NORTH DAKOTA STATE UNIVERSITY
College of Engineering and Architecture
Electrical Engineering

T = Transfer Credit
IP = Course is 'In Progress'

Fall 2011

Name: _____

ID: _____

General Education Requirements - 40 Credits Required					Electrical Engineering Major - 86 Credits Required				
Course	Number	Course Title	Credits	Grade	Course	Number	Course Title	Credits	Grade
First Year Experience (F)			1 Sem Credit		ECE Courses Required - 35 Credits Required				
UNIV	189[1]	Skills for Academic Success	1		ECE	111	Introduction to E&C Engineering	3	
Communication (C)			12 Sem Credits		ECE	173	Introduction to Computing	3	
ENGL	110[2]	College Composition I	3		ECE	275	Digital Systems I	3	
ENGL	120[2]	College Composition II	3		ECE	311	Circuit Analysis II w/ Lab	4	
COMM	110	Fund of Public Speaking	3		ECE	321	Electronics I	5	
ENGL		Upper Level Writing*	3		ECE	341	Random Processes	3	
Quantitative Reasoning (R)			3 Sem Credits		ECE	343	Signals & Systems	4	
MATH	165	Calculus I	4		ECE	351	Applied Electromagnetics	4	
Science & Technology (S)			10 Sem Credits		ECE	401	Design I (capstone)	1	
CHEM	121	General Chemistry I	3		ECE	403	Design II (capstone)	2	
PHYS	251	University Physics I	4		ECE	405	Design III (capstone)	3	
PHYS	252	University Physics II	4		MATH Courses Required - 13 Credits Required				
		Co-Req Lab Requirement	1		MATH	129	Basic Linear Algebra	2	
Humanities & Fine Arts (A)			6 Sem Credits		MATH	166	Calculus II	4	
			3		MATH	265	Calculus III (w/ vectors)	4	
			3		MATH	266	Intro to Differential Equations	3	
Social & Behavioral Sciences (B)			6 Sem Credits		Other Courses Required - 5 Credits Required				
			3		EE	206	Circuit Analysis I	4	
			3		ENGR	402	Engineering Ethics & Social Respon	1	
Wellness (W)			2 Sem Credits		**For the following categories, select courses from the backside of this guide.**				
			2		EE Core Electives w/Lab - 12 Credits Required				
Cultural Diversity (D)								4	
								4	
Global Perspectives (G)								4	
					ECE Elective - 6 Credits Required				
*Select from ENGL 320, 321, 324 or 459 to satisfy the Upper Level Writing for General Education.								3	
								3	
					MATH/Science Elective - 3 Credits Required				
[1]Students transferring in 24 or more credits do not need to take UNIV 189.								3	
[2]ACT score of ≥ 21 will determine English placement and the awarding of credit. Refer to English placement guidelines for additional information.					ECE Electronics Elective - 3 Credits Required				
								3	
					Engineering Science Elective - 6 Credits Required				
TRANSFER STUDENTS: Transfer courses with grades less than a 'C' in Biology, Chemistry, Computer Science, Mathematics, Physics, and any type of engineering class will not be accepted for major credit.								3	
								3	
					ECE or Engineering Science Elective - 3 Credits Required				
ALL STUDENTS: Students are required to attain a grade of 'C' or better in ECE, 173, 275, EE 206, and all required MATH courses.								3	
					Total Credits Required for Graduation:			**129**	

Electrical Engineering w/Sequences
PROGRAM ELECTIVES *

Curriculum updated 6/2011

EE Core Electives w/ Lab		Credits
ECE 331	Energy Conversion	4
ECE 376	Embedded Systems	4
ECE 443	Communications I	4
ECE 461	Control Systems	4

ECE Electronics Electives		Credits
ECE 421	Communication Circuits	3
ECE 423	VLSI Design	3
ECE 425	Intro to Semi Conductor Devices	3
ECE 437	Power Electronics	3

ECE Electives		Credits
ECE 331	Energy Conversion	4
ECE 373 [CSCI]	Assembly Programming	3
ECE 374 [CSCI]	Computer Organization	3
ECE 375	Digital System Design & Implementation	3
ECE 376	Embedded Systems	4
ECE 411	Optics/Scientists & Engineers	3
ECE 417	Optical Signal Transmission	3
ECE 421	Communications Circuits	3
ECE 423	VLSI Design	3
ECE 424	Analog VLSI	3
ECE 425	Intro to Semiconductor Devices	3
ECE/IME 427	Packaging for Electronics	3
ECE 429	Intro to IC Fabrication	3
ECE 431	Power Systems	3
ECE 433	Power Systems Design	3
ECE 437	Power Electronics	3
ECE 438	Electric Drives	4
ECE 443	Communications I	4
ECE 444	Applied Digital Signal Processing	3
ECE 445	Communications II	3
ECE 453	Signal Integrity	3
ECE 455	Des for Electromagnetic Compatibility	3
ECE 461	Control Systems	4
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

Math/Science Electives		Credits
BIOL 150	General Biology I	3
CHEM122	General Chemistry II	3
CHEM 341	Organic Chemistry I	3
CHEM 364	Physical Chemistry I	3
CSCI 222	Discrete Mathematics	3
CSCI 335	Theoretical Computer Science I	3
CSCI 336	Theoretical Computer Science II	3
MATH 270	Introduction to Abstract Math	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 Stats II	3

Engineering Science Electives		Credits			Credits
CE 309	Fluid Mechanics	3	CSCI 477	Object-Oriented Systems	3
CE 310	Fluid Mechanics Lab	1	IME 440	Engineering Economy	2-4
CSCI 161	Computer Science II	4	IME 456	Program & Project Management	3
CSCI 366	Files for Database Systems	3	IME 461	Quality Assurance & Control	3-4
CSCI 372	Comparative Programming Languages	3	ME 221	Engineering Mechanics I	3
CSCI 426	Introduction to Artificial Intelligence	3	ME 222	Engineering Mechanics II	3
CSCI 458	Microcomputer Graphics	3	ME 223	Mechanics of Materials	3
CSCI 459	Foundations of Computer Networks	3	ME 350	Thermodynamics & Heat Transfer	3
CSCI 467	Algorithm Analysis	3	PHYS 413	Lasers for Scientists & Engineers	3
CSCI 474	Operating Systems Concepts	3	PHYS 415	Elements of Photonics	3
CSCI 475	Operating Systems Design	3			