

Software Engineering Major

Major Requirements

Degree Type: B.S.
Minimum Credits Required: 120

University Degree Requirements

For complete details on these and other university degree requirements, refer to the Degree and Graduation Requirements (<https://catalog.ndsu.edu/academic-policies/undergraduate-policies/degree-and-graduation/>) section in the University Catalog.

1. Minimum of 120 semester credits (some programs may exceed this minimum).
2. Complete the University General Education requirements.
3. Minimum institutional GPA of 2.00 based on work taken at NDSU.
4. Minimum of 30 credits in resident at NDSU.
5. Minimum of 36 upper level credits (courses numbered 300 or higher).
6. Students with transfer credit must meet the NDSU 30 credits in residence (#4). Of these 30 credits in residence, a minimum of 15 credits must be in courses numbered 300 or above, and 15 credits must be in the student's declared major curricula.

University General Education Requirements

A list of university approved general education courses along with the administrative policies governing the requirement and the categories is available here (<https://catalog.ndsu.edu/academic-policies/undergraduate-policies/general-education/>).

Code	Title	Credits
Category C: Communication		12
Category R: Quantitative Reasoning		3
Category S: Science and Technology		10
Category A: Humanities and Fine Arts		6
Category B: Social and Behavioral Sciences		6
Category W: Wellness		2
Category D: Cultural Diversity		
Category G: Global Perspectives		
Category L: Digital Literacy		
Total Credits		39

Major Requirements

Code	Title	Credits
Major Requirements		
ECE 111	Introduction to Electrical and Computer Engineering	3
ECE 275	Digital Design	4
ECE 341	Random Processes	3
ECE 374	Computer Organization	4
ECE 376	Embedded Systems	4
ECE 479		3
EE 206		4
CSCI 160	Computer Science I	4
CSCI 161	Computer Science II	4
CSCI 213	Modern Software Development	3
CSCI 222	Discrete Mathematics	3
CSCI 305	Principles of Cybersecurity	3
CSCI 313	Software Development with Frameworks	3
CSCI 366	Database Systems	3
CSCI 372	Comparative Programming Languages	3
CSCI 413	Principles of Software Engineering	3

CHEM 121	General Chemistry I	3
or BIOL 111	Concepts of Biology	
MATH 129	Basic Linear Algebra	3
MATH 165	Calculus I	4
MATH 166	Calculus II	4
MATH 265	Calculus III	4
PHYS 251	University Physics I	4
STAT 330	Introductory Statistics	3

Software Engineering Track & Technical Electives

Select either Systems Programming track or Applications Development track to complete the requirements for the major. The technical
electives will vary depending on the track selected.

Total Credits **97-100**

Systems Programming Track

Code	Title	Credits
ECE 401	Design I	1
ECE 403	Design II	2
ECE 405	Design III	3
ECE 474	Computer Architecture	3
ENGR 327	Ethics, Engineering, and Technology	3
Technical Electives: Any 300-400 level CSCI or ECE courses not listed as program requirements above.		9

Total Credits **21**

Applications Development Track

Code	Title	Credits
CSCI 416	Software Architecture and Design	3
CSCI 419	Software Testing and Debugging	3
CSCI 445	Software Projects Capstone	3
CSCI 489	Social Implications of Computers	3

Technical Electives: Any 300-400 level CSCI or ECE courses not listed as program requirements above.

Total Credits **18**