

## Brothers, Sheila

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**From:** Cramer, Aaron  
**Sent:** Wednesday, September 26, 2018 10:17 AM  
**To:** Bird-Pollan, Jennifer; Brothers, Sheila  
**Cc:** Fei, Zongming  
**Subject:** NEW UC: Cybersecurity  
**Attachments:** UG\_Cybersecurity\_Certificate\_revised\_09\_25\_2018.pdf

### Proposed New Undergraduate Certificate in Cybersecurity

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

#### Rationale:

The purpose of the Cybersecurity Certificate is to offer current (and incoming) degree-seeking undergraduate students an increasingly important curriculum, preparing them to understand the challenges of cybersecurity, identify potential threats, and design effective countermeasures. The need for cybersecurity experts is broadly recognized, with 28% growth in demand for information security analysts projected from 2016 to 2026. The certificate is affiliated with the B.S. degrees in Computer Science and in Computer Engineering. Today, software and hardware security are a growing aspect of a computer scientist's or computer engineer's profession. Neither degree program has a systematic curriculum to address the emerging need for cybersecurity experts. The certificate will complement standard curricula of the two programs with courses from Electrical and Computer Engineering, Computer Science, and Information Science and culminating in an independent study project, report, and presentation on a cybersecurity topic. The initial projected enrollment is 10 students, with a steady-state enrollment projection of 30-35 students.

Aaron

Aaron M. Cramer  
Associate Professor and Director of Graduate Studies  
Electrical and Computer Engineering  
Senate's Academic Programs Committee Chair  
University of Kentucky  
859-257-9113  
aaron.cramer@uky.edu

## NEW UNDERGRADUATE CERTIFICATE

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) <sup>1</sup> :	3-13-18	
	<input checked="" type="checkbox"/> 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 <sup>2</sup> ): <i>College</i>		
1d	Proposed certificate name: <i>Cybersecurity</i>		
1e	CIP Code <sup>3</sup> : <i>11.1003</i>		
1f	Requested effective date:	<input checked="" type="checkbox"/> Fall semester following approval.	OR <input type="checkbox"/> Specific Date <sup>4</sup> : <i>Fall 20</i>
1g	Contact person name: <i>Miroslaw Truszczyński</i>	Email: <i>mirek@cs.uky.edu</i>	Phone: <i>(859)-257-6738</i>
2. OVERVIEW			
2a	Provide a brief description of the proposed new undergraduate certificate. (300 word limit)		
	<i>The purpose of the Cybersecurity Certificate is to offer current (and incoming) degree-seeking undergraduate students in the College of Engineering an increasingly important curriculum preparing them to understand challenges of cybersecurity, identify potential threats and design effective countermeasures.</i>		

<sup>1</sup> You can reach Institutional Effectiveness by phone or email (257-2873 or [institutionaleffectiveness@uky.edu](mailto:institutionaleffectiveness@uky.edu)).

<sup>2</sup> Only cross-disciplinary certificates may be homed at the college level.

<sup>3</sup> In consultation with the Undergraduate Council Chair and Registrar, identify the appropriate CIP code(s) prior to college-level approval.

<sup>4</sup> 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.

**NEW UNDERGRADUATE CERTIFICATE**

2b	This proposed undergraduate certificate (check all that apply):		
	<input checked="" type="checkbox"/>	Is cross-disciplinary <sup>5</sup> .	
	<input type="checkbox"/>	Is certified by a professional or accredited organization/governmental agency.	
	<input checked="" type="checkbox"/>	Clearly leads to advanced specialization in a field.	
2c	<b>Affiliation.</b> Is the undergraduate certificate affiliated with a degree program?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	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)		
	<i>The certificate is affiliated with the BS degrees in Computer Science and in Computer Engineering. Today, software and hardware security are an increasingly important aspect of a computer scientist's or computer engineer's profession. Neither degree program has a systematic curriculum to address the emerging need for cybersecurity experts. The certificate will complement standard curricula of the two programs with courses offering a structured curriculum preparing students to face the challenges of software and hardware security.</i>		
2d	<b>Duplication.</b> 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.		
	<b>Cybersecurity having been recognized as an area of critical importance to national security and economic development. Many institutions are starting to include cybersecurity courses in their computer science and computer engineering curricula. The demand and the importance of the problem makes it imperative. Thus, duplication is unavoidable and, in fact, desirable.</b>		
2d	<b>Rationale and Demand.</b> Explain the need for the new undergraduate certificate (e.g. market demand and cross-disciplinary considerations). (300 word limit)		
	<i>Cybersecurity has emerged as an area of major importance. The need for cybersecurity experts is broadly recognized. According to the Bureau of Labor Statistics employment of information security analysts is projected to grow 28 percent from 2016 to 2026, much faster than the average for all occupations. Demand for information security analysts is expected to be very high, as these analysts will be needed to create innovative solutions to prevent hackers from stealing critical information or causing problems for computer networks. (cf. <a href="https://www.bls.gov/ooh/computer-and-information-technology/information-security-analysts.htm">https://www.bls.gov/ooh/computer-and-information-technology/information-security-analysts.htm</a>)</i>		
2e	<b>Target audience.</b> Check the box(es) that apply to the target student population.		
	<input checked="" type="checkbox"/>	Currently enrolled undergraduate students.	
	<input type="checkbox"/>	Post-baccalaureate students.	
2f	Describe the demographics of the intended audience. (150 word limit)		
	<i>The intended audience are computer science and computer engineering majors. However, the certificate is also likely to attract electrical engineering students and, occasionally, students from other engineering departments, as well as from mathematics.</i>		
2g	<b>Projected enrollment.</b> What are the enrollment projections for the first three years?		

<sup>5</sup> 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.

**NEW UNDERGRADUATE CERTIFICATE**

		Year 1	Year 2 (Yr. 1 continuing + new entering)	Year 3 (Yrs. 1 and 2 continuing + new entering)
	Number of Students	10	25	30-35

2h	<b>Distance learning (DL).</b> Initially, will any portion of the undergraduate certificate be offered via DL?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
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If "Yes," please indicate below the percentage of the certificate that will be offered via DL.

1% - 24% <input type="checkbox"/>	25% - 49% <input type="checkbox"/>	50% - 74% <input type="checkbox"/>	75 - 99% <input type="checkbox"/>	100% <input type="checkbox"/>
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If "Yes," describe the DL course(s) in detail, including the number of required DL courses. (200 word limit)

**3. ADMINISTRATION AND RESOURCES**

3a	<b>Administration.</b> Describe how the proposed undergraduate certificate will be administered, including admissions, student advising, retention, etc. (150 word limit)
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*Any student may apply. The intended start semester for the program is the second semester of the student's junior year, although some students could be admitted earlier or as late as at the start of their senior year. Every year we will reach to sophomores in the targeted programs to inform them about the program and to encourage them to apply. The application process will consist of students submitting a written statement about career goals and a follow-up interview with a member of the faculty of record. After admission, all students enrolled in the program will meet every semester with the director of the program or a faculty of record to discuss their progress, course selection and career goals.*

3b	<b>Faculty of Record.</b> 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)
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- Selection criteria;
- Whether the member is voting or non-voting;
- Term of service; and
- Method for adding/removing members.

*Faculty of record will come from the Computer Science and the Electrical and Computer Engineering Departments, each department contributing at least three and no more than four members appointed by the respective department chairs for three-year terms. They will have appropriate experience in computer software and hardware, and computer, network and hardware security. The faculty of record will be responsible for the oversight and direction of the program and will all be voting members.*

*The first Director or two co-Directors of the Program will be appointed for a three-year term by the Dean of the College of Engineering upon a joint recommendation of the Chairs of the Computer Science and the Electrical and Computer Engineering Departments. They will be selected from members of the faculty of record. The faculty of record will subsequently be responsible for establishing a method to select its own director/co-directors.*

**NEW UNDERGRADUATE CERTIFICATE**

3c	<b>Advisory board.</b> Will the undergraduate certificate have an advisory board <sup>6</sup> ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
If "Yes," please describe the standards by which the faculty of record will add or remove members of the advisory board. (150 word limit)			
If "Yes," please list below the <u>number</u> of each type of individual (as applicable) who will be involved in the advisory board.			
Faculty within the college who are within the home educational unit.			
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.			
Members of industry.			
Community volunteers.			
Other. Please explain:			
<b>Total Number of Advisory Board Members</b>			
3d	<b>Course utilization.</b> Will this undergraduate certificate utilize courses from other academic units?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
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 other units' chair/director <sup>7</sup> from which individual courses will be used. The letter must include demonstration of true collaboration between multiple units <sup>8</sup> 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.			
3e	<b>Financial Resources.</b> What are the (non-course) resource implications for the proposed undergraduate certificate, including any projected budget needs? (300 word limit)		
<i>The College of Engineering will provide a \$4,000/year stipend for the Director of the Certificate to compensate for the administration and organization of the program. Note: Co-Directors will receive a \$2000/year stipend.</i>			
<i>The College of Engineering will also provide resources to develop a website to advertise the certificate program and allow applicant to apply to the certificate program. Additional marketing materials will also be developed by the College of Engineering, as necessary.</i>			
3f	<b>Other Resources.</b> Will the proposed undergraduate certificate utilize resources (e.g. departmentally controlled equipment or lab space) from additional units/ programs?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
If "Yes," identify the other resources that will be shared. (150 word limit)			

<sup>6</sup> 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.

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

<sup>8</sup> Show evidence of detailed collaborative consultation with such units early in the process.

**NEW UNDERGRADUATE CERTIFICATE**

	<p>If “Yes,” two pieces of supporting documentation are required.</p> <p><input type="checkbox"/> Check to confirm that appended to the end of this form is a letter of support from the appropriate chair/director<sup>9</sup> of the unit whose “other resources” will be used.</p> <p><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.</p>
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**4. IMPACT**

<b>4a</b>	<b>Other related programs.</b> Are there any related UK programs and certificates?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
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	If “Yes,” describe how the new certificate will complement these existing UK offerings. <i>(250 word limit)</i>
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	<p>If “Yes,” two pieces of supporting documentation are required.</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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.</p>
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**5. ADMISSIONS CRITERIA AND CURRICULUM STRUCTURE**

<b>5a</b>	<b>Admissions criteria.</b> List the admissions criteria for the proposed undergraduate certificate. <i>(150 word limit)</i>
	<i>In order for students to be admitted, they must be enrolled in an undergraduate degree program. They must have completed CS 270, EE 287 or have comparable experience to be assessed by the Faculty of Record. In addition, students must submit an application for the certificate program and go through the program interview process. Selections are made based on input by the faculty of record.</i>

<b>5b</b>	<b>Core Courses.</b> List the required courses below.
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Prefix & Number	Course Title	Credit Hrs	Course Status <sup>10</sup>
	<i>See Attached Course Plan</i>		Select one....
			Select one....
			Select one....
			Select one....
			Select one....

<b>5c</b>	<b>Elective courses.</b> List the electives below.
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Prefix &	Course Title	Credit	Course Status <sup>11</sup>
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<sup>9</sup> A dean may submit a letter only when there is no educational unit below the college level, i.e. there are no departments/schools.

<sup>10</sup> 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”).

**NEW UNDERGRADUATE CERTIFICATE**

Number		Hrs	
	<i>See Attached Course Plan</i>		Select one....
			Select one....
			Select one....
			Select one....
			Select one....
			Select one....
		<b>Total Credit Hours:</b>	
5d	Are there any other requirements for the undergraduate certificate? If "Yes," note below. (150 word limit)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<i>All students will submit a final report on a selected topic in cybersecurity, to be approved by the certificate director or co-director, and will make an oral presentation (taken as final exam) to a group of members of the faculty of record. This is a part of the course (either CS395 or EE395) requirement.</i>			
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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<i>For students who are interested in pursuing careers in information technology, the Cybersecurity Certificate enhances traditional educational opportunities offered within the University of Kentucky's existing degree programs by equipping students with skills to identify, analyze and understand cybersecurity threats, and design and implement appropriate effective countermeasures. The certificate targets students in the computer science, computer engineering and electrical engineering programs. However, other students with appropriate background are also encouraged to apply.</i>			
<b>6. ASSESSMENT</b>			
6a	<b>Student learning outcomes.</b> 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)		
	<ol style="list-style-type: none"> <li><i>1. Students will apply computer science and computer engineering concepts and techniques to develop solutions to cybersecurity problems.</i></li> <li><i>2. Students will demonstrate an understanding of contemporary cybersecurity issues.</i></li> <li><i>3. Students will effectively communicate cybersecurity problems, threats and solutions in terms appropriate for audiences of varying technical sophistication.</i></li> </ol>		
6b	<b>Student learning outcome (SLO) assessment.</b> 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)		
	<p><i>SLO1: Artifacts will come from the projects and exams in the core certificate courses.</i></p> <p><i>SLO2: Artifacts will come from the Final Report and Final Exam.</i></p> <p><i>SLO3: Artifact will come from the Cybersecurity Certificate Final Report and Final Exam.</i></p> <p><i>Artifacts will be assessed using standardized rubrics.</i></p>		

<sup>11</sup> 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").

**NEW UNDERGRADUATE CERTIFICATE**

6c	<p><b>Certificate outcome assessment<sup>12</sup>.</b> 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)</p> <p><i>Program success will be evaluated on a 3-year cycle matching the cycle of SACS evaluation needs. Student performance and meeting of SLO outcomes will be used as primary success indicators. Secondary program success indicators will be measured by evaluating student placement upon graduation.</i></p>

**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
8a	(Within College) <i>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>		
	<i>College of Engineering</i>	<i>3/20/18</i>	<i>Kimberly Anderson / 7-1864 / kimberly.anderson@uky.edu</i>
			/ /
			/ /
			/ /

8b	(Collaborating and/or Affected Units)		
			/ /
			/ /
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			/ /

<sup>12</sup> This is a plan of how the certificate will be assessed, which is different from assessing student learning outcomes.



**NEW UNDERGRADUATE CERTIFICATE**

8c	(Senate Academic Council)	<b>Date Approved</b>	<b>Contact Person Name</b>
	Health Care Colleges Council (if applicable)		
	Undergraduate Council	5/29/18	<i>Joanie Ett-Mims</i>

## **Undergraduate Certificate in Cybersecurity Course Plan**

Students must earn 13-15 credit hours by taking these courses:

1. EE 576 - Cybersecurity

2. Two out of the following three courses:

CS 378 - Introduction to Cryptology

CS 564 - Computer Security (new course)

CS 572 - Network Security (new course)

3. One course from the following list, or a course approved by the certificate director/co-director:

CS 371 - Introduction to Computer Networking

CS 505 - Intermediate Topics in Database Systems

CS 570 - Modern Operating Systems

CS 571 - Computer Networks

EE 380 - Microcomputer Organization

EE 480 - Computer Architecture

EE 586 - Communication and Switching Networks

ICT351 - Technology Security

ICT550 - Security Informatics

ICT552 - Cybercrime and Digital Law Enforcement

4. Finally, CS395 or EE395 for 1 to 3 credit hours with the certificate director/co-director or a designated faculty. As part of the course requirements, every student will submit a final report on a selected topic in cybersecurity, to be approved by the certificate director or co-director, and will make an oral presentation (taken as final exam) to a group of members of the faculty of record. The number of credit hours depends on the complexity of the topic and will be determined by the certificate director/co-director.

## Brandenburg, Barbara J

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**From:** Pearson, RaeAnne  
**Sent:** Tuesday, March 13, 2018 3:33 PM  
**To:** Brandenburg, Barbara J  
**Subject:** RE: Cybersecurity

Dear BJ,

Thank you for your email regarding the proposed program, **Cybersecurity, Undergraduate Certificate (11.1003)**.

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 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

University of Kentucky

Phone: 859-218-4009

Fax: 859-323-8688

Visit the Institutional Effectiveness Website: <http://www.uky.edu/ie>

**see blue.**<sup>™</sup>

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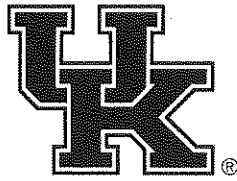
**From:** Brandenburg, Barbara J  
**Sent:** Tuesday, March 13, 2018 2:46 PM  
**To:** Pearson, RaeAnne  
**Subject:** RE: Cybersecurity

RaeAnne,

Computer Science has decided on CIP Code 11.1003.

Thanks for your help.

BJ Brandenburg  
College of Engineering  
Director of Student Records  
355-S F. Paul Anderson Tower  
University of Kentucky



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](http://www.engr.uky.edu)

March 20, 2018

To Whom It May Concern:

This letter is confirm that the faculty of the College of Engineering has reviewed and approved the attached proposal for an Undergraduate Certificate in Cybersecurity. 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 cursive script that reads "BJ Brandenburg".

BJ Brandenburg  
Director of Engineering Student Records

seeblue.

*An Equal Opportunity University*



**University of Kentucky**

**College of Engineering**

371 Ralph G. Anderson Bldg.

Lexington, KY 40506

P: 859-257-1864

F: 859-257-5727

[www.engr.uk](http://www.engr.uk)

September 17, 2018

Zongming Fei  
Dept of Computer Science  
College of Engineering

Dear Zongming

This is to confirm that in support of you directing the Cybersecurity Certificate Program, the College of Engineering will provide \$4000 this academic year to your department for your use which may include summer salary, course reduction, research supplies, student support, or travel.

In addition, our College of Engineering marketing team will provide the resources needed to develop a website and any other marketing materials needed to advertise the certificate program and will work with you in developing an online application.

Sincerely,

*Kimberly W. Anderson*

Kimberly W. Anderson  
Associate Dean for Administration and Academic Affairs  
Professor, Chemical Engineering  
Director, REU Program in Bioactive Interfaces and Devices

see blue.

*An Equal Opportunity University*



## 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)

21 September 2018

Professor Zongming Fei  
Professor of Computer Science  
Undergraduate Co-Director of the CyberSecurity Certificate  
Campus, Lexington, KY 40506

Dear Professor Fei:

It is my pleasure to thank you for agreeing to co-Direct the undergraduate Cybersecurity certificate, which is being established jointly between the Computer Science department and the Electrical and Computer Engineering department here at the University of Kentucky. I can confirm that the certificate program received the unanimous support of the faculty members of the Computer Science department, who were involved in the development, review, and final approval of the program. Excerpted from the minutes of the 13 December 2017 meeting is the following action:

December 13, 2017  
Cyber security Certificate proposal  
Requires 3 courses selected out of 4  
3 CS 1 ECE  
Project required defined by faculty of record  
- Report and presentation  
Chairs of CS and ECE will select groups of faculty  
Goldsmith – move to vote, Wasilkowski – second  
Unanimous vote by faculty.  
Present: Cheng, Cui, Fei, Finkel, Goldsmith, Griffioen,  
Harrison, Jaromczyk, Keen, Liu, Marek, Moore, Pike, Seales,  
Silvestri, Truszczynski, Wasilkowski, Yu, Zhang.  
Absent: Calvert, Hayes, Jacobs, Joiner, Manivannan, Klapper, Yang

As the Chairman of the Computer Science department, I strongly support this initiative on behalf of the department and recommend its approval.

Sincerely,

W. Brent Seales  
Professor and Chair

see blue.

Dr. Zongming Fei  
Undergraduate Certificate in Cybersecurity  
University of Kentucky  
Lexington, KY 40506

September 18, 2018

Dear Dr. Fei,

It is my pleasure to confirm the support of the Department of Electrical and Computer Engineering for the proposed undergraduate certificate program in Cybersecurity. Our department faculty have been involved with the development of this certificate program, have discussed it in detail, and have unanimously voted to support the program in a faculty meeting on December 1, 2017 (minutes attached).

The area of Cybersecurity is an extremely important and rapidly advancing field, and we believe that it is extremely important to the future of both our undergraduate and graduate programs in the areas of Electrical Engineering and Computer Engineering. ECE has recently made multiple faculty hires in this area and plan to continue developing both courses and research activities in this direction.

As the department chair for the Department of Electrical and Computer Engineering, I strongly support the proposed Cybersecurity certificate program on behalf of our department and recommend its approval.

Sincerely,



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

see blue.



Minutes (approved)

Attendees: Ashley, Chen, Cramer, Donohue, Hannemann, Heath, Ionel, Johnson, Letellier, Liao, Lu, JE Lumpp, JK Lumpp, Ricco, Smith, Thapliyal, Young, Zhang .

The meeting was called to order at 2:03 pm.

The faculty reviewed the minutes from the faculty meeting on 10/20/17 and approved them unanimously.

Dr. Johnson shared information on the University unexcused and excused attendance policies, and DRC accommodations requirements were discussed. Per senate rules, faculty member have significant freedom to establish penalties for unexcused absences as long as these are clear in the syllabus, but must be careful to follow senate guidelines about excused absences, including those with DRC excuses. Faculty members must make a reasonable attempt to accommodate excused absences.

There was Faculty discussion and approval of several MFS Course Cross listings which had been put forward for consideration. Dr. Johnson recommended that MFS courses are 503, 526, 605, and 606 be approved for cross-listing based on discussions he had with ECE faculty who have been involved with or taught in the MFS program.

Dr. Ashley moved to approve cross-listing all four of these courses with EE numbers. The motion was seconded by Yuan Liao, and approved unanimously.

Dr. Cramer noted that MFS 503 course needs a different cross listing course number, as we already have an EE 503 course offering.

There was Faculty discussion on the Cyber Security Certificate. Dr. Johnson said that he had already discussed previous faculty concerns with the certificate proposal with the CS department, and clarified that CS 500-level courses are allowed and commonly taken by undergraduate students as electives. In addition, he had confirmed that the prerequisite requirements would allow students in the Computer Engineering or Electrical Engineering programs to complete the certificate.

Dr. Johnson said that the CS department had offered to have a co-director for this certificate program and asked if faculty thought this would be valuable. Although there was not complete agreement on this point, the majority of the faculty thought it would be helpful to identify an ECE faculty member to be a co-director or have some level of official responsibility for the program.

Dr. Hannemann moved to approve the Cyber Security certificate program as proposed. Dr. Liao seconded the motion, and it was approved unanimously.

Jim Lumpp shared an overview of current BSCPE Electives and several concerns with upcoming courses for our CPE Students: He reviewed the plan of study for 2018, and noted that the free elective has been dropped, and a 1-credit professions course CPE 200 has been added. There was some discussion on

Minutes (approved)

adding a similar course for the EE program, and Dr. Johnson noted that he would be in favor of this and would like the ECE undergraduate committee to discuss this further.

There were two notes made on corrections to the Computer Engineering bulletin content. The first is to exclude EE 595 from the list of electives, and the second is a spelling correction for “consultation” (sic).

If any faculty have recommendations for EE courses that could be included with the CPE Curriculum, please contact Dr. Lump. .

Dr. Smith added that we need to put a minor change through to include EE 595.

Dr. Johnson reminded the faculty to get travel documents to the staff sooner rather than later.

We are planning to have a Graduate Poster Symposium this spring for the first time. The tentative date is March 2, 2018, and we will be finalizing this soon. We are working on identifying a good location and will share information with faculty when it is planned.

Senior Design day will be December 4<sup>th</sup>.

There was discussion of the ECE tracks for the Aerospace Certificate program: Four such certificate tracks have been created and reviewed by sub-groups of ECE faculty in those areas, to go with Mechanical Engineering tracks that have been approved and are already in place.

Dr. Hannemann moved to approve the ECE tracks for the Aerospace Certificate program. Dr. Lu seconded, and the motion was unanimously approved.

Dr. Ashley added a note that it would be valuable to include a professional development course in the Certificate programs. .

There was discussion of cross-listing proposals that had been put forward by the ME department, including both cross-listing of four ME courses as EE course numbers and cross-listing of four EE courses as ME course numbers. These included the following courses:

- ME645 — Modern Multivariable Feedback Control
- ME672 — Nonlinear Systems and Control
- ME599 — Introduction to Robust Control
- EE572 (as ME572)
- EE611 (as ME671)
- EE613 (as ME673)
- EE614 (as ME674)

The cross-listing of our EE courses as ME numbers has already been approved by the ME department, and we just need to confirm that this is OK. There were no objections noted by faculty. It was also noted

Minutes (approved)

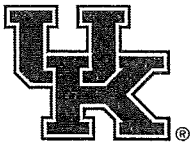
that the ME courses being requested for cross-listing are all control area courses with significant EE-related technical content and that they could be valuable for our students.

Dr. Zhang moved to approve the cross-listing of ME 645, ME 6723, and ME 599 as EE courses. Dr. Ashley seconded the motion and it was unanimously approved.

Future faculty meetings will be announced soon for the Spring 2018 semester.

Dr. Zhang provided some information to faculty about international relationships with partner institutions that he is developing. There are several initial agreements in place but we are working on the details for admitting students. This will include tuition share, 2+2 agreements, and a number of different structures. Eight different programs are being developed. These will go through both the college and UK for formal approval before finalizing.

The meeting adjourned at 2:50pm.



**University of Kentucky**  
College of Communication & Information  
School of Information Science

May 29, 2018

Mirosław Truszczyński  
Department of Computer Science  
309 Davis Marksbury Bldg.  
329 Rose St.  
Lexington, KY 40506

Dear Mirosław,

I hope this letter finds you well. I write to confirm that the School of Information Science supports the inclusion of the following courses as part of the Cybersecurity certificate that you have proposed:

ICT 351: Technology Security  
ICT 550 Security Informatics (offered both as graduate and undergraduate)  
ICT 552 Cybercrime and Digital Law Enforcement (offered both as graduate and undergraduate)

Please let me know if you have any questions.

Regards,

A handwritten signature in black ink, appearing to read 'Troy Cooper', written over a light blue horizontal line.

Troy Cooper  
Assistant Professor  
Director of Undergraduate Studies  
School of Information Science  
University of Kentucky  
859.257.9589  
[troy.cooper@uky.edu](mailto:troy.cooper@uky.edu)

see blue.

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