UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: __ Charles Boncelet _____________________ phone number _X 8008________

Department: __ Electrical and Computer Engineering __email address boncelet@ece.udel.edu

Date: __ 11/25/13 ______________________________________________________________________

Action: ___________ Add New Minor ____________________________________________________

(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective term __students can add minor in 14F, but cannot graduate with the minor until 15S__

(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: ____________________________________________

(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: ___ Cybersecurity ________________________________________________

Proposed new name for revised or new major / minor / concentration / academic unit
(if applicable)

Revising or Deleting:

Undergraduate major / Concentration: ____________________________________________

(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor: __________________________________________________________

(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: __________________________________________

(Must attach your Graduate Program Policy Statement)

Graduate Program of Study: ______________________________________________________

(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration: __________________________________________________

Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.
List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations?
(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter “None”)

- CPEG/ELEG/CISC/MISY 465/665 Introduction to Cybersecurity
- CPEG/ELEG 494/694 System Hardening & Protection
- CPEG/ELEG 495/695 Digital Forensics
- CPEG/ELEG 496/696 Topics in Cybersecurity

These and other existing courses will form the basis of a Cybersecurity minor to enable and recognize deeper study in the field. The 465 and 494 classes have been taught as experimental (467) classes. The 495 class will be developed for 14F-15S.

Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: [http://www.ugs.udel.edu/gened/](http://www.ugs.udel.edu/gened/)

This minor in cybersecurity and the associated new courses, address several of the 10 UD goals of undergraduate education. Increasing knowledge of computer and network security is increasingly critical to Goal #1 to “attain effective skills in … the use of information technology.” The complex technical areas covered in a cybersecurity education furthers Goal #2 to “Learn to think critically to solve problems.” And the programs desire to combine subject theory the hands on experience of lab exercises will provide students a deep understanding of the material taught in lecture as well as provide an avenue for self-study. This directly addresses Goal #7 to “develop the ability to integrate academic knowledge with experiences that extend the boundaries of the classroom.”

Identify other units affected by the proposed changes:
(Attach permission from the affected units. If no other unit is affected, enter “None”)
- Department of Computer and Information Science, approval attached
- Department of Mathematical Sciences, approval attached
- Department of Sociology and Criminal Justice, approval attached

Describe the rationale for the proposed program change(s):
(Explain your reasons for creating, revising, or deleting the curriculum or program.)

Establishing high quality Cybersecurity educational programs is a top national priority as well as a regional imperative. This minor is being introduced with a suite of new courses to help infuse cybersecurity fundamentals into UD CPEG and CIS BS degree programs. This and other courses will also form the basis of a Cybersecurity minor to enable and recognize deeper study in the field.

Program Requirements:
(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and include a side-by-side comparison of the credit distribution before and after the proposed change.)

**MINOR IN CYBERSECURITY**

A minor in Cybersecurity may be earned by a student in any University bachelor's degree program. This minor provides students with an opportunity to help infuse cybersecurity fundamentals into other degree programs. To qualify for a Minor in Cybersecurity, students must complete a minimum of 18 credits as described below with a minimum grade of C- in each course.
Course Requirements

1. All students must take the following four courses:

   - CPEG 465(b) Introduction to Cybersecurity 3
   - CPEG 494(b) System Hardening and Protection 3
   - CISC 361 Operating Systems 3
   - CPEG 419 / CISC 450 Computer Communications Networks 3

2. And two of the following courses:

   - CPEG 495(b) Digital Forensics 3
   - CPEG 496(b) Topics in Cybersecurity 3
   - MATH 549 Coding Theory and Cryptography 3
   - CRJU 457 Criminal Evidence 3

TOTAL CREDITS 18

a. A 600-level and cross-listed (ELEG, CISC, MISY) versions of these courses are acceptable.

b. The listed 400 and 600-level courses are open to any student who has completed requirement (1) and the necessary prerequisites (or obtained permission of instructor). Other courses can be included upon approval by the minor administration committee.

Further inquiries about the Cybersecurity Minor can be made to Professor Chase Cotton at (302) 831-8517 or ccotton@udel.edu.
Cybersecurity Minor - Approval of Inclusion of CISC361

Errol Lloyd <elloyd@udel.edu>  
To: Chase Cotton <chase.cotton@gmail.com>  
Cc: "Errol L. Lloyd" <elloyd@cis.udel.edu>, Chase Cotton <ccotton@udel.edu>, Kenneth Bannor <bannor@udel.edu>, "Nelson, Deborah L." <dnelson@udel.edu>  

Chase,

Definitely!

Errol

On Mon, Nov 25, 2013 at 11:46 AM, Chase Cotton <chase.cotton@gmail.com> wrote:

Dr. Lloyd,

I wanted to confirm your approval of the inclusion of "CISC361 Operating Systems" as a required foundation course in the Cybersecurity minor that is being proposed.

thanks,

Chase

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Chase Cotton, Ph.D.
Director, Center for Information and Communications Sciences (CICS)
Professor, Electrical and Computer Engineering
104 Evans Hall
University of Delaware
Newark, DE 19716
office +1 302-831-8517
mobile +1 703-868-5658
Hi Chase,

Meant to send this Monday... the chair confirmed during Thanksgiving (not in person, of course!) that our department had no problems with Math549 being included as you described.

Hope the end of semester isn’t quite as hectic for you as it has so far been for me. I’ve stupidly set myself up to fly to Australia next Tuesday, and so am finding myself a little swamped! Oh well, it’s almost over.

cheers,
Robert.

______________________________
Dr. Robert Coulter
Associate Professor
520 Ewing Hall
Department of Mathematical Sciences
University of Delaware
Newark DE 19716
USA

______________________________
Hi Chase,

I think this would be fine. Looks like an interesting minor.

Best, Kirk

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From: Chase Cotton [mailto:chase.cotton@gmail.com]
Sent: Monday, January 06, 2014 12:57 PM
To: John Polk; Kirk Williams
Subject: Re: CRJU 457 Criminal Evidence as an elective for a new Cybersecurity minor

attachment

On Mon, Jan 6, 2014 at 12:48 PM, Chase Cotton <chase.cotton@gmail.com> wrote:

John, Kirk,

I'm faculty in Electrical and Computer Engineering and am one of four faculty, along with the chairs in ECE and CIS pulling together a cybersecurity minor under an NSF S&F capacity building grant.

One of the technical electives in the minor is a course in digital forensics (i.e. the recovery and investigation of information found on digital devices, typically part of a computer crime investigation). One subject area typically offered in conjunction with the teaching digital forensics is a foundation in the legal issues and processes associated with criminal evidence.

We would like to include your department's CRJU457 Criminal Evidence course to meet that need for students interested in the legal issues in more depth. It would be one of several elective courses offered in the minor. I've attached a short deck highlighting the structure of the minor and how your course would fit in.

I would not expect the student load to be significant. When I researched CRJU457 last year, it appeared there were usually free seats in the section.

Would it be possible for me to come by this week and discuss. A call would also work (as I see John is adjunct and is probably not on campus in January).

much thanks,

Chase

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Chase Cotton, Ph.D.
Director, Center for Information and Communications Sciences (CICS)
Professor, Electrical and Computer Engineering
104 Evans Hall
University of Delaware
Newark, DE 19716
office +1 302-831-8617
mobile +1 703-989-6868