

# Software Engineering / Software and Security Engineering

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## Department Information

- **Department Chair:**  
Simone Ludwig, Ph.D.
- **Program Coordinator:**  
Changhui Yan, Ph.D.
- **Department Location:**  
258 QBB
- **Department Phone:**  
(701) 231-8562
- **Department Email:**  
gradinfo@cs.ndsu.edu
- **Department Web Site:**  
ndsu.edu/cs/ (<http://ndsu.edu/cs/>)
- **Application Deadline:**  
February 1 priority deadline for fall admission; September 1 for spring admission\* No summer admission for any Software Engineering Program
- **Credential Offered:**  
Ph.D., M.S., M.S.E, Certificate
- **Test Requirement:**  
GRE (waived for fall 2022 applicants)
- **English Proficiency Requirements:**  
TOEFL ibt 79; IELTS 6.5; Duolingo 105

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Software Engineering is focused on the application of systematic, disciplined, and quantifiable approaches to the development, operation, and maintenance of software systems. Inclusive of computer programming but going well beyond, Software Engineering is concerned with methodologies, techniques, and tools to manage the entire software life cycle, including development of requirements, specifications, design, testing, maintenance, and project management. The advent of Software Engineering is a natural result of the continuous quest for software quality and reusability, and the maturing of the software development industry. Security engineering is the process of applying knowledge to build secure systems by identifying security vulnerabilities and incorporating control measures to minimize or contain the risks associated with these vulnerabilities. It involves protecting systems, networks, devices, programs, and data from unauthorized access and destruction by implementing effective cybersecurity measures to meet the security goals of Confidentiality, Integrity, and Availability.

The Department of Computer Science offers a graduate certificate in Software Engineering, Master of Software Engineering (M.S.E), Master of Science (M.S.) in Software and Security Engineering, and Doctor of Philosophy (Ph.D.) in Software and Security Engineering. The programs are designed to appeal to both full-time students and software professionals who are employed and wish to pursue a program part time. The M.S.E. is a online course work only program aimed at professionals while the M.S. in Software and Security Engineering is a course work and research program. For additional information, see the **Computer Science website** (or contact the Computer Science department at (701) 231-8562 or [gradinfo@cs.ndsu.edu](mailto:gradinfo@cs.ndsu.edu)).

*\*Spring admissions are given only occasionally, depending on funding and faculty interest. If there are no spring openings, spring applicants are automatically considered for the subsequent fall semester.*

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