

Computer Engineering Major – Cyber Systems and Security Engineering Specialization

The specialization in Cyber Systems and Security Engineering is designed for Computer Engineering students seeking employment in this emerging field where job opportunities are expected to grow by 28% from 2016 to 2026, much faster than the average for all occupations, according to the Bureau of Labor Statistics (www.bls.gov). This program is only available to students who will earn the BS in Computer Engineering at SIUC.

The specialization can be completed within the 126 semester credit hours currently required of the BS in Computer Engineering. In the proposed specialization, technical electives are restricted to a limited list of computer engineering courses. The degree requires that the student completes the requirements for the BS degree in Computer Engineering with technical electives that include three key areas: Fundamentals in computer security, Fundamentals in systems programming, and Fundamentals in network systems. The following detail degree requirements for this specialization of Computer Engineering.

Degree Requirements	Credit Hours
University Core Curriculum Requirements	39
Foundation Skills	13
CMST 101	3
ENGL 101, ENGL 102	6
MATH 150 (4)	3
UNIV 101	1
Disciplinary Studies	23
Fine Arts	3
BIO 202	2
Humanities	6
PHYS 205A	3
PHYS 205B	3
Social Science	6
Integrative Studies (Multicultural/Diversity)	3
Requirements for Computer Engineering Major	87
Basic Science	
PHYS 205A,B, 255A,B	(6)+2 2
BIO 202	(2)

Science Elective (with lab) ¹		4
Mathematics		
MATH 150,240, 251, 305	(3)+11	11
ECE Required Courses		40
ECE 222, ECE 235, ECE 235L, ECE 296, ECE 296L, ECE 315, ECE 321, ECE 321L, ECE 327, ECE 327L, ECE 329, ECE 329L, ECE 345, ECE 345L, ECE 355, ECE 355L, ECE 495C, ECE 495D		
Technical Electives ^{2,3,4,5}		30
ECE Technical Electives ⁷		24
General Technical Electives ⁸		6
TOTAL		126

¹ For Science Elective choose from biological, chemical, or physical science. (CHEM 200+201, PHYS 305+355, PHSL 201+208)

² At least 20 hours from the following list: ECE 412, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, or 432, two approved CS courses from CS 3XX or 4XX level (except CS 300, 301, 393, or 493)

³ One of the following courses: ECE 324, ECE 434, CS 410. Only one of those courses will count towards specialization.

⁴ At least one course from the following list: ECE 418, CS 408, CS 409, ECE 517, ECE 518

⁵ At least two courses from the following list: ECE 412, ECE 422, ECE 424, ECE 431, CS 415

⁶ At least two courses from the following list: ECE 417, ECE 419, ECE 428, ECE 430, ECE 475, CS 413, ECE 541

⁷ Approved by the Department. Approved ECE technical electives: ECE 3XX or 4XX level (except ECE 392, 492 & 493).

⁸ Approved by the Department. Approved General technical electives: ECE 3XX or 4XX level (except ECE 493); CHEM 210; MATH 221, 282, 302, 349, 380, or 4XX level (except MATH 411, 412); CS 3XX or 4XX level (except CS 300, 301, 393, or 493); ENGR 2XX, 3XX, 4XX (except ENGR 222, 296, 335), ENGR3XXi (if not already counted toward the student's core requirement); BME 485 or 597; IMAE470A.