COMPUTER SCIENCE AND ENGINEERING

Degree Requirements

Master of Engineering (M.Eng.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-700 Professional Degree Policies (https://gradschool.psu.edu/graduate-education-policies/).

A minimum of 30 credits at the 400, 500, or 800 level is required, with a minimum of 18 credits at the 500 or 800 level, and at least 6 credits at the 500 level.

Code	Title	Credits
Fall Semester		
CMPSC 465	Data Structures and Algorithms	3
6 credits of the following:		6
CMPSC 443 & CMPSC 431W	Introduction to Computer and Network Security and Database Management Systems	
CMPEN 431 & CMPEN 472	Introduction to Computer Architecture and Microprocessors and Embedded Systems	
3 credits of the following:		3
CSE 500 - CSE 589		
CSE 597	Special Topics	
Spring Semester		
12 credits of the following:		12
CSE 500 - CSE 589		
CSE 597	Special Topics	
Summer Semester		
CSE 820	Software & Hardware Project Management	3
CSE 594	Research Topics	3
Total Credits		**30**

The culminating experience for the program is a master's paper completed while the student is enrolled in CSE 594.

Master of Science (M.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (https://gradschool.psu.edu/graduate-education-policies/)

A minimum of 30 credits at the 400, 500, 600, or 800 level are required, of which a minimum of 21 credits are at the 500 level or higher, including a minimum of 15 credits of CSE 500-level courses, specifically. Students may choose to complete a thesis or a scholarly paper. Students choosing to complete a thesis must complete at least 6 credits in thesis research (600 or 610). Students choosing to complete a scholarly paper or capstone project must complete 3 credits of CSE 594, in their final semester, and 3 additional credits of a related CSE {500-589, 597} course in either the final or an earlier semester.

In this blended program, students may take up to 12 credits online. The below course list indicates how many credits from each area may be taken online. In the absence of an annotation, the listed courses must be taken via resident instruction.

Code	Title	Credits
Required Courses		
9 credits from the following bridge and breadth courses (0-9 credits online)		*9*
CMPSC 492	Foundations for Advanced Study in Computer Science and Engineering	
CSE 511	Operating Systems Design	
CSE 530	Fundamentals of Computer Architecture	
CSE 565	Algorithm Design and Analysis	
3 credits from department list of 500-level CSE electives (0-3 credits online)		*3*
6 credits of CSE 500-589, 597, 800-889		6
Electives		**6**
6 credits from any 400-level or above course in the following majors: CSE, CMPSC, CMPEN, EE, IST, MATH, STAT		
Culminating Experience		**6**
Scholarly Paper Option		
CSE 500 - 589, 597 (on topic related to scholarly paper)		
CSE 594	Research Topics (Scholarly Paper)	
Thesis Option		
CSE 600	Thesis Research (Thesis)	
or CSE 610	Thesis Research Off-Campus	
Total Credits		**30**

Students who choose to complete a thesis must pass a thesis defense. The thesis must be accepted by the advisers and/or committee members, the head of the graduate program, and the Graduate School. If the student completes a scholarly paper, the paper must be accepted by the supervising faculty member(s) and the head of the graduate program. The scholarly paper is completed while the student is enrolled in CSE 594.

Doctor of Philosophy (Ph.D.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (https://gradschool.psu.edu/graduate-education-policies/)

Students applying for and gaining admittance to the Ph.D. program will not be permitted to switch to the master's program at a later date, except under extenuating circumstances, at the discretion of the program.

To qualify for a Ph.D. degree, students who do not have an M.S. degree in Computer Science or Computer Engineering must take a minimum of 33 credits, including:

Code	Title	Credits
Required Courses		
6 credits of the following:		6
CSE 565	Algorithm Design and Analysis	
CSE 511	Operating Systems Design	
CSE 530	Fundamentals of Computer Architecture	
15 credits of CSE courses (excluding CSE 596 and CSE 598)		15
9 credits of 400-, 500-, or 800-level courses in CSE/EE/MATH/STAT, or 500- or 800-level IST courses (which may include up to 3 credits of CSE 596)		9
CSE 590	Colloquium	2

CSE 591	Research Experience in Computer Science and Engineering	1
Total Credits		**33**

Students admitted to the Ph.D. program with an M.S. degree in Computer Science or Computer Engineering must take a minimum of 21 credits, including:

Code	Title	Credits
Required Courses		
6 credits of the following:		6
CSE 565	Algorithm Design and Analysis	
CSE 511	Operating Systems Design	
CSE 530	Fundamentals of Computer Architecture	
9 credits of CSE courses (excluding CSE 596 and CSE 598)		9
3 credits of 400-, 500-, or 800-level courses in CSE/EE/MATH/STAT, or 500- or 800-level IST courses (which may include up to 3 credits of CSE 596)		3
CSE 590	Colloquium	2
CSE 591	Research Experience in Computer Science and Engineering	1
Total Credits		**21**

A student must pass the Ph.D. qualifying examination by the third regular semester after entering the program. After completion of most of the course work and meeting the English competency requirement, students must pass the Ph.D. comprehensive examination.

A dissertation must be completed under the direction of the Ph.D. committee and the results must be successfully defended in the final oral examination. To earn the Ph.D. degree, doctoral candidates must write a dissertation that is accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School.