CYBERSECURITY

The Cybersecurity Specialization in Computer Engineering provides a robust foundation in the fundamentals of cybersecurity integrated with disciplinary knowledge and experience in the areas of computer architecture, operating systems, digital hardware design, and signal processing. Required courses cover knowledge units meeting the curriculum standards established NSA, NIST and National Initiative for Cybersecurity Education (NICE) as for cybersecurity competency.

About this Program

- **College:** Herbert Wertheim College of Engineering (http://catalog.ufl.edu/UGRD/colleges-schools/UGENG/)
- **Degree:** Bachelor of Science in Computer Engineering
- **Specialization:** Cybersecurity (p. 1)
- **Credits for Degree:** 126
- **More Info**

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

Departments Information

Topical concentration in Computer Engineering (https://cpe.eng.ufl.edu/) is provided via technical electives from the Departments of Computer and Information Science and Engineering (http://www.cise.ufl.edu/) and Electrical and Computer Engineering (http://www.ece.ufl.edu/).

Department of CISE

352.392.1090 (tel)
P.O. Box 116120
E301 CSE BUILDING
GAINESVILLE FL 32611-6120
Map

Department of ECE

352.392.9758 (tel) | 352.294.0911 (fax)
P.O. Box 116200
968 Center Drive
216 LARSEN HALL
GAINESVILLE FL 32611-6200
Map

Program Education Objectives

Graduates of Computer Engineering with the specialization in Cybersecurity will:

1. Advance in careers utilizing their education in computer engineering and cybersecurity
2. Continuously improve via graduate, professional, self-driven, and on-the-job learning
3. Become leaders in multidisciplinary and diverse professional environments.

Mission

- To educate majors and the community in computing, engineering, and cybersecurity
- To create & disseminate computer engineering & cybersecurity knowledge & technology
- To use expertise in computer engineering & cybersecurity to help society solve problems.

Admission Criteria for Specialization

Students in the Computer Engineering (CpE) major are eligible to elect the Cybersecurity specialization.

Cybersecurity Specialization Requirements

A minimum grade of C is required for each required cybersecurity course and the GPA for cybersecurity courses must be a minimum of 2.0.

The specialization requires completion of the following technical elective courses:

Code	Title	Credits
CIS 4360	Computer and Information Security	3
Cybersecurity Electives (select two):		
CIS 4213	Enterprise Security	
CIS 4362	Introduction to Cryptology	
CDA 4324C	Cyber-physical System Security	
CIS 4204	Penetration Testing: Ethical Hacking	

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: MAC 2311, MAC 2312, MAC 2313, MAP 2302, PHY 2048, PHY 2049
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 2

- Complete 2 additional critical-tracking courses 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 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 4

- Complete 1 additional critical-tracking course with minimum grades of C within two attempts
- 2.5 GPA required for all 7 critical-tracking courses
- 2.0 UF GPA required

Semester 5

- Complete EEL 4744C with a minimum grade of C
- Complete all critical-tracking course with minimum grades of C within two attempts
- 2.5 GPA required for all 7 critical-tracking courses
- 2.0 UF GPA required

Semester 6

- 2.0 departmental GPA required
- 2.0 UF GPA required

Semester 7

- 2.0 departmental GPA required
- 2.0 UF GPA required

Semester 8

- 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
ENC 1101	Expository and Argumentative Writing (State Core Gen Ed Composition (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext); Writing Requirement: 6,000 words)	3
MAC 2311	Analytic Geometry and Calculus 1 (**Critical Tracking**; State Core Gen Ed Mathematics)	4
	Credits	**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 & 2048L	Physics with Calculus 1 and Laboratory for PHY 2048 (**Critical Tracking**; State Core Physical Sciences)	4
	Credits	**15**
Summer After Semester Two		
Quest 2 (Gen Ed Social and Behavioral Sciences; Writing Requirement)		3
EEL 3701C	Digital Logic and Computer Systems	4
State Core Social and Behavioral Sciences; Writing Requirement		3
	Credits	**10**
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 & 2049L	Physics with Calculus 2 and Laboratory for PHY 2049 (**Critical Tracking**; Gen Ed Physical Sciences)	4
	Credits	**14**
Semester Four		
CEN 3031	Introduction to Software Engineering	3
EEL 4744C	Microprocessor Applications (**Critical Tracking**)	4
MAP 2302	Elementary Differential Equations (**Critical Tracking**)	3
MAS 3114	Computational Linear Algebra	3
	Credits	**13**
Semester Five		
COP 4600	Operating Systems	3
EEL 3111C	Circuits 1	4
EEL 4712C	Digital Design	4
Enrichment elective		1
	Credits	**12**
Semester Six		
CIS 4360	Computer and Information Security	3
ENC 2256	Writing in the Disciplines (Second Gen Ed Composition; Writing Requirement: 6,000 words)	3
State Core Humanities with International Requirement		3
Enrichment elective		3
Technical elective		3
	Credits	**15**
Summer After Semester Six		
CpE-Approved Experiential Learning Course (Experiential Learning Technical Elective)		3
	Credits	**3**
Semester Seven		
Select one CpE Design 1 course:		3

CEN 4907C	Computer Engineering Design 1	
EGN 4951	Integrated Product and Process Design 1	
Select one Physical or Biological Science Course Option:		4
AST 3018 & AST 1022L	Astronomy and Astrophysics 1 and Astronomy Laboratory	
BSC 2005 & 2005L	Biological Sciences and Laboratory in Biological Science	
BSC 2010 & 2010L	Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory	
CHM 2045 & 2045L	General Chemistry 1 and General Chemistry Laboratory	
CHM 2095 & CHM 2045L	Chemistry For Engineers 1 and General Chemistry Laboratory	
GLY 2010C	Physical Geology	
Enrichment elective		3
Cybersecurity technical elective		3
	Credits	**13**
Semester Eight		
CEN 4908C	Computer Engineering Design 2	3
EEL 3135	Introduction to Signals and Systems	4
EGN 4952	Integrated Product and Process Design 2	3
EGS 4034	Engineering Ethics and Professionalism	1
Cybersecurity technical elective		3
Technical elective		3
	Credits	**17**
	Total Credits	**126**