University of Nebraska Lincoln

Pioneering new frontiers.

Bachelor of Science in

Computer Engineering

Advising Brochure

2012 – 2013

Department of

Computer Science & Engineering
College of Engineering

256 Avery Hall

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http://cse.unl.edu

The B.S. Degree in Computer Engineering is accredited by the Engineering Accreditation Commission of ABET.
http://www.abet.org

rev: November 16, 2011

Computer Engineering Program – 126 hours

Computer Science & Engineering Courses:

	Course	Title	RAIK	Hrs
	CSCE 155,156	Intro to Comp Sci I,II	183,184	7
	CSCE 230,230L	Computer Organization, Lab	284	4
	CSCE 235	Introduction to Discrete Struct	(283)	3
	CSCE 236	Intro to Embedded Systems		3
	CSCE 251	Unix Programming		1
	CSCE 310	Data Structures & Algos	283	3
	CSCE 335	Digital Logic Design		3
	CSCE 340	Numerical Analysis I		3
	CSCE 351	Operating System Kernels		3
	CSCE 361	Intro to Software Engineering	383	3
	CSCE 462	Communication Networks		3
	CSCE 488	CE Professional Development	381	2
	CSCE 489	CE Senior Design Project	402?	3
				41

Electrical Engineering Courses:

	ELEC 215,235	Electronics & Circuits I, Lab		4
	ELEC 216,236	Electronics & Circuits II, Lab		4
	ELEC 304	Cont Time Signals & Systems		3
	ELEC 305	Probability Theory		3
	ELEC 316	Electronics & Circuits III		3
				17

Mathematics Courses:

	MATH 106,107,208	Analytic Geom & Calc I,II,III		14
	MATH 221	Differential Equations		3
	MATH 314	Linear Alg (Matrix Theory)		3
				20

Other Supporting Courses:

	PHYS 211,212	General Physics I,II		8
	CHEM 109	General Chemistry		4
OR	PHYS 213/223	General Physics III		5
	JGEN 200,300	Technical Writing I,II	287/8,187/8	6
	ENGR 020	Sophomore Engr Seminar		0
	CSCE/ELEC	Technical Electives	301/2,401/2	15
		Free Elective		3
	ACE	LO's 5, 6, 7, 9	182,282	12
				48

Formal Admission to Computer Engineering

Required prior to taking upper level engineering courses!

Typically done around the end of the sophomore year, constraints are Cumulative and Semester GPA at least 2.500, Grade of C+ or higher in MATH through 208, PHYS through 212, ELEC through 215/235, CSCE through 156, 230, and 235 (or RAIK 183, 184, 283). The process is automatic for qualifying students. Others will be notified concerning deficiencies.

Technical Electives Requirements - 15 hours

Technical electives may include Focus courses, 300- and 400-level CSCE, RAIK, and ELEC courses that are not already required.

Completing 9 hours or more in a Focus area with a grade of at least C results in receiving a Focus. By completing all 15 hours in one focus (including associated required course, if listed), the following conditions for Technical Electives are waived:

I. 9 hours minimum of CSCE and/or cross-listed RAIK (384H, 376H, 378H, 301H, 302H, 401H, 402H).

II. 9 hours minimum at 400-level.

III. CSCE 390 and 490 Special Topics are NOT allowed (designated as not applying to major/minor).

IV. 3 hours maximum of independent study (CSCE 399, 498, ELEC 399, 499).

V. 6 hours maximum of internship/practicum (CSCE 491, RAIK 301H, 302H, 401H, 402H).

VI. ELEC 494 and 495 Senior Design are NOT allowed (but may substitute for CSCE 488 and 489).

ACE Student Learning Outcomes - 12 hours

Maximum of 9 hrs in any one department for ACE 4-10.
Asterisk (*) indicates those not built in the major.
Complete listing at http://www.unl.edu/ous/ace/certifiedcourses.shtml

1.	Written Communication	JGEN 200, RAIK 287/288 (in major)
2.	Oral Communication	JGEN 300, RAIK 187/188 (in major)
3.	Math & Computation	CSCE 155, RAIK 183 (in major)
4.	Natural Sciences	CHEM 109, PHYS 211/212 (in major)
5.*	Humanities/History	3 hours elective
6.*	Social Sciences	3 hours elective or RAIK 182
7.*	Fine Arts	3 hours elective
8.	Ethics	Distrib in major or RAIK 282
9.*	Human Diversity	3 hours elective
10.	Integrated Knowledge	CSCE 489, RAIK 402, ELEC 495 (in major)

Computer Engineering Focus Areas - 9-15 hours

Embedded Systems and Robotics

		Course Title	Frequency
CSCE	430	Computer Architecture	s
	436	Embedded Systems	s
	438	Sensor Networks	fe
	496	Robotics **OR**	
MECH	453	Robotics: Kinematics & Design	fs

VLSI Design

		Course Title	Frequency
ELEC	416	Mat & Dev for Comp Mem/Log/Disp	
	421	Princ of Semiconductor Mat & Def	f
	475	Digital Systems	s
CSCE	430	Computer Architecture	s
	434	VLSI Design **OR**	fe
ELEC	470	Digital & Analog VLSI Design	s
		(Phys 213/223 also required)	fs

Signal Processing & Communications

		Course Title	Frequency
ELEC	463	Digital Signal Processing	s
	465	Intro to Data Compression	s
CSCE	438	Sensor Networks	fe
	472	Digital Image Processing	f
	473	Computer Vision	so

High Performance Computing

		Course Title	Frequency
CSCE	430	Computer Architecture	s
	432	High-Performance Processor Architectures	fo
	435	Cluster & Grid Computing	fo
	437	File & Storage Systems	so
	455	Distributed Operatings Systems	fe
	456	Parallel Algorithms & Programming	fe

Customized Focus

With approval of CSE Department Chair, select from above and/or any other technical electives for a Custom Focus.

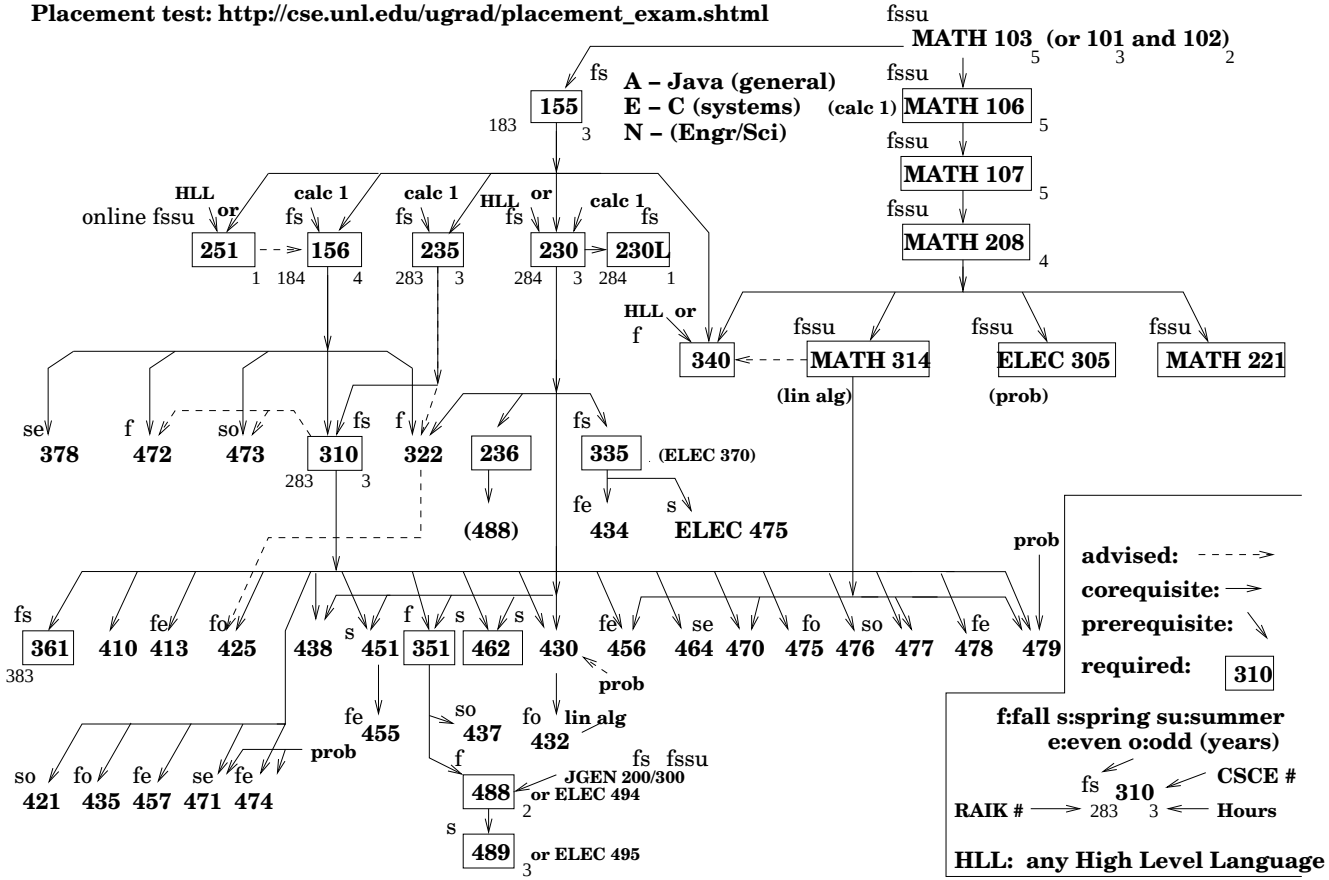
Notes: The Focus is optional.
Grade of C or higher is required for a Focus.
Underlining means course is required for the Focus.

Example Eight Semester Schedule - 126 hours

Fall 1				**Spring 1**			
CSCE	155	CS I	3	CSCE	156	CS II	4
MATH	106	Calc I	5	CSCE	235	Discrete	3
PHYS	211	Gen Phys I	4	CSCE	251	Unix	1
		ACE 5	3	MATH	107	Calc II	5
			15	PHYS	212	Gen Phys II	4
							17
Fall 2				**Spring 2**			
CSCE	230	Comp Org	3	CSCE	236	Intr Em Sys	3
CSCE	230L	Lab	1	CSCE	310	Algos	3
MATH	208	Calc III	4	MATH	221	Diff Eq	3
CHEM	109	Gen Chem I	4	ELEC	216,236	Circuit II	4
ELEC	215,235	Elec Circ I	4	JGEN	200	Tech Comm I	3
ENGR	020	Seminar	0				16
			16				
Fall 3				**Spring 3**			
CSCE	351	Op Sys Ker	3	CSCE	335	Dig Logic	3
CSCE	361	Soft Engr	3	CSCE	462	Comm Net	3
ELEC	304	Sig & Sys	3	MATH	314	Linear Alg	3
ELEC	316	Circuit III	3	ELEC	305	Prob Th	3
		ACE 6	3	CS/EE		Tech Elec	3
		free elec	3				15
			17				
Fall 4				**Spring 4**			
CSCE	340	Num Anal	3	CSCE	489	CE Sr Des	3
CS/EE		Tech Elec	3	CS/EE		Tech Elec	3
CSCE	488	CE Prof	2	CS/EE		Tech Elec	3
JGEN	300	Tech Comm II	3	CS/EE		Tech Elec	3
		ACE 7	3			ACE 9	3
			14				15

For assistance with major advising, contact the Chief Undergraduate Advisor, Prof. Charles Riedesel, 259 Avery Hall, 472-3486, riedesel@cse.unl.edu, http://cse.unl.edu/~riedesel (follow link to appointments for open times).

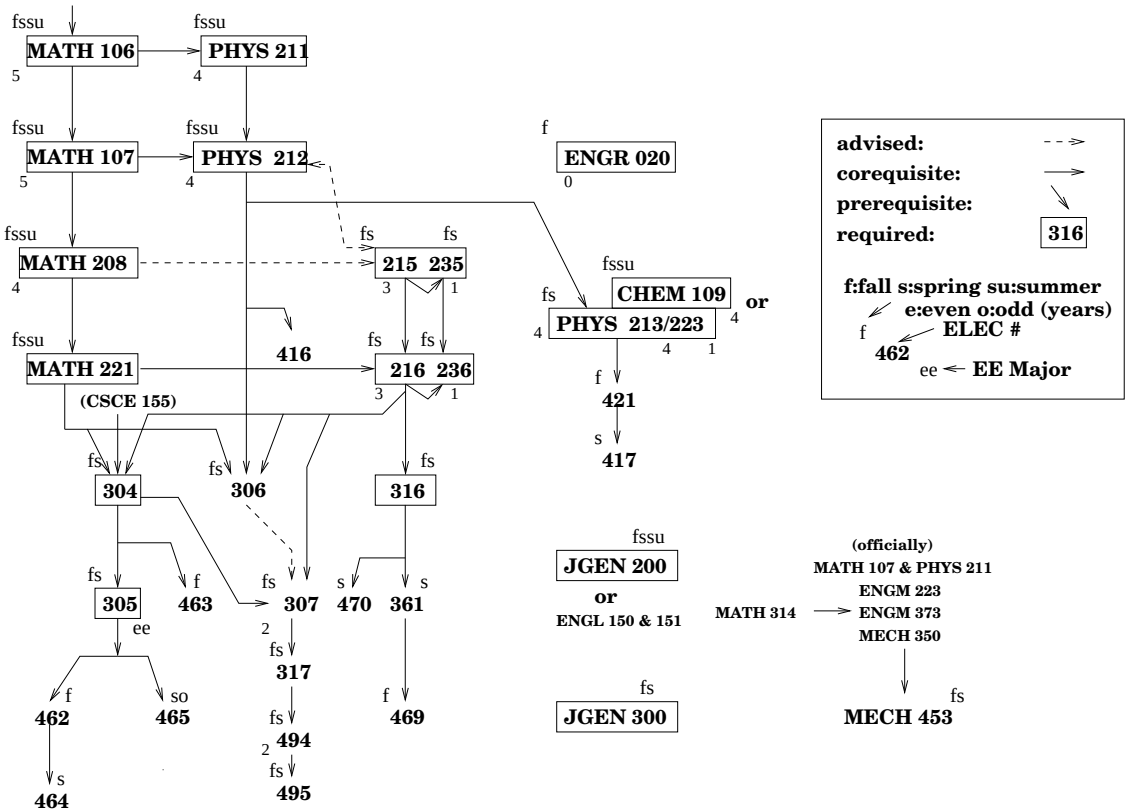
For assistance with general college requirements, contact the *Engineering College Dean's Office*, 114 Othmer Hall, 472-3181, http://engineering.unl.edu/specialty-units/eHelp/



COMPUTER ENGINEERING PROGRAM

Computer Science & Engineering and Supporting Courses

rev 11/16/2011



COMPUTER ENGINEERING PROGRAM
Electrical Engineering and Supporting Courses

rev 06/18/2011