

New Program Proposal

Date Submitted: 09/17/21 4:27 pm

Viewing: **CENGBS-CYBR : Computer Engineering: Cybersecurity Concentration**

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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	CENGBS-CYBR		
Degree	Bachelor of Science in Computer Engineering		
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 2:25 pm
Kevin Hall (kdhall):
Approved for ENGR Dean Initial
2. 09/24/21 8:17 am
Alice Griffin (agriffin): Approved for Director of Curriculum Review and Program Assessment

3. 09/28/21 5:12 pm
Lisa Kulczak
(lkulcza): Approved
for Registrar Initial
4. 09/28/21 5:17 pm
Doug Miles
(dmiles): Approved
for Institutional
Research
5. 09/28/21 6:14 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 10:03 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 8:16 am
Ketevan
Mamiseishvili
(kmamisei):
Approved for
Provost Review

14.0901 - Computer Engineering, General.

Program Title

Computer Engineering: 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 9
hours needed to
complete the
program?

Program Requirements and Description

Requirements

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

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

Pick 3 courses from the following list of CSCE Cybersecurity Electives:

9

<u>CSCE 4433</u>	Cryptography
<u>CSCE 4753</u>	Computer Networks
<u>CSCE 4783</u>	Cloud Computing and Security
<u>CSCE 4853</u>	Information Security

8-Semester Plan

Computer Engineering: Cybersecurity Concentration (CENGBS-CYBR) Eight-Semester Degree Program

The following sections contain the list of courses required for the Bachelor of Science in Computer Engineering: Cybersecurity Concentration (CENGBS-CYBR) 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

degree plan should see the [Eight Semester Degree Plan](#) in the Academic Regulations chapter for university requirements of the program.

First Year	Units
	FallSpring
GNEG 1111 Introduction to Engineering I	1
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)	4
CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)	3
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3
U.S. History Elective (Satisfies General Education Outcomes 3.2 and 4.2) Choose from one of the following courses:	3
HIST 2003 History of the American People to 1877 (ACTS Equivalency = HIST 2113)	
HIST 2013 History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)	
GNEG 1121 Introduction to Engineering II	1
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)	4
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Satisfies General Education Outcome 3.4)	4
Freshman Science Elective (Satisfies General Education Outcome 3.4) Choose one of the following science and corresponding lab options:	4
BIOL 1543 Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)	
BIOL 1541L Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)	
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)	
CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	
GEOS 1113 Physical Geology (ACTS Equivalency = GEOL 1114 Lecture)	
GEOS 1111L Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)	
ENGL 1033 Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 2.1)	3
Year Total:	14 16
Second Year	Units
	FallSpring
CSCE 2004 Programming Foundations I	4
CSCE 2114 Digital Design	4
MATH 2574 Calculus III (ACTS Equivalency = MATH 2603)	4
PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Satisfies General Education Outcome 3.4)	4
CSCE 2014 Programming Foundations II	4
CSCE 2214 Computer Organization	4
MATH 2584 Elementary Differential Equations	4
MATH 2603 Discrete Mathematics	3
Social Sciences Elective (Satisfies General Education Outcomes 3.3 and 4.1)	3
Year Total:	16 19

Year Total:		10 10
Third Year		Units
		FallSpring
CSCE 3193 Programming Paradigms		3
CSCE 3613 Operating Systems		3
CSCE 3953 System Synthesis and Modeling		3
Social Sciences Elective (Satisfies General Education Outcome 3.3)3		3
INEG 3313 Engineering Probability and Statistics4		3
CSCE 3513 Software Engineering (Satisfies General Education Outcome 6.1)		3
CSCS Cybersecurity Elective (4000 level)		3
ELEG 3933 Circuits & Electronics		3
PHIL 3103 Ethics and the Professions (Satisfies General Education Outcome 5.1)		3
COMM 1313 Public Speaking (ACTS Equivalency = SPCH 1003)		3
Year Total:		15 15
Fourth Year		Units
		FallSpring
CSCE 4561 Capstone I		1
CSCE 4114 Embedded Systems		4
CSCS Cybersecurity Elective (4000 level)		3
CSCS Elective (4000 level)		3
Fine Arts Elective (Satisfies General Education Outcome 3.1)5		3
General Elective		3
CSCE 4213 Computer Architecture		3
CSCE 4963 Capstone II		3
CSCS Cybersecurity Elective (4000 level)		3
Social Sciences Elective (Satisfies General Education Outcome 3.3)3		3
General elective		3
Year Total:		17 15
Total Units in Sequence:		126
1Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1, by meeting the prerequisites for MATH 2554 .		
2The 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 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 .		
3The 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.

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

5 The 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](#).

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)
CENGBS - Computer Engineering, Bachelor of Science in Computer Engineering

Are Similar Programs available in the area?

No

Estimated Student Demand for Program 10

Scheduled Program Review Date 2026-2027

Program Goals and Objectives

Program Goals and Objectives
See CENGBS.

Learning Outcomes

Learning Outcomes
See CENGBS.

Description and Justification for this request

Description of request	Justification for request
<p>Adding a Cybersecurity Concentration to the BS in Computer Engineering undergraduate program.</p>	<p>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 Engineering degree without this concentration. Students may select the Cybersecurity Concentration but do not have to.</p>

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Reviewer Comments