....
			Select one....
			Select one....
			Select one....
			Select one....

5d Are there any other requirements for the graduate certificate? If “Yes,” note below. *(150 word limit)*

Yes

No

⁵ 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”).

⁶ 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”).

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5e	Is there any other narrative about the graduate certificate that should be included in the Bulletin? If "Yes," please note below. (300 word limit)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p><i>In the four course Advanced Materials Characterization Certificate (AMCC) students will explore techniques for characterizing and analyzing the atomic-through-mesoscale structure of materials and their surfaces. Students will learn the fundamental principles and limitations of a range of techniques, to prepare samples, and to operate state-of-the-art equipment. The program will provide direct, hands-on experiences to both on-campus and distance learning participants by leveraging internet-based remote operation of characterization equipment in the UK Electron Microscopy Center. The AMCC is appropriate for current professionals and post-baccalaureate students from a range of STEM backgrounds and industries. This online certificate requires some synchronous distance learning activities which occur at fixed times (please see course notes or contact the Certificate Director for details on required times for current offerings). The required courses may be completed over two or more semesters, but must be completed within three calendar years. Per Graduate School requirements, students must maintain a 3.0 GPA to complete the Certificate. Prior graduate credit from UK or elsewhere (if eligible to transfer) may be transferred to replace equivalent coursework at the discretion of the Certificate Director.</i></p>			
6. ASSESSMENT			
6a	<p>Student learning outcomes. Please provide the student learning outcomes for the graduate 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)</p>		
<p><i>Upon completion of the AMCC, students will be able to...</i></p> <ul style="list-style-type: none"> <i>(1) Discuss, evaluate and communicate the fundamental operating principles of materials characterization techniques</i> <i>(2) Prepare samples for and conduct characterization experiments using a range of characterization tools</i> <i>(3) Identify the characterization tools and techniques appropriate for specific materials and/or engineering problems</i> <i>(4) Effectively communicate materials characterization results orally and in writing</i> 			
6b	<p>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 course-embedded test items (embedded test questions, licensure/certification testing, nationally or state-normed exams). (300 word limit)</p>		
<p><i>SLO assessment will be conducted annually by the Certificate Director and Instructors of Record for AMCC courses in parallel with SACS assessment of the graduate programs in Materials Engineering. Instructors of Record will collect and de-identify at least three artifacts from each student (quizzes, exams, projects) in each class for each relevant SLO (see map, below), and use a rubric-based approach to determine whether each artifact demonstrates the student has exceeded, achieved, or not achieved the SLO. Data will be aggregated to assess SLOs at a programmatic level.</i></p> <p><i>Course/SLO Map (Course : SLOs assessed)</i></p> <p><i>MSE 510 : SLO 3</i></p> <p><i>MSE 520 : SLOs 1, 2, 4</i></p> <p><i>MSE 521 : SLOs 1, 2, 4</i></p> <p><i>MSE 585 : SLOs 1, 3</i></p>			

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6c	<p>Certificate outcome assessment⁷. Describe evaluation procedures for the proposed graduate 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. <i>(250 word limit)</i></p> <p><i>The number of Certificate awardees and completion rate will be used to determine program success. The program will be deemed successful if the 3-year rolling average number of awardees is stable or increasing over a 5-year comparison window AND if the student completion rate is $\geq 75\%$. If the number of awardees is declining, the Certificate Director will work with Instructors of Record to evaluate interest in the characterization techniques taught in required courses, adjusting these as demand indicates. In addition the Certificate Director will work with College recruiting staff and Dean's Office to improve marketing of the Certificate. If completion rates fall below the benchmark, the Certificate Director and Instructors of Record will determine likely causes of non-completion and adjust course content and/or delivery to better meet student needs.</i></p>
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7. OTHER INFORMATION

7a	Is there any other information about the graduate certificate to add? <i>(150 word limit)</i>
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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
8a	<i>(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.</i>		
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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)		

⁷ This is a plan of how the certificate will be assessed, which is different from assessing student learning outcomes.

NEW GRADUATE CERTIFICATE

	Graduate Council		



University of Kentucky
College of Engineering

Office of the Dean

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www.engr.uky.edu

December 18, 2018

Dr. Matthew J. Beck
Associate Professor and Director of Graduate Studies, Materials Engineering
Department of Chemical & Materials Engineering
University of Kentucky

Re: Letter of Support for the new graduate certificate in Advanced Materials Characterization

Dear Matt,

The UK Electron Microscopy Center (EMC) is pleased to support the Materials Engineering program's proposed Advanced Materials Characterization Certificate (AMCC), the creation of MSE 510 (Structure of Materials), MSE 520 (Advanced Materials Characterization: Imaging and Surface Science Techniques), and MSE 521 (Advanced Materials Characterization: Diffraction and Spectroscopy Techniques), and the addition of an online option to the existing MSE 585 (Materials Characterization Techniques) course.

The AMCC will leverage the more than \$8M in state-of-the-art characterization equipment recently installed in the EMC, and support continued growth in connections between the EMC and local and regional industry. The AMCC will fill a significant need for post-baccalaureate training in a range of research- and industry-relevant characterization techniques.

The EMC is committed to supporting implementation of the AMCC on an ongoing basis by allowing students pursuing the certificate access to the EMC. EMC staff will directly participate in developing the three new courses offered in the program, and Dr. Nico Briot will teach two of the courses, one in each Fall semester, and one in each Spring semester. In addition, EMC staff are already working with UK IT to take advantage of new "over-the-internet" remote operation modes available on certain EMC equipment. This operational mode will serve a core "hands-on" component of the online AMCC courses.

I am pleased to have been part of the initial planning for the AMCC. We have worked together over the past few months developing the AMCC concept. After I initially proposed a Characterization Certificate to Interim Dean Holloway in Summer 2018, I was happy to work with you to submit a concept proposal to the Provost's call for new online programs earlier this Fall. Now that the proposal has been selected for funding and support by the University, I look forward to continued collaboration with you, Dr. Briot, and Dr. Cochell as we develop the full online course materials for the certificate.

Finally, I anticipate initial enrollment of ~5 students, combining pre-career post-baccalaureate students and current professionals. Enrollments of ~10 students per year would be my expected steady-state for the relatively near future, with potential to grow beyond that!

seeblue.

An Equal Opportunity University

The AMCC is a great match for how we would like to grow involvement with the EMC, and is a great addition the Materials Engineering program.

Sincerely,

A handwritten signature in black ink that reads "John Balk". The signature is written in a cursive style with a large, looping initial "J".

John Balk, PhD, PE
Director, Electron Microscopy Center
Associate Dean for Research and Graduate Studies
Professor, Chemical and Materials Engineering



**Department of Chemical and
Materials Engineering**

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

January 2, 2019

TO: Office of the Dean, UK College of Engineering

RE: Proposed Graduate Certificate in Advanced Materials Characterization

This memo is to confirm formal approval of the proposed graduate certificate in Advanced Materials Characterization by the faculty of the Department of Chemical and Materials Engineering. The proposed graduate certificate curriculum and associated courses were presented to the CME faculty at a scheduled faculty meeting on December 7, 2018. Paducah faculty participated via teleconference. At the conclusion of the presentation (by Profs. Beck and Balk), the faculty voted unanimously to approve the certificate, contingent upon subsequent electronic circulation of the formal proposal document and course syllabi.

On December 18, all formal documents were circulated to the faculty electronically, and no further comments or concerns were expressed. The certificate proposal was considered formally approved at the conclusion of the circulation period, effective December 24, 2018.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Doug S. Kalika'.

Douglass S. Kalika, Professor and Chair
Department of Chemical and Materials Engineering

From: [Pearson, RaeAnne](#)
To: [Brandenburg, Barbara](#)
Cc: [Weber, Annie](#)
Subject: Notification of intent for Graduate Certificate in Advanced Materials Characterization, GCERT1, Post-baccalaureate Certificate (40.1001)
Date: Tuesday, January 22, 2019 10:10:33 AM

Dear Barbara Brandenburg ,

Thank you for submitting a Notification of intent for **Graduate Certificate in Advanced Materials Characterization, GCERT1, Post-baccalaureate Certificate (40.1001)**.

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
2. **Verification that OSPIE has reviewed the proposal:** Based on the documentation presented 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 change(s) may move forward in accordance with college and university-level approval processes.

IMPORTANT: *Certificates (undergraduate and graduate) will be added to the CPE Inventory once they have been approved by the University Senate. For degree programs, an NOI will be submitted by the Office of Strategic Planning and Institutional Effectiveness to CPE and you will need to work closely with our office to ensure that your proposal meets all external CPE requirements and deadlines.*

Should you have any questions or concerns about UK's substantive change policy and its procedures, please do not hesitate to contact our office.

Office of Strategic Planning & Institutional Effectiveness
University of Kentucky
[Visit the Office of Strategic Planning and Institutional Effectiveness Website](#)



University of Kentucky
College of Engineering
Office of the Dean

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January 18, 2019

To Whom It May Concern:

This letter is to confirm that the faculty of the College of Engineering has reviewed and approved the attached proposal for a graduate certificate in Advanced Materials Characterization in Engineering. The faculty reviewed the proposal documents via email and there were no concerns raised.

If you have any questions, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kimberly Anderson'.

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

see blue.

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College of Engineering

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April 10, 2019

Re: Letter of support for proposed online graduate certificate in Advanced Materials Characterization

To Whom It May Concern:

The College of Engineering has reviewed the proposal for the online graduate certificate in Advanced Materials Characterization. This review included the educational aspects and administrative feasibility of the proposed structure. I confirm that the proposal is administratively feasible and it has the support of our college.

Sincerely,

A handwritten signature in blue ink that reads 'Rudy Buchheit'. The signature is written in a cursive style and is positioned to the left of a vertical yellow line.

Rudy Buchheit
Dean, College of Engineering