

COMPUTER ENGINEERING

Curriculum Guide effective Fall 2009 ~ North Dakota State University

STUDENT _____

ID # _____

	Fall					Spring					
	Course		Crs	Grade	Gen Ed	Course		Crs	Grade	Gen Ed	
Freshman (<27 crs)	CHEM 121	General Chemistry I	3		S	ECE 173	Intro to Computing	3			
	ECE 111	Intro to E & C Engr	3			ENGL 120	College Composition II	3		C	
	ECE 275	Digital Systems I	3			MATH 129	Basic Linear Algebra	2			
	~ENGL 110	College Composition I	3		C	MATH 166	Calculus II	4			
	MATH 165	Calculus I	4		R	PHYS 251	Univ Physics I	4			
	^UNIV 189	Skills for Success	1		F	Science Lab		1		L	
			17				17				
Sophomore (27-59 crs)	CSCI 222	Discrete Math	3			COMM 110	Fund Public Speaking	3		C	
	EE 206	Circuit Analysis I	4			CSCI 161	Comp Science II	4			
	MATH 265	Calculus III (w/vectors)	4			ECE 311	Circuit Analysis II w/Lab	4			
	PHYS 252	Univ Physics II	4		S	MATH 266	Intro Differential Equations	3			
	ME 221	Engineering Mech I	3			Gen Ed Elective		3		A or B	
				18				17			
Junior (60 - 89 crs)	ECE 321	Electronics I	5			ECE 341	Random Processes	3			
	ECE 343	Signals & Systems	4			ECE 351	Applied Electromag	4			
	ECE 376	Embedded Systems	4			ECE 374	Computer Organization	3			
	Gen Ed Elective		3		A or B	ECE 401	Design I (capstone)	1			
						CprE Core Elec		3			
						ENGL	<i>Upper Level Writing*</i>	3		C	
			16				17				
Senior (90 + crs)	CSCI 474	Operating Syst Concepts	3			ECE 405	Design III (capstone)	3			
	ECE 403	Design II (capstone)	2			ENGR 402	Engr Ethics & Soc Resp	1			
	ECE-or-Engr Sci		3			ECE 423	VLSI Design	3			
	CprE Core Elec		3			CprE Core Elec		3			
	Gen Ed Elective		3		A or B	Gen Ed Elective		3		A or B	
	Wellness		2		W						
			16				13				
							TOTAL CREDITS	131			

Transfer Students:
 "T" indicates requirement satisfied with transfer credits.
 "IP" indicates a course currently in progress.
 Grades less than a "C" in BIOL, CHEM, ENGR, MATH & PHYS transfer courses will not be accepted for credit.

All Students:
 No grades less than "C" accepted in ECE 111, 173, 275, EE 206 and required MATH courses.

General Education Electives			
<i>Approved courses are listed in the center section of the Registration Schedule published each semester.</i>			
Gen Ed	Course	Crs	Grade
A		3	
A		3	
B		3	
B		3	
D ■	(double-count with A or B above)		
G ●	(double-count with A or B above)		
L		1	
W		2	

- General Education Categories:**
- A - Humanities/Fine Arts
 - B - Social/Behavioral Sciences
 - C - Communication
 - D - Cultural Diversity ■
 - F - First-Year Experience
 - G - Global Perspectives ●
 - L - Co-requisite Lab
 - R - Quantitative Reasoning
 - S - Science & Technology
 - W - Wellness

*Select from ENGL 320, 321, 324 or 459 to satisfy the Upper Level Writing for General Education.

^UNIV 189 is required for students with fewer than 24 earned transfer credit.

~First year students with a composite ACT score of ≥ 21 should register for ENGL 120 (unless transfer credit for ENGL 120 is received). If ENGL 120 is complete with a grade of "C" or better, three credits will be awarded for ENGL 110 with a passing grade (P). For more details on NDSU's English Placement process, go to www.ndsu.edu/cfwriters.

Computer Engineering w/Sequences PROGRAM ELECTIVES *

Curriculum updated 5/2009

CprE Core Electives		Crs
ECE 373	Assembly Programming	3
ECE 375	Digital System Design & Implementation	3
ECE 443	Communication I	4
ECE 470	Digital Systems II	3

ECE Electives		Crs
ECE 331	Energy Conversion	4
ECE 374 (CSCI)	Computer Organization	3
ECE 375	Digital System Design & Implementation	3
ECE 411	Optics/Scientists & Engineers	3
ECE 417	Optical Signal Transmission	3
ECE 421	Communications Circuits	3
ECE 423	VLSI Design	3
ECE 425	Intro to Semiconductor Devices	3
ECE 431	Power Systems	3
ECE 433	Power Systems Design	3
ECE 437	Power Electronics	3
ECE 444	Applied Dig Signal Proc & Filtering	3
ECE 445	Communications II	3
ECE 453	Signal Integrity	3
ECE 455	Des for Electromagnetic Compatibility	3
ECE 461	Control Systems	4
ECE 463	Digital Control	3
ECE 470	Digital Systems II	3
ECE 471	Computer Sys Design & Implementation	3
ECE 483	Instrumentation for Engineers	3
ECE 485	Biomedical Engineering	3
ECE 487	Cardiovascular Engineering	3
ECE 494	Individual Study	3
ECE 496	Field Exp (max credits allowed = 3)	3
ECE 499	Special Topics	3

Engineering Science Electives		Crs
CE 309	Fluid Mechanics	3
CE 310	Fluid Mechanics Lab	1
CSCI 366	Files for Database Systems	3
CSCI 372	Comparative Programming Languages	3
CSCI 426	Introduction to Artificial Intelligence	3
CSCI 458	Microcomputer Graphics	3
CSCI 459	Foundations of Computer Networks	3
CSCI 467	Algorithm Analysis	3
CSCI 475	Operating Systems Design	3
CSCI 477	Object-Oriented Systems	3

NOTES:

* Electives cannot be "double-counted" to satisfy more than one requirement.

S Indicates course is approved for General Education Science & Technology.

Math/Science Electives		Crs
S BIOL 150	General Biology I	3
S CHEM122	General Chemistry II	3
CHEM 341	Organic Chemistry I	3
CHEM 364	Physical Chemistry I	4
CSCI 335	Theoretical Computer Science I	3
CSCI 336	Theoretical Computer Science II	3
MATH 420	Abstract Algebra I	3
MATH 421	Abstract Algebra II	3
MATH 429	Linear Algebra	3
MATH 450	Real Analysis I	3
MATH 451	Real Analysis II	3
MATH 452	Complex Analysis	3
MATH 480	Applied Differential Equations	3
MATH 481	Fourier Analysis	3
MATH 483	Partial Differential Equations	3
MATH 488	Numerical Analysis I	3
MATH 489	Numerical Analysis II	3
PHYS 350	Modern Physics	3
PHYS 485	Quantum Mechanics I	3
STAT 450	Stochastic Processes	3
STAT 451	Bayesian Stat Decision Theory	3
STAT 468	Probability & Math Statistics II	3

		Crs
IME 440	Engineering Economy	2-4
IME 456	Program & Project Management	3
IME 461	Quality Assurance & Control	3-4
ME 221	Engineering Mechanics I	3
ME 222	Engineering Mechanics II	3
ME 223	Mechanics of Materials	3
ME 350	Thermodynamics & Heat Transfer	3
PHYS 415	Elements of Photonics	3