

New Program Proposal

Date Submitted: 09/17/21 4:25 pm

Viewing: **CSCEBS-CYBR : Computer Science: Cybersecurity Concentration**

Last edit: 09/23/21 10:20 am

Changes proposed by: drt

Submitter:	User ID:	drt	Phone:
575-5090			
Program Status	Active		
Academic Level	Undergraduate		
Type of proposal	Concentration		
Select a reason for this new program	Adding New Concentration		
Effective Catalog Year	Fall 2022		
College/School Code	College of Engineering (ENGR)		
Department Code	Department of Computer Science and Computer Engineering (CSCE)		
Program Code	CSCEBS-CYBR		
Degree	Bachelor of Science in Computer Science		
CIP Code			

In Workflow

1. ENGR Dean Initial
2. Director of Curriculum Review and Program Assessment
3. Registrar Initial
4. Institutional Research
5. CSCE Chair
6. ENGR Curriculum Committee
7. ENGR Faculty
8. ENGR Dean
9. Global Campus
10. Provost Review
11. University Course and Program Committee
12. Faculty Senate
13. Provost Final
14. Registrar Final
15. Catalog Editor Final

Approval Path

1. 09/22/21 2:27 pm
Kevin Hall (kdhall):
Approved for ENGR Dean Initial
2. 09/24/21 8:18 am
Alice Griffin (agriffin): Approved for Director of Curriculum Review and Program Assessment

3. 09/28/21 5:44 pm
Lisa Kulczak
(lkulcza): Approved
for Registrar Initial
4. 09/28/21 5:57 pm
Doug Miles
(dmiles): Approved
for Institutional
Research
5. 09/28/21 6:16 pm
Dale Thompson
(drt): Approved for
CSCE Chair
6. 10/07/21 1:48 pm
Manuel Rossetti
(rossetti): Approved
for ENGR
Curriculum
Committee
7. 11/05/21 10:04 am
Kevin Hall (kdhall):
Approved for ENGR
Faculty
8. 11/15/21 4:14 pm
Kevin Hall (kdhall):
Approved for ENGR
Dean
9. 11/15/21 4:15 pm
Suzanne Kenner
(skenner): Approved
for Global Campus
10. 11/22/21 8:17 am
Ketevan
Mamiseishvili
(kmamisei):
Approved for
Provost Review

11.0701 - Computer Science.

Program Title

Computer Science: Cybersecurity Concentration

Program Delivery

Method

On Campus

Is this program interdisciplinary?

No

Does this proposal impact any courses from another College/School?

No

What are the total hours needed to complete the program? 9

Program Requirements and Description

Requirements

Students can choose either the general BS in Computer Science degree program (CSCEBS) or may pursue the BS in Computer Science: Cybersecurity Concentration degree program (CSCEBS-CYBR).

The requirements for the Computer Science: Cybersecurity Concentration (CSCEBS-CYBR) include completing the BS in Computer Science requirements and 9 semester credit hours in the area of cybersecurity. Courses satisfying the cybersecurity topics are listed below.

Take the following CSCE Cybersecurity Electives:

9

[CSCE 4433](#)

Cryptography

[CSCE 4783](#)

Cloud Computing and Security

[CSCE 4853](#)

Information Security

8-Semester Plan

Computer Science: Cybersecurity Concentration (CSCEBS-CYBR) Eight-Semester Degree Program

The following sections contain the list of courses required for the Bachelor of Science in Computer Science: Cybersecurity Concentration (CSCEBS-CYBR) degree with a suggested sequence below.

Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites. Students wishing to follow the eight-semester degree plan should see the [Eight-Semester Degree Policy](#) in the Academic Regulations chapter for university requirements of the program

Requirements of the program...

First Year		Units
		FallSpring
<u>GNEG 1111</u> Introduction to Engineering I		1
<u>ENGL 1013</u> Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)		3
<u>CHEM 1103</u> University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)		3
<u>MATH 2554</u> Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)	1	4
History Elective (Satisfies General Education Outcomes 3.2 and 4.2). Choose from one of the following courses:		3
<u>HIST 2003</u> History of the American People to 1877 (ACTS Equivalency = HIST 2113)		
<u>HIST 2013</u> History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)		
<u>GNEG 1121</u> Introduction to Engineering II		1
<u>MATH 2564</u> Calculus II (ACTS Equivalency = MATH 2505)		4
<u>PHYS 2054</u> University Physics I (ACTS Equivalency = PHYS 2034)		4
Freshman Science Elective (Satisfies General Education Outcome 3.4) Choose one of the following science and corresponding lab options:		4
<u>BIOL 1543</u> Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)		
<u>BIOL 1541L</u> Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)		
<u>CHEM 1123</u> University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)		
<u>CHEM 1121L</u> University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)		
<u>GEOS 1113</u> Physical Geology (ACTS Equivalency = GEOL 1114 Lecture)		
<u>GEOS 1111L</u> Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)		
<u>PHYS 2074</u> University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (For students who already have credit for PHYS 2054, they may wish to select PHYS 2074 for their Freshman Science Elective.)		
<u>ENGL 1033</u> Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)		3
Year Total:		14 16
Second Year		Units
		FallSpring
<u>CSCE 2004</u> Programming Foundations I		4
<u>CSCE 2114</u> Digital Design		4
<u>MATH 2603</u> Discrete Mathematics		3
Fine Arts Elective (Satisfies General Education Outcome 3.1)	2	3
Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.1)	3	3
<u>CSCE 2014</u> Programming Foundations II		4
<u>CSCE 2214</u> Computer Organization		4
<u>MATH 3083</u> Linear Algebra		3
Social Sciences Elective (Satisfies General Education Outcome 3.3)	4	3
Year Total:		17 14

Year Total:		17	14
Third Year		Units	
		Fall	Spring
CSCE 3193	Programming Paradigms	3	
CSCE 3613	Operating Systems	3	
INEG 3313	Engineering Probability and Statistics5	3	
PHIL 3103	Ethics and the Professions (Satisfies General Education Outcome 5.1)	3	
General Elective		3	
CSCE 3513	Software Engineering (Satisfies General Education Outcome 6.1)		3
CSCE 4523	Database Management Systems		3
CSCe Cybersecurity Elective (4000 level)			3
MATH 3103	Combinatorics		3
COMM 1313	Public Speaking (ACTS Equivalency = SPCH 1003) (Satisfies General Education Outcome 1.2)		3
Year Total:		15	15
Fourth Year		Units	
		Fall	Spring
CSCE 4561	Capstone I	1	
CSCE 4133	Algorithms	3	
CSCE 4753	Computer Networks	3	
CSCe Cybersecurity Elective (4000 level)		3	
General Elective		3	
General Elective		3	
CSCE 4963	Capstone II		3
CSCE 4323	Formal Languages and Computability		3
CSCe Cybersecurity Elective (4000 level)			3
General Elective			3
Social Sciences Elective (Satisfies General Education Outcome 3.3)4			3
Year Total:		16	15
Total Units in Sequence:		122	
1Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1, by meeting the prerequisites for MATH 2554 .			
2The Fine Arts Elective courses which satisfy General Education Outcome 3.1 include: ARCH 1003 , ARHS 1003 , COMM 1003 , DANC 1003 , LARC 1003 , MLIT 1003 , MLIT 1003H , MLIT 1013 , MLIT 1013H , MLIT 1333 , THTR 1003 , THTR 1013 , or THTR 1013H .			
3The Social Sciences Elective courses which satisfy General Education Outcomes 3.3 and 4.1 include: ANTH 1023 , COMM 1023 , HDFS 1403 , HDFS 2413 , HIST 1113 , HIST 1113H , HIST 1123 , HIST 1123H , HIST 2093 , HUMN 1114H , HUMN 2114H , INST 2013 , INST 2813 , INST 2813H , PLSC 2013 ,			

[PLSC 2813](#), [PLSC 2813H](#), [RESM 2853](#), [SOCI 2013](#), [SOCI 2013H](#), or [SOCI 2033](#).

4The Social Sciences Elective courses which satisfy General Education Outcome 3.3 include: [AGEC 1103](#), [AGEC 2103](#), [ANTH 1023](#), [COMM 1023](#), [ECON 2013](#), [ECON 2023](#), [ECON 2143](#), [EDST 2003](#), [HDFS 1403](#), [HDFS 2413](#), [HDFS 2603](#), [HIST 1113](#), [HIST 1113H](#), [HIST 1123](#), [HIST 1123H](#), [HIST 2003](#), [HIST 2013](#), [HIST 2093](#), [HUMN 1114H](#), [HUMN 2114H](#), [INST 2013](#), [INST 2813](#), [INST 2813H](#), [PLSC 2003](#), [PLSC 2013](#), [PLSC 2203](#), [PLSC 2813](#), [PLSC 2813H](#), [PSYC 2003](#), [RESM 2853](#), [SOCI 2013](#), [SOCI 2013H](#), [SOCI 2033](#). Note, courses cannot be counted twice in degree requirements.

5Student may petition to take the two-course sequence, STAT 3013 and STAT 3113, instead of INEG 3313.

Program Costs

None

Library Resources

None

Instructional

Facilities

None

Faculty Resources

None

List Existing Certificate or Degree Programs that Support the Proposed Program

Program(s)
C SCEBS - Computer Science, Bachelor of Science in Computer Science

Are Similar Programs available in the area?

No

Estimated Student Demand for Program 30

Scheduled Program Review Date 2026-2027

Program Goals and Objectives

Program Goals and Objectives
See CSCEBS.

Learning Outcomes

Learning Outcomes

Learning Outcomes

See CSCEBS.

Description and Justification for this request

Description of request	Justification for request
Adding a Cybersecurity Concentration to the BS in Computer Science undergraduate program.	The department has the NSF Scholarship for Service Program for recruiting students to work for the government in cybersecurity. The SFS program has encouraged us to add a concentration at the undergraduate level to recognize students that specialize in cybersecurity. These cybersecurity courses exist and are popular. Therefore, we wish to add a concentration for both the NSF SFS students and other students that want to specialize in cybersecurity topics. Students can continue with the general BS in Computer Science degree without this concentration. Students may select the Cybersecurity Concentration but do not have to.

Upload attachments

Reviewer Comments

Alice Griffin (agriffin) (09/23/21 10:06 am): Changed Gen Ed Outcome notation from 2.1 to 1.2 with ENGL 1033.

Alice Griffin (agriffin) (09/23/21 10:20 am): Added comment to PHYS 2074 with permission from submitter.

Key: 862