# **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 (http://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 (http://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 Ar	S	6
Category B: Social and Behavioral S	iences	6
Category W: Wellness		2
Category D: Cultural Diversity		
Category G: Global Perspectives		
Category L: Digital Literacy		

**Total Credits** 

#### **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	Formal Verification	3
EE 206	Circuit Analysis I	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

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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 & Techn	ical Electives	

Total Credits	97-100
electives will vary depending on the track selected.	21
Select either Systems Programming track or Applications Development track to complete the requirements for the major. The technical	18 or
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### Systems Programming Track

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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 require	ements 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.		6
Total Credits		18