



Bachelor of Science in
Software Engineering

Advising Brochure
2017 – 2018

Department of
Computer Science & Engineering
College of Engineering
256 Avery Hall

advising@cse.unl.edu
<http://cse.unl.edu/advising>

rev: June 9, 2017

Software Engineering Program – 124 hours

Course	Title	Hrs
Software Engineering Courses:		
SOFT 160	Software Engineering I	4
SOFT 161	Software Engineering II	4
SOFT 260	Software Engineering III	4
SOFT 261	Software Engineering IV	4
SOFT 360	SE Mentoring & Leadership	1
SOFT 461	Adv Topics in Software Engr	3
SOFT 466	Software Design and Arch	3
SOFT 467	Testing, Verif and Analysis	3
SOFT 468	Req Elicitation, Modeling & Analysis	<u>3</u>
		29
Computer Science & Engineering Courses:		
CSCE 231	Computer Systems Engineering	4
CSCE 235	Introduction to Discrete Struct	3
CSCE 322	Programming Lang Concepts	3
CSCE 378	Human-Computer Interaction	3
CSCE 411	Data Modeling for Sys Dev	3
CSCE 423	Design & Anal Algorithms	3
CSCE 451	Operating System Principles	3
CSCE 491	Internship in Comp Practice	<u>1</u>
		23
Practicum/Capstone Experience:		
CSCE 493	Innovation Lab Project	3
CSCE 493	Innovation Lab Project	3
CSCE 486	Computer Science Professional Dev.	3
CSCE 487	Computer Science Senior Design	<u>3</u>
		12
Mathematics Courses:		
MATH 106 & 107	Calc I & Calc II	9
MATH 314	Linear Alg (Matrix Theory)	3
STAT 380	Statistics and Applications	3
MATH/STAT	Elective (at least 3 cr hr required)	3 or 4
one of MATH 208	Calc III	4
or MATH 428	Principles of Operations Research	3
or STAT 412	Introduction to Experimental Design	3
or STAT 414	Introduction to Survey Sampling	3
or STAT 450	Intro to Regression Analysis	3
or	other approved MATH/STAT elective	3
		<u> </u>
		≥ 18
Natural Science Courses:		
		12

Most are 4 hours so need at least 3 courses. Must include at least one lab (**bold face**). Choose from the following (or more advanced):

- CHEM **109 & 110** or **113 & 114** and **221**, 261/**262**, 263/**264**
 - PHYS **141,142**, 211/**221**, 212/**222**, 213/**223**
 - LIFE 120/**120L**, 121/**121L**
 - GEOL **101, 103, 210, 211, 310, 340**
 - METR **100**, 205, **223**, 311, 312, **323, 341**
 - ASTR 204/**224**
 - BIOS 206/**205, 207**
- GEOG **155**, 181
ANTH 242/**242L**

Other Supporting Courses:

CSCE 10	CSE Freshman Seminar	0
ENGR 20	Soph Engr Seminar	0
JGEN 200	Technical Comm I (ACE 1)	3
CSCE/SOFT	Technical Electives (see page 4)	15
ACE	SLO's 5, 6, 7, 9	<u>12</u>
		30

Technical Electives Requirements - 15 hours

Students must take at least 15 credit hours of SOFT or CSCE technical electives. At least 9 hours must be taken at the 400-level. Technical electives cannot include SOFT or CSCE courses required by the Software Engineering major, or courses that have been designated as not counting toward a major or minor in Computer Science or Software Engineering.

200-level and 300-level courses that may be taken as technical electives:

- CSCE 236
- CSCE 335, CSCE 351, CSCE 396, CSCE 399H

In addition to the courses excluded above, the following courses may not be taken as technical electives:

- CSCE 401H, CSCE 402H, CSCE 488, and CSCE 489

ACE Student Learning Outcomes - 12 hours

- Maximum of 9 cr hrs in any one department for ACE 4-10.
- Asterisk (*) indicates those not built into the major.
- See <http://ace.unl.edu/> for details and listings.

1.	Written Communication	JGEN 200
2.	Oral Communication	SOFT 261
3.	Math & Computation (all in major)	MATH 106
4.	Natural Sciences (all in major)	(many choices)
5.*	Humanities/History	3 hours elective
6.*	Social Sciences	3 hours elective
7.*	Fine Arts	3 hours elective
8.	Ethics (all in major)	CSCE 486
9.*	Human Diversity	3 hours elective
10.	Integrated Knowledge (all in major)	CSCE 487

Professional Admission to Software Engineering

- Between 43-61 hours applying to the degree
- 2.500+ previous semester and cumulative GPA
- C+ or higher in MATH 106 and MATH 107
- C+ or higher in SOFT 160 through SOFT 261
- C+ or higher in CSCE 235
- Automatic for qualifying students

Computer Science Technical Electives

	Course Title	Frequency
CSCE 236	Embedded Systems	s+fo
335	Digital Logic Design	fs
351	Operating System Kernels	f+so
396	Special Topics in Computer Science	?
399H	Honors Research (Ind Study)	fssu
413	Database Systems	f
421	Foundations of Constraint Sat Th	se
425	Compiler Construction	s,!18
428	Automata, Computation and Formal Lang	f+so
430	Computer Architecture	s
434	VLSI Design	??
435	Cluster & Grid Computing	fo
436	Advanced Embedded Systems	fo
438	Sensor Networks	se
439	Robotics	fo,!18
440	Numerical Analysis	fsu
441	Approximation of Functions	??
447	Numerical Analysis II	??
455	Distributed Operating Systems	so
456	Parallel Algo's and Programming	fe
457	Systems Administration	fo
462	Communication Networks	s+fe
463	Data & Network Security	sei,!18
464	Internet Systems & Prog	s
465	Wireless Communication Networks	fe
470	Computer Graphics	fe
471	Bioinformatics	??
472	Digital Image Processing	f
473	Computer Vision	so
474	Data Mining	se
475	Multiagent Systems	fo
476	Artificial Intelligence	fo
477	Cryptography & Comp Security	f
478	Machine Learning	fe
496	Special Topics (varies)	fs
498	Computer Problems (Ind Study)	fssu

Engineering Mathematics Minor

The minor requirements include MATH 106, 107, 208, 221 plus 12 advanced hours. Software Engineering already includes MATH 106, MATH 107, and MATH 314. Add MATH 208, MATH 221 & three more math courses. Adding a minor can be done at the Advising Office, W204 Nebraska Hall.

UNL Software Engineering Program 2017-2018 Computer Policy Highlights

All students in the Software Engineering Program are required to lease, own, purchase, or have ready access to a laptop computer for use in the classroom. Students can choose between a Windows or a Mac platform. Due to software limitations, tablet devices such as iPads, mobile phones, and netbook computers, e.g., Chromebooks, are not permitted for classroom use.

- Visit <http://cse.unl.edu/software-engineering-computer-policy> to view the current minimum and recommended laptop specifications.
- Software packages required for specific courses will be available for download through the Computer Science and Engineering website or through Huskertech at substantially discounted prices.
- Due to the nature of how laptops are used, students purchasing a new system are highly encouraged to obtain a 3-year (or longer) warranty to protect their investment. Students may also want to consider accidental damage coverage in addition to warranty coverage.
- Anti-virus software is available to students free-of-charge for work and home computers . It is available at <http://antivirus.unl.edu>.
- *Students are free to purchase their laptops from the vendor of their choice.* All students are expected to have their computer available for use on or before the first day of classes.
- The College of Engineering strictly prohibits the use of pirated software. Students who have pirated software on their laptop may not be serviced and may be reported to Student Judicial Affairs.

Visit <http://cse.unl.edu/software-engineering-computer-policy> for additional details.

Did You Know?

*Students with financial need may be eligible
for financial assistance in purchasing their computer.
Visit the Scholarships & Financial Aid Office (17 ADMS) to learn more.*

Example Eight Semester Schedule - 124 hours

Fall 1				Spring 1			
SOFT	160	Software Eng I	4	SOFT	161	Software Eng II	4
CSCE	10	CSE Seminar	0	CSCE	235	Discrete Struct	3
MATH	106	Calc I	5	MATH	107	Calc II	4
NatSci		ACE 4	4	NatSci		(with lab)	4
		ACE 5	3				<u>15</u>
			<u>16</u>				
Fall 2				Spring 2			
SOFT	260	Software Eng III	4	SOFT	261	Software Eng IV	4
CSCE	231	Computer Sys Eng	4	CSCE	322	Lang Conc	3
ENGR	020	Soph Seminar	0	CSCE	451	OS Principles	3
MATH	314	Lin Alg	3	CSCE	378	HCI	3
NatSci			4	MATH		(or STAT) Elective	3
			<u>15</u>				<u>16</u>
Fall 3				Spring 3			
CSCE	493	Innov Lab	3	CSCE	493	Innov Lab	3
CSCE	411	Data Model	3	SOFT	461	Adv SE	3
CSCE	423	Des & Anal Algo	3	SOFT	466	SW Design & Arch	3
JGEN	200	Tech Comm I	3	CSCE	491	Intern Comp	1
SOFT	360	SE Mentor & Lead	1	CS/SE		Tech Elec	3
STAT	380	Stats	3			ACE 7	3
			<u>16</u>				<u>16</u>
Fall 4				Spring 4			
CSCE	486	CS Prof Dev	3	CSCE	487	CS Sr Design	3
SOFT	467	Testing, Ver & Anal	3	SOFT	468	Req, Model & Anal	3
CS/SE		Tech Elec	3	CS/SE		Tech Elec	3
CS/SE		Tech Elec	3	CS/SE		Tech Elec	3
		ACE 6	3			ACE 9	3
			<u>15</u>				<u>15</u>

By default, students use the bulletin year in which they started at UNL. Changing to a more recent year (during which they were full time) can be easily done. Make request through Chief Undergraduate Adviser to the Dean's Office.

Departmental Advising:

<http://cse.unl.edu/undergraduate-advising-center>

Kasey Juel (SE Advisor), 472-3160, *kjuel@unl.edu*

Charles Riedesel (Department Advisor) 259 Avery, 472-3486, *chuckr@unl.edu*

Suzette Person (SE Program Director), 362 Avery, 472-5040

sperson@cse.unl.edu

Jenna Huttenmaier (Admin Coordinator) 269 Avery,

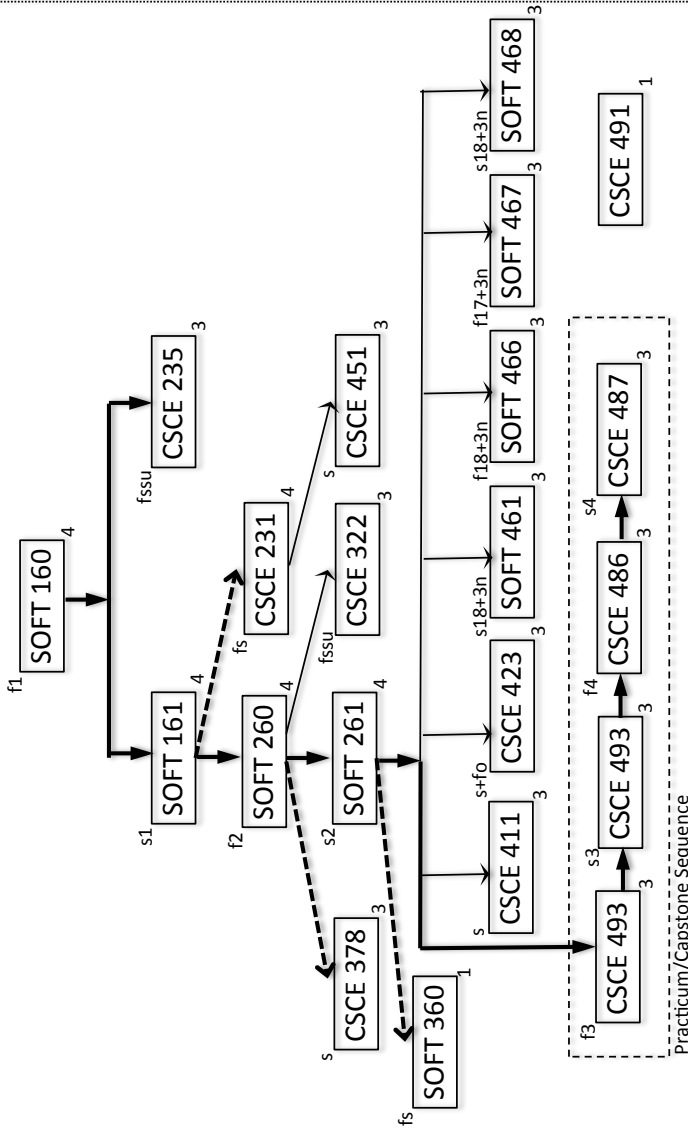
jenna.huttenmaier@unl.edu

General College Advising:

In the back of Engineering Library, W204 Nebraska Hall, 472-7072

<http://engineering.unl.edu/current-undergraduate/index.shtml>

Required CSCE & SOFT Courses



CSCE Technical Electives

prerequisites in ()

Foundations

se **421** (260)
 f+so **428** (260)
 fsu **440** (160, lin alg)
 f **477** (260, lin alg)

Software Engineering

s,i,18 **425** (260, 322)
 s **464** (260)

Network/Hardware

s+fo **236** (230/231)

f+so **351** (260, 230/231)

s **430** (260, 230/231, stats)

?? **434** (230/231)

fo **435** (260)

fo **436** (260, 236)

se **438** (260, 230/231)

fo,i,17 **439** (260, 236, lin alg)

so **455** (260, 451)

fe **456** (260)

fo **457** (260)

s+fe **462** (260, 230/231)

se,i,18 **463** (260)

fe **465** (260, 230/231)

Informatics

f **413** (260)

s **464** (260, lin alg)

fe **470** (260, lin alg)

?? **471** (260, stats)

f **472** (161, stats)

so **473** (161, stats)

se **474** (260, stats)

Artificial Intelligence

se **421** (260)

fo **475** (260)

fo **476** (260)

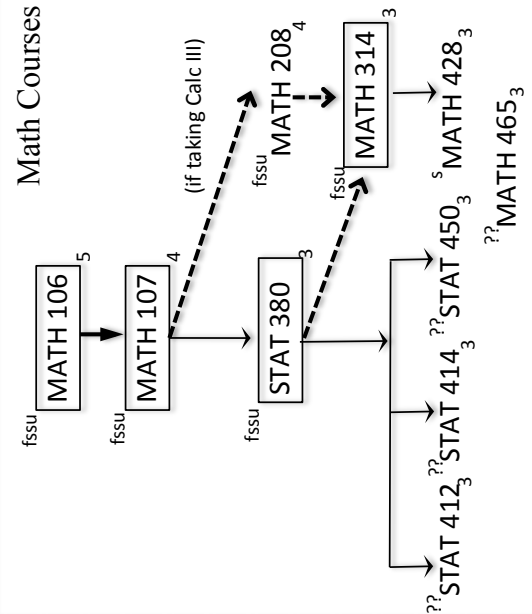
fe **478** (260)

Computer Science & Engineering
 & Supporting Courses

Software Engineering Program

Rev 6/9/17

Math Courses



Required courses shown in:

Prerequisite: →

Required Path: ↗

Recommended: ↘

f: fall s:spring su:summer e: even o:odd

Courses in *italics* are SOFT courses
 Software Engineering major requires 15 cr hr of tech elec.