UMBC
AN HONORS UNIVERSITY IN MARYLAND

Office of the Provost
University of Maryland, Baltimore County
1000 Hilltop Circle
Baltimore, Maryland 21250

PHONE: 410-455-2333
FAX: 410-455-1107
WEB: www.umbc.edu

interoffice

MEMORANDUM

DATE: March 25, 2016

TO: Rosemary Drohan

FROM: Antonio Moreira, Ph.D.
Vice Provost for Academic Affairs

SUBJECT: UDC in Cybersecurity Informatics

Attached please find the original proposal for an Upper Division Certificate in Cybersecurity Informatics. For the sake of expediency, I am also sending copies of this information simultaneously to the Faculty Senate, the Academic Planning and Budget Committee and the Undergraduate Council. Please coordinate with Drs. Shin, Walz and McDonough to obtain the endorsement from the shared governance process.

We look forward to receiving the Faculty Senate's review.

Thank you.

AM:slm
Attachment

Cc: Dr. Sarah Shin, President, Faculty Senate
Dr. Bruce Walz, Chair, APB
Dr. Susan McDonough
Dr. Julia Ross
Dr. Aryya Gangopadhyay
Ms. Beth Wells (w/o attachment)

Proposed New Academic Plan or Name Change to Existing Academic Plan

Required steps in the review and approval process for proposed new academic plans and name changes to existing academic plans vary depending upon a number of factors. The Provost's Office reviews each concept for a new academic plan or name change in light of UMBC campus governance procedures and USM/MHEC approval guidelines. As a result of this examination, **the boxes checked on page 2 of this form reflect the steps that have been identified as required for review of the proposed new academic plan or name change of an existing academic plan** shown below and attached.

Concept approved by the Program Concept Group: Date of PCG review: Date routing sheet sent:

UDC Cybersecurity Informatics (5/3) 2/14 3/10/16

This routing form and process is designed to enable more effective and efficient tracking of documents throughout the review and approval steps, ultimately leading to more timely completion of the process. This is especially important because in many cases MHEC has strict "windows" during which proposals must be submitted.

Instructions:

1. **Please do not detach this routing slip from the proposal.**

2. Regarding the proposed program acronym, the department proposing the new academic plan is responsible to consult simultaneously by email with Pam Hawley in the Registrar's Office at mcinnis@umbc.edu and Michael Dillon in IRADS at midillon@umbc.edu. Please send the proposed program acronym, type (BA, BS, certificate, etc) and description. If you have no preferred acronym, you can send only the description and degree type; Pam and Michael will respond with an assigned acronym. After this consultation, insert the following below: (1) the proposed name of the new academic plan; (2) a formal description of the proposed new academic plan (up to 30 characters); (3) a short description of the proposed new academic plan (up to 10 characters); and (4) a proposed new 4-letter acronym for the proposed new academic plan.[1]

3. If a new program is proposed, please send an email to Miriam Tillman at mir@umbc.edu to inquire whether the Marketing Department in Institutional Advancement has an interest in exploring marketing opportunities associated with this program.

4. The proposal and these routing sheets should be sent to each office indicated on this form, in the order in which each appears on the list.

5. Attach letters of support from all participating departments, assuring capacity in courses, etc.

As you sign your approval (or return it to the prior step for modification), please email Susan Mocko in the Provost's Office at mocko@umbc.edu, giving the name of the proposal as shown above and the office to which you are sending it next, so that we can keep track of it. If you have questions about the review process, please contact Beth Wells at bwells@umbc.edu, x 58907. Thank you very much for your assistance.

Proposed name of proposed new academic plan: Proposed program acronym:

Cybersecurity Informatics

Proposed formal description of new proposed academic plan (up to 30 characters):

Cybersecurity Informatics

Proposed short description of proposed new academic plan (up to 10 characters):

CYBR-INF

OR

Proposed change to name of existing academic program: Current program acronym:[2]

Additional instructions for proposal:
Follow the instructions in the new program guidelines on the Provost's website for program type.

Beth Wells
Assistant Vice Provost for Academic Affairs

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[1] Note that academic plan acronyms are permanent and, once established do not change in the future if the name of the academic plan changes.

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Concept approved by the Program Concept Group — Date of PCG review: — Date routing sheet sent

[illegible] 3/3 [illegible]

This routing form and process is designed to enable more effective and efficient tracking of documents throughout the review and approval steps, ultimately leading to more timely completion of the process. This is especially important because in many cases MHEC has strict "windows" during which proposals must be submitted.

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Proposed name of proposed new academic plan: Cybersecurity Informatics

Proposed program acronym:

Proposed formal description of new proposed academic plan (up to 30 characters): Cybersecurity Informatics

Proposed short description of proposed new academic plan (up to 10 characters): CYBR-INF

OR

Proposed change to name of existing academic program:

Current program acronym:

Additional instructions for proposal:
Follow the instructions in the new program guidelines on the Provost's website for program type.

Beth Wells
Assistant Vice Provost for Academic Affairs

Note that academic plan acronyms are permanent and, once established do not change in the future if the name of the academic plan changes.

Name of proposed new academic plan or proposed change to name of existing academic plan:

[illegible] Security Informatics [illegible]

__L__ Department proposing program must submit the proposal for informal review to the Vice-Provost for Academic Affairs, prior to submitting it for formal review

__L__ Department proposing program must develop and get approval for proposed acronym. *Follow instruction # 2 on Page 1*

_____ USM requires that proposals be submitted electronically Please send an electronic copy of the FINAL version of your proposal to Susan Mocko at mocko@umbc.edu.

_____ A *Letter of Intent* is required for this program The format and directions will be sent to you electronically

Send to this office if checked here	*Signatures*	*Dates*
	[illegible] *INFORMAL REVIEW* Assistant Vice-Provost for Academic Affairs	[illegible] Date reviewed
	[signature] Department Chair	3/21/16 Date approved
✓ NA [illegible]	Vice-President for Administration & Finance	Date budget reviewed
	Vice Provost Professional Education	Date approved
	Dean of Natural & Mathematical Sciences	Date approved
	Dean of Arts Humanities & Social Sciences	Date approved
	Dean of the Erickson School	Date approved
	[signature] Dean of Engineering & IT	3/23/16 Date approved
	[signature] Dean of Undergraduate Education	3/23/16 Date approved
	Dean of Graduate Education	Date approved
	Please return proposal & cover sheet at this point to Vice Provost for Academic Affairs	3/21/16 Date Letter of Intent sent to USM
	[signature] Chair Undergraduate Council	4/21/16 Date approved
	Chair Graduate Council	Date approved
	Chair Academic Planning & Budget	Date approved
	President Faculty Senate	Date approved
	Please return proposal & cover sheet at this point to: Vice Provost for Academic Affairs	
	Provost	Date approved
	President	Date approved
	University System of Maryland/ Board of Regents and Maryland Higher Education Commission for	[illegible]
	Target MHEC Window submission date (subject to change) _____	

Proposed Upper-Division Undergraduate Certificate in

Cybersecurity Informatics

UMBC Department of Information Systems

Contact person: UPD Carolyn Seaman, cseaman@umbc.edu

The shortage of trained professionals in the cyber industry is well documented. Cybersecurity as a field is very broad, and universities have found it challenging to design effective undergraduate major programs that include the required prerequisite knowledge (in programming, mathematics, databases, and design), a breadth of topics that even begin to cover the cybersecurity area, and any level of depth in specific security-related topics. Thus, we propose to augment our existing undergraduate curriculum in Information Systems, which already contains rigorous technical prerequisites, with additional focus on specific informatics-related cybersecurity skills and topics through an undergraduate certificate program. Certificate students would be required to synthesize new concepts and skills acquired in the courses (in computer security, data mining, software security, and mobile computing) into a final cybersecurity informatics experience.

IS as a discipline focuses on specific approaches to solving technology problems from an organizational and people perspective. Similarly, the educational objectives of this certificate program are to equip students to solve cybersecurity-related problems in the real world, particularly those related to the protection and analysis of information in real organizational contexts. These curricular foci are different from a cybersecurity-related program in other disciplines. Cybersecurity is a very wide umbrella that covers topics and skills in many different areas. Thus, we believe having multiple cybersecurity offerings at UMBC and in the state best serves the needs of students and the industry.

The prerequisites for the core courses in the certificate limit it, except in rare cases, to Information Systems majors. Anecdotally, interest in this certificate among current IS majors is already very high. Interest is fueled by the well-publicized availability of jobs, and the national need for graduates trained in this area, as evidenced by a recent NSF grant awarded to the IS department for this purpose. The NSF grant also funds a number of outreach activities meant to generate interest in this area among current IS majors, community college students, and high school students. We expect that enrollment in the certificate program will come mainly from existing students in the first two years, and partially from new students afterwards.

Proposed curriculum (15 credits total)

Core courses: IS 471 Data Analytics for Cyber Security (3)
IS 472 Software Security (3)

Experience: IS 478 Cyber Security Senior Project (3) OR
IS 479 Cyber Security Internship (3)

Electives (choose two – 6 credits)):
IS 427 Introduction to Artificial Intelligence (3)
IS 428 Data Mining Techniques and Applications (3)
IS 430 Information Systems and Security (3)
IS 451U or IS 451M or IS 452 (telecommunications and networking courses) (3)

All courses that are part of the cybersecurity informatics certificate curriculum will be taught by full-time, and in the case of some electives, experienced part-time, IS faculty. Oversight and advising for the certificate program will be the responsibility of the IS Department's Director of Undergraduate Programs, as is the case with all certificate programs the Department offers. Current departmental staffing is sufficient to cover the certificate.

Name of proposed new academic plan or proposed change to name of existing academic plan:

DC Cybersecurity Informatics (from IS)

Department proposing program must submit the proposal for informal review to the Vice-Provost for Academic Affairs, prior to submitting it for formal review.

Department proposing program must develop and get approval for proposed acronym. *Follow instruction # 2 on Page 1.*

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Send to this office if checked here	*Signatures*	*Dates*
		3/17/16
	INFORMAL REVIEW Assistant Vice-Provost for Academic Affairs	Date reviewed
	Department Chair	3/21/16 Date approved
N/A per ISW	Vice-President for Administration & Finance	Date budget reviewed
N/A	Vice Provost, Professional Education	Date approved
N/A	Dean of Natural & Mathematical Sciences	Date approved
N/A	Dean of Arts, Humanities & Social Sciences	Date approved
N/A	Dean of the Erickson School	Date approved
	Dean of Engineering & IT	3/23/16 Date approved
	Dean of Undergraduate Education	3/23/16 Date approved
N/A	Dean of Graduate Education	Date approved
	Please return proposal & cover sheet at this point to: Vice Provost for Academic Affairs	3/21/16 Date Letter of Intent sent to USM
	Chair, Undergraduate Council	4/21/16 Date approved
N/A	Chair, Graduate Council	Date approved
	Chair, Academic Planning & Budget	Date approved
	President, Faculty Senate	Date approved
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