CYBERSECURITY

The Cybersecurity specialization, intended for Computer Science and Computer Engineering majors, provides a solid foundation of cybersecurity fundamentals. The courses covered meet the curriculum standards for cybersecurity competency established by the NSA, NIST, and National Initiative for Cybersecurity Education (NICE).

About this Program

- **College:** Herbert Wertheim College of Engineering (https://catalog.ufl.edu/UGRD/colleges-schools/UGENG/)
- **Degree:** Bachelor of Science in Computer Science
- **Specialization:** Cybersecurity (p. 1)
- **Credits for Degree:** 120
- **More Info**

To graduate with this major, students must complete all university, college, and major requirements.

Department Information

The mission of the Department of Computer & Information Science & Engineering is to educate students, as well as the broader campus community, in the fundamental concepts of the computing discipline; to create and disseminate computing knowledge and technology; and to use expertise in computing to help society solve problems.
Website (https://www.cise.ufl.edu/)

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Map (http://campusmap.ufl.edu/#/index/0042)

Curriculum

- /UGRD/colleges-schools/UGENG/CPE_BSCO03/
- Combination Degrees
- Computer and Information Science and Engineering Minor
- Computer and Information Science and Engineering Minor UF Online
- Computer Science UF Online
- Computer Science | CLAS
- Computer Science | Herbert Wertheim College of Engineering
- Digital Arts and Sciences | Bachelor of Science
- Industrialized Construction Engineering

Students in the engineering computer science (EG-CSE) program will satisfy the same requirements for General Education and obtain the same engineering preprofessional background in mathematics and science as other engineering students. The program contains a strong technical component comprising a set of required courses covering essential areas in computing. The cybersecurity specialization includes a set of technical electives enabling students to deepen their knowledge and obtain hands-on experience in cybersecurity, preparing students for a career in this important field.

In addition, the program includes a set of interdisciplinary electives in an area of the student's choice from anything the university offers. Students may choose an established minor, a predefined track or if nothing meets their needs, they can work with an advisor to develop their own program.

To answer the demands of industry for employees with both technical competence and the ability to communicate effectively, the program requires communication courses beyond the usual General Education requirements for engineering.

Requirements

Code	Title	Credits
CIS 4360	Computer and Information Security	3
Select one:		3
CDA 4324C	Cyber-physical System Security	
CIS 4204	Penetration Testing: Ethical Hacking	

CIS 4213	Enterprise Security
CIS 4362	Introduction to Cryptology

Critical Tracking

Critical Tracking records each student's progress in courses that are required for entry to each major. Please note the critical-tracking requirements below on a per-semester basis.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites (https://cpm.flvc.org/advance-search/) may be used for transfer students.

Semester 1

- Complete 1 of 6 critical-tracking courses with a minimum grade of C within two attempts: COP 3502C, MAC 2311, MAC 2312, MAC 2313, PHY 2048, PHY 2049
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 2

- Complete 1 additional critical-tracking course with a minimum grade of C within two attempts
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 3

- Complete 2 additional critical-tracking courses with minimum grades of C within two attempts
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 4

- Complete 1 additional critical-tracking course with minimum grades of C within two attempts
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 5

- Complete all 6 critical-tracking courses with minimum grades of C within two attempts
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 6

- Complete COP 3503C and COT 3100
- 2.0 departmental GPA required
- 2.0 UF GPA required

Semester 7

- Complete COP 3530
- 2.0 departmental GPA required
- 2.0 UF GPA required

Semester 8

- Complete COP 4600 and COP 4020
- 2.0 departmental GPA required
- 2.0 UF GPA required

Model Semester Plan

Students are expected to complete the general education International (GE-N) requirement. This is often done concurrently with another state core or university general education requirement – typically GE-C, H, or S.

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms listed in the CpE Critical Tracking criteria.

This semester plan represents an example progression through the major and specialization. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Course	Title	Credits
Semester One		
Quest 1 (Gen Ed Humanities)		3
COP 3502C	Programming Fundamentals 1	4
MAC 2311	Analytic Geometry and Calculus 1 (**Critical Tracking**; State Core Gen Ed Mathematics)	4
PHY 2020	Introduction to Principles of Physics (or State Core Gen Ed Physical Sciences)	2-3
or CHM 1025	or Introduction to Chemistry	
	Credits	**13-14**
Semester Two		
COP 3503C	Programming Fundamentals 2	4
COT 3100	Applications of Discrete Structures	3
MAC 2312	Analytic Geometry and Calculus 2 (**Critical Tracking**; State Core Gen Ed Mathematics)	4
PHY 2048	Physics with Calculus 1 (**Critical Tracking**; State Core Physical Sciences)	3
PHY 2048L	Laboratory for PHY 2048 (Gen Ed Physical Sciences)	1
	Credits	**15**
Summer After Semester Two		
ENC 1101	Expository and Argumentative Writing (State Core Gen Ed Composition (https://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext); Writing Requirement: 6,000 words)	3
or ENC 1102	or Argument and Persuasion	
State Core Humanities		3
State Core Social and Behavioral Sciences		3
	Credits	**9**
Semester Three		
COP 3530	Data Structures and Algorithm	3
CDA 3101	Introduction to Computer Organization	3
MAC 2313	Analytic Geometry and Calculus 3 (**Critical Tracking**; Gen Ed Mathematics)	4
PHY 2049	Physics with Calculus 2	4
& 2049L	and Laboratory for PHY 2049 (**Critical Tracking**; Gen Ed Physical Sciences)	
	Credits	**14**
Semester Four		
CEN 3031	Introduction to Software Engineering	3
CIS 4301	Information and Database Systems 1	3
Select one:		3
ENC 2256	Writing in the Disciplines (Gen Ed Composition; Writing Requirement: 6,000 words) [1]	
ENC 3246	Professional Communication for Engineers (Writing Requirement: 6,000 words) [2]	
MAS 3114	Computational Linear Algebra	3-4
or MAS 4105	or Linear Algebra 1	
Gen Ed Social and Behavioral Sciences with International		3
	Credits	**15-16**
Semester Five		
Quest 2 (Gen Ed Social and Behavioral Sciences OR Gen Ed Biological or Physical Sciences)		3
CIS 4360	Computer and Information Security	3
COP 4600	Operating Systems	3
STA 3032	Engineering Statistics	3
	Credits	**12**
Semester Six		
Select one:		3
CDA 4324C	Cyber-physical System Security	
CIS 4204	Penetration Testing: Ethical Hacking	
CIS 4213	Enterprise Security	
CIS 4362	Introduction to Cryptology	
COP 4020	Programming Language Concepts	3
COP 4533	Algorithm Abstraction and Design	3
Interdisciplinary electives		6
	Credits	**15**

Summer After Semester Six		
Quest 3 Experiential Learning - Study Abroad / Internship / Co-op (if desired) [3]		0-3
	Credits	**0-3**
Semester Seven		
CNT 4007	Computer Network Fundamentals	3
EGS 4034 or PHI 3681	Engineering Ethics and Professionalism [4] or Ethics, Data, and Technology	1-3
Select one:		3
CDA 4324C	Cyber-physical System Security	
CIS 4204	Penetration Testing: Ethical Hacking	
CIS 4213	Enterprise Security	
CIS 4362	Introduction to Cryptology	
Interdisciplinary elective		3
Technical elective		3
	Credits	**13-15**
Semester Eight		
EGN 4952 or CIS 4914	Integrated Product and Process Design 2 (4EG) or Senior Project	3
Select one:		3
CDA 4324C	Cyber-physical System Security	
CIS 4204	Penetration Testing: Ethical Hacking	
CIS 4213	Enterprise Security	
CIS 4362	Introduction to Cryptology	
Interdisciplinary electives		4
Technical elective		3
	Credits	**13**
	Total Credits	**119-126**

1 Students needing to satisfy the General Education Writing requirement and the words requirements, should take ENC 2254. The course must be completed with a C or better.

2 Students needing only to satisfy the 6,000 Word requirement should take ENC 3246. The course must be completed with a C or better.

3 UF Quest 3 Experiential Learning - Study Abroad / Internship / Co-op may count either as interdisciplinary or technical electives based on the content of the experience. Prior advisor approval is highly recommended.

4 PHI 3681 will count for both the Ethics requirement and 3 credits of Technical Electives. If applied in this manner, students may need a free elective to get to 120 credits.