48. Special Consideration

**Dwight Look College of Engineering**

Minor in Cybersecurity

Request for a new minor
SPECIAL CONSIDERATION
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Dwight Look College of Engineering
Minor in Cybersecurity
Request for a new minor
Texas A&M University
Proposed Minor Field of Study

Name of Minor Program: Cybersecurity

Department: Dwight Look College of Engineering

College: Dwight Look College of Engineering

Will grant a minor ☑ Yes ☐ No Academic Year: 2016

A selection from among the following courses will constitute a minor field of study.

A. The following 11 hours of course work are required.
   - CSCE 206 (or CSCE 221)
   - CSCE 110 (or CSCE 121)
   - TCMG 308

B. Select 6 hours from the following courses.
   See Appendix A for course listings

Please indicate further requirements such as grade point requirement, prerequisites, resident (if above the minimum 6 hours at the 300- to 400-level), capstone or methods courses.

Minimum of 17 hours required.

Minimum of 6 hours at 300- to 400-level

(1) Minimum required GPA to declare minor is a 2.5, (2) Obtain a "C" or better in each course taken towards minor, (3) Achieve overall GPA of 2.5 in approved minor coursework.

Reviewed and approved by:

[Signatures and dates]

Department Head/Program Director Date AOC Dean of College Date
Appendix A- Cybersecurity Minor

To earn a minor in cybersecurity, a student must complete a minimum of 17 credit hours that includes the prerequisite programming and cybersecurity foundational courses (CSCE 206 (or 221), CSCE 110 (or 121), TCMG 308) as well as 2 elective courses totaling 6-8 credit hours selected from the following 4 categories:

1) Courses providing additional engineering discipline exposure and experiences to enhance student understanding of cybersecurity. Courses matching (1) include: CSCE 410, CSCE 431, CSCE 434, CSCE 463, CSCE 464, CSCE 465, ECEN 424, ESET 315, and ESET 415.

2) Courses providing background in forensic investigations and methodology of collecting and preserving forensic data. Courses matching (2) include FIVS 123 and FIVS 205.

3) Courses providing applied information technology skills including cybersecurity in workplace utilization and business analysis scenarios. Courses matching (3) include ISYS 310, ISYS 315, ISYS320, TCMG 303, TCMG 316, and TCMG 476.

4) Courses providing additional theory to hone application skills. The courses listed under this category provide and additional theoretical framework directly applicable to enhancing cybersecurity awareness, policy, and skillset. Courses matching (4) include MATH 470, MATH 471, and POLS 447.

Elective list summary (students must take 2 courses from the following list):

<table>
<thead>
<tr>
<th>CSCE 410</th>
<th>CSCE 431</th>
<th>CSCE 434</th>
<th>CSCE 463</th>
<th>CSCE 464</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE 465</td>
<td>ECEN 424</td>
<td>ESET 315</td>
<td>ESET 415</td>
<td>FIVS 123</td>
</tr>
<tr>
<td>FIVS 205</td>
<td>ISYS 310</td>
<td>ISYS 315</td>
<td>ISYS 320</td>
<td>MATH 470</td>
</tr>
<tr>
<td>MATH 471</td>
<td>POLS 447</td>
<td>TCMG 303</td>
<td>TCMG 316</td>
<td>TCMG 476</td>
</tr>
</tbody>
</table>
DEPARTMENTAL LETTERS OF SUPPORT
MINOR IN CYBERSECURITY
MEMORANDUM

November 16, 2015

TO: Dr. Dilma DaSilva, Department Head
   Department of Computer Science and Engineering

FROM: Dr. Daniel J. Ragsdale, Director, Texas A&M Cybersecurity Center, and Professor of Practice

SUBJECT: New Minor in Cybersecurity

Significant data breaches are revealed in the news almost daily and, sadly, are becoming all too routine. As a result, there is now a groundswell of demand, growing daily, for a more cyber savvy workforce and, more specifically, for a corps of well-educated cybersecurity professionals. These professionals, who, in the past, came almost exclusively from the ranks of Computer Science, Computer Engineering, or Management Information Systems majors, are now being drawn from a pool of recent graduates with degrees in an increasingly diverse set of academic majors. Many of our key partners in industry are asking us to move quickly to prepare our graduates for careers in cybersecurity professions and, more broadly, to help contribute to the development of a workforce that fully appreciate the increasing threat posed by malicious cyber actors.

Fortunately, there is a significant, but underserved, level of interest among many of our students and faculty who wish to learn more about this vitally important field. These students and faculty include those who are interested in the deeply technical aspects of the field, as well as those who are interested in the human dimensions of cybersecurity. In general terms, we hope to leverage the intense interest of these students and faculty and, at the same time, address the increasing demand for cyber savvy graduates. With that, the purpose of the Cybersecurity minor is to substantially increase the number of graduates who possess some of the knowledge and skills necessary to address the ever-evolving threats posed by malicious actors and groups in cyberspace.

The Cybersecurity minor is designed to appeal to both less technically-oriented and more technically-oriented undergraduate students, across multiple departments, in multiple colleges. All students who enroll in the minor, including less-technically oriented students, will acquire a basic understanding of programming and a firmly grounded understanding of cyber ethics. Due to the interdisciplinary nature of cybersecurity, we are able to identify 20 undergraduate elective courses from across the University that include relevant cybersecurity content. The inclusion of these courses in the minor, as elective coursework, will allow students to specialize in the area of cybersecurity that is most closely aligned with their respective interests and their degree plans.
We request and would greatly appreciate your support from the Department of Computer Science and Engineering for this new minor, to include the specific coursework as outlined below:

- CSCE 110 - for non-majors (core requirement)
- CSCE 206 - for non-majors (core requirement)
- CSCE 121 – for majors (core requirement)
- CSCE 221 - for majors (core requirement)
- CSCE 410 (elective)
- CSCE 431 (elective)
- CSCE 434 (elective)
- CSCE 463 (elective)
- CSCE 464 (elective)
- CSCE 465 (elective)

Daniel J. Ragsdale, Ph.D.
Director, Texas A&M Cybersecurity Center and Professor of Practice
Texas Engineering Experiment Station Service (TEES) and the Department of Computer Science and Engineering
ECEN 424

-------- Forwarded message --------
From: Miroslav Begovic <begovic@ece.tamu.edu>
Date: Mon, Nov 16, 2015 at 12:10 AM
Subject: Re: Cybersecurity Minor
To: Daniel "Rags" Ragsdale <rags@tamu.edu>
Cc: Le Xie <le.xie@tamu.edu>, Steve Wright <smwright@tamu.edu>, "Karsilayan, Aydin I"
<karsilay@ece.tamu.edu>, "Hanson, Debra C" <d-hanson@tamu.edu>

Dear Prof. Ragsdale,

As per your request, I would like to inform you that the Department of Electrical and Computer Engineering supports interdisciplinary undergraduate Cybersecurity Minor as proposed by the Department of Computer Science and Engineering. We would all, of course, like to learn more about the details, but in principle, I believe that I speak on behalf of all of my colleagues when I express support for the initiative.

Best regards,
Miroslav
November 16, 2015

MEMORANDUM

TO: Dr. Reza Langari, Department Head
Department of Engineering Technology & Industrial Distribution

FROM: Dr. Daniel J. Raysdale, Director, Texas A&M Cybersecurity Center, and Professor of Practice

SUBJECT: New Minor in Cybersecurity

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We request and would greatly appreciate your support from the Department of Information & Operations Management for this new minor, to include the specific coursework as outlined below:
- ESET 315
- ESET 415

Daniel J. Ragsdale, Ph.D.
Director, Texas A&M Cybersecurity Center and Professor of Practice
Texas Engineering Experiment Station Service (TEES) and the Department of Computer Science and Engineering
5 November 2015

MEMORANDUM

To: Dr. Daniel J. Ragsdale, Director, Texas A&M Cybersecurity Center, and Professor of Practice

From: Dr. David Ragsdale, Head, Entomology

Subject: New Minor in Cybersecurity

We have reviewed your proposal for a new academic minor in Cybersecurity and approve your request to include FIVS 123 Forensic Investigations and FIVS 205 Introduction to Forensic & Investigative Sciences as elective courses for students seeking this minor.

Thank you for considering the role forensic science plays in cybersecurity, and we look forward to having students with this interest in our courses.

Cc: Dr. Adrienne Brundage, Instructor, FIVS 205
    Dr. Kevin Heinz, Instructor, FIVS 123 and Director, Forensic & Investigative Sciences Program
    Dr. Jeffery Tomberlin, Associate Director, Forensic & Investigative Sciences Program
    Dr. Pete D. Teel, Associate Department Head for Academic Programs
MEMORANDUM

TO: David Ragsdale
   Director, Texas A&M Cybersecurity Center

FROM: Rich Metters
      INFO Department Head, Mays Business School
      4217 TAMU

DATE: November 11, 2015

SUBJECT: Support for the cybersecurity minor

The INFO Department supports the move by the Cybersecurity Center to have an interdisciplinary undergraduate minor.

[Signature]
Hi Tim:
I have no objections, and we will be happy to meet with them. If anything, we'd love to offer
more of our courses for their program.

Traveling also; greetings from Vienna,

Emil

On 11/09/2015 10:04 AM, Scott, Timothy P wrote:

Emil,

I spoke with Trez this weekend. They are anxious to get approval as the deadline for this year's catalog
is November 20. The two courses below are for electives only in the minor. Do you have an objection to
them being listed?

MATH 470: Communications and Cryptography and

MATH 471: Communications and Cryptography II

Timothy P. Scott, Ph.D. | Associate Dean for Undergraduate Programs & Development
Associate Professor of Biology & Science Education Policy
College of Science | Texas A&M University
3257 TAMU | College Station, TX 77843-3257
514 Blocker Building
ph: 979.845.7362 | tim@science.tamu.edu | fa. 979.845.6077

Be curious.

This message contains information which may be confidential and privileged. Unless you are the addressee (or authorized to receive for the
addressee), you may not use, copy or disclose to anyone the message or any information contained in the message. If you have received the
message in error, please advise the sender by reply email and delete the message.
On Thu, Oct 29, 2015 at 5:49 PM, Scott, Timothy P <tim@science.tamu.edu> wrote:

Trez,

I have emailed Paulo Lima-Filho, who is the Associate Head of Mathematics. He is currently traveling for the University. He should be getting back to you. This minor sounds very interesting! Thanks for thinking of us.

I'm

From: Trez Jones [mailto:rtjones@tamu.edu]
Sent: Thursday, October 29, 2015 4:37 PM
To: t-scott@tamu.edu
Subject: Math contact requested: Interdisciplinary Cybersecurity Minor being developed

Howdy sir,

I am working with the Department of Computer Science and Engineering on creating a truly interdisciplinary cybersecurity minor from 5 colleges/schools and 8 different academic departments across our campus.

One of those departments is... math! There are two courses math offers that we would like to include as electives within the new minor-

MATH 470: Communications and Cryptography and
MATH 471: Communications and Cryptography II

Do you know of a good contact within the math department to help get a dialogue started with them about potentially gaining a letter of support from the program?

Many thanks sir.

Respectfully,

Trez

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Robert T. "Trez" Jones, Ph.D.
University Professor of Practice, Center for Teaching Excellence
Director of Research Technology - Project ELLA-V
Caucus Leader for the Faculty Senate - College of Education and Human Development
Department of Educational Administration and Human Resource Development
Harrington Tower 560
Texas A&M University
College Station, TX 77843-4226
+1 979/845-2551

rtjones@tamu.edu
AFFIDAVIT

BE IT KNOWN, that on this the 16 November 2015

BEFORE ME, a duly sworn and competent authority in and for the State of Texas, NOTARY PUBLIC, and the undersigned affiant and competent witnesses appearing herein below, DID PERSONALLY APPEAR: ROBERT T. JONES, a person of the fully age of Majority, residing and domiciled in the State of Texas, County of Brazos.

WHO AFTER BEING DULY SWORN BY ME, did depose and state:

1. On Monday, November 2, 2015, I physically entered the Department of Political Science main office in the Allen building in order to determine whom to contact regarding the inclusion of POLS 447 in the Cybersecurity minor field of study that the Department of Computer Science and Engineering and the Department of Educational Administration and Human Resource Development are attempting to form.
2. I spoke with the front desk office assistant who started to let me know about the process of whom to contact.
3. The office assistant recommended Dr. Thornton, who, unfortunately was out on jury duty that day.
4. While I was discussing, the department head, Dr. William Clark, overheard and came by.
5. He offered to take care of the problem right there and agreed to allow us to include the course in the listing as an elective in the minor.
6. When I asked for a memo, he just asked if I could email, which I did within an hour and a half on Monday, November 2nd, 2015.
7. I requested a follow up on Friday, November 6th, 2015.
8. To date, I have not gotten back an emailed response to that request.
9. I believe that the intent of the department through the verbal agreed acknowledgement of the department head is sufficient to constitute inclusion of their course as an elective in the proposed minor.
10. Having reached the deadline date for filing with the Dwight Look College of Engineering, I am providing this document as recourse in order to afford the course being included as an elective in the minor field of study.

THIS DONE AND PASSED, before me, Notary Public, and the undersigned affiant and competent witnesses, after due reading of the whole, on the date and in the place aforesaid.

AFFIANT:

[Signature]

Robert T. Jones

STATE OF TEXAS

COUNTY OF BRAZOS

Subscribed and sworn to before me by Robert T. Jones

this the 16th day November 2015.

[Signature]

ROBBIE G. OWENS

MY COMMISSION EXPIRES

April 21, 2017

NOTARY PUBLIC

STATE OF TEXAS
Good morning,

I am writing to convey the enthusiastic support of the faculty and administration in the Department of Educational Administration and Human Resources for the proposed minor field of study in Cyber-security Studies. We look forwarding to partnering with faculty across the University as this minor becomes available to undergraduate students in Technology Management program and those in multiple majors in the departments and colleges you represent.

We understand that there are already more than 20 undergraduate courses from across the University system that include relevant cyber-security content. The inclusion of these courses in the minor, as elective coursework, will allow students to specialize in the area of cyber-security that is most closely aligned with their respective interests and their degree plans. Among those courses which may be included is TCMG 308, offered by the EAHR department.

Sincerely,
Karen Smith

Karen S. Smith, Ed. D.
Clinical Associate Professor and Undergraduate Program Coordinator
Educational Administration and Human Resource Development
College of Education and Human Development, Texas A & M University
Office Phone: 979-862-2932   Office Location: Harrington 532