



Engineering and Design

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Pre-major Advisor
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 ET 204

Electrical and Computer Engineering, BS *Electronics Concentration*

Plan of Study 2020-2021 Academic Year

146-150 Total Credits for Major

■ ABET accredited

■ All students must initially declare as a pre-major in Electrical and Computer Engineering; students cannot apply for the major unless all pre-major prerequisites have been satisfied with a grade of C- or better. Admission to the program is competitive.

■ Course offerings/schedule are subject to change

■ Shaded areas below are pre-major courses

Fall Quarter

Winter Quarter

Spring Quarter

Year 1 Pre-major	Math 124 Calc I (5) <u>FWS</u>	MATH 125 Calc II (5) <u>FWS</u>	MATH 204 Elem Linear Alg (4) <u>FWS</u>
	PHYS 161 Physics w/ Calc I (5) <u>EW</u>	PHYS 162 Physics w/ Calc II (5) <u>WS</u>	PHYS 163 Phys w/ Calc III (5) <u>FS</u>
	CSCI 140 or 141 Program Fund (4) <u>EWS</u>	EECE 108 (1) & 109 (1) Intro to Electrical & Computer Eng. <u>W</u>	EECE 111 Circuit Analysis I (4) <u>S</u>
		CHEM 161 Gen. Chemistry (5) <u>FWS</u>	GUR

EECE Pre-majors apply to the major at the end of Spring quarter. Courses above in BOLD are the minimum requirements to apply.

Year 2 Major	EECE210 Circuit Analysis II (4) <u>F</u>	EECE 220 Electronics Design (4) <u>W</u>	EECE 310 Continuous Systems (4) <u>S</u>
	EECE233 Digital Electronics (4) <u>F</u>	EECE 244 Embedded Microcon (4) <u>W</u>	EECE 333 Digital System Design (4) <u>S</u>
	MATH 224 Multiv Calc & Geo (5) <u>FWS</u>	MATH 331 Differential Equations (4) <u>FWS</u>	MATH 345 Engineering Stats (4) <u>FWS</u>
	GUR	GUR	GUR

Year 3 Major	EECE 311 Discrete Systems (4) <u>F</u>	EECE 321 Electronics Systems (4) <u>W</u>	EECE 361 Signal Propagation (4) <u>S</u>
	EECE 344 Embedded Microcont II (4) <u>F</u>	EECE 360 Communication Systems (4) <u>W</u>	EECE 433 Digital Signal Processing (4) <u>S</u>
	EECE 320 Electronics II (4) <u>F</u>	EECE 444 Embedded Systems (4) <u>W</u>	ENG 302 Technical Writing (WP) (5) <u>FWS</u>
	GUR	GUR	EECE 460 Digital Comm Systems (4) <u>S</u>

Year 4 Major	EECE 372 Electromechanical Devices (4) <u>F</u>	EECE 492 Project Hardware Design (4) <u>W</u>	EECE 493 Project Software Design (4) <u>S</u>
	EECE 480 Control Systems (4) <u>F</u>	Technical Elective	Technical Elective
	EECE 491 Project Proposal (2) <u>F</u>	GUR:	GUR
	GUR	GUR	

NOTES:

1. EECE courses are offered once per year and have a strong prerequisite structure. Not following the sequence may delay graduation.
2. Students not enrolled in MATH 125 and PHYS 162 by *Winter of Year 1* will not be able to complete the degree in four years.
3. EECE 109 is waived for transfer students. EECE 108 must be taken during the first winter quarter at WWU.
4. MATH 341 may be substituted for MATH 345, the recommended course.
5. CSCI 141 may be substituted for CSCI 140, the recommended course.

Admissions

Program Admissions: Admission to the Electrical and Computer Engineering major is a two-phase process. When students initially declare, they are designated as pre-majors. Students must complete the courses listed below in order to apply to the major. Admission to full major status is determined by academic performance and other factors including an application questionnaire about the applicant's experience, motivation, and goals. Admission to the major is competitive. Neither completion of the prerequisites nor attainment of any specific GPA guarantees admission.

Major Prerequisite courses: MATH 124, MATH 125, MATH 204, PHYS 161, PHYS 162, CSCI 140, EECE 108/9, and EECE 111. Students must obtain at least a C- and an overall GPA of 2.0 or higher in these courses to be considered. Advanced Placement (AP) scores are converted to GPA as follows: 5 = A; 4 = B; 3 = C. Decisions are based on the cumulative GPA in the prerequisite courses, and other required major courses, overall GPA, and questionnaire responses.

Spring Quarter: Applications are due **on the Friday before finals week**. Only complete, on-time applications will be considered. Applicants will be notified by the end of the week following finals week. *Students who are accepted must register for Fall quarter EECE courses before the end of Phase I registration. Students who do not register by the end of Phase I registration may lose their major status.*

Fall Quarter: Applications are also accepted at the beginning of Fall quarter on a **space available** basis. Check the department website for application due date. Accepted students will be notified by the start of Phase III registration.

Transfer Students: Transfer students who will be transferring into Fall quarter, Year 2, will be designated as a pre-major and will need to follow the standard application process above except for EECE 108, which must be taken at the first opportunity on-campus, and EECE 109 which is waived for transfer students. Transfer students who have previous coursework that can be transferred to EECE core courses and will be entering the program after Fall quarter, Year 2, may apply at any time. Acceptance will be based on space availability and academic performance. All transfer students who are interested in pursuing the EECE program should meet with the department pre-major advisor early to discuss their options.

Approved Technical Electives (6 credits total required): Other courses may be accepted; see program advisor.

BIOL 204, 205, 206 INTRODUCTORY SERIES (5)
BIOL 348 HUMAN ANATOMY AND PHYSIOLOGY(5)
CHEM 162, 163 GENERAL CHEMISTRY II, III (5,5)
CSCI 145 COMPUTER PROGRAM. & LINEAR DATA STRUCT. (4)
CSCI 247 COMPUTER SYSTEMS I (5)
CSCI 241 DATA STRUCTURES (4)
CSCI 3XX and CSCI 4XX
EECE 300 DIRECTED INDEP. STUDY
EECE 374 ENERGY PROCESSING (4)
EECE 378 SMART & RENEWABLE POWER(4)
ENRG 360 ENERGY EFFICIENT DESIGN (4)
ENRG 420 ENERGY SCIENCE II (3)
ENRG 480 APPLICATIONS ENERGY PRODUCTION (4)
EECE 400 DIRECTED INDEPENDENT STUDY
EECE 495 DIRECTED RESEARCH (1-3)
ENGR 170 INTRO TO MATERIALS SCIENCE & ENGR (4) ENGR
214 STATICS (4)
ENGR 225 MECHANICS OF MATERIALS (5)
MATH 225 MULTIVARIABLE CALC. AND GEOM. II (4)
MATH 226 LIMITS AND INFINITE SERIES (4)
MATH 302 INTRO TO PROOFS VIA NUMBER THEORY (4)
MATH 304 LINEAR ALGEBRA (4)
MATH 307 MATHEMATICAL COMPUTING (4)
MATH 309 INTRO TO PROOF IN DISCRETE MATH (4)
MATH 342 STATISTICAL METHODS I (4)

MATH 343 STATISTICAL METHODS II (4)
MATH 344 HONORS PROBABILITY AND STATS (4)
MATH 410 MATHEMATICAL MODELING (4)
MATH 430 FOURIER SERIES/DIFFNTL EQNS (4)
MATH 432 SYSTEM OF DIFFERENTIAL EQUATIONS (4)
MATH 441 PROBABILITY (4)
MATH 458 STOCHASTIC PROCESSES (4)
MATH 473 NUMERICAL LINEAR ALGEBRA (4)
M/CS 335/375 LINEAR OPTIMIZATION/NUMERICAL COMPUT (4)
M/CS 435/475 NONLINEAR OPTIMIZATION/NUM ANALYSIS (4)
MFGE 341 QUALITY ASSURANCE (4)
MFGE 342 DESIGN OF EXPERIMENTS (4)
MFGE 453 INDUSTRIAL ROBOTICS (4)
OPS 360 OPERATIONS MANAGEMENT (4)
OPS 460 DESIGNING AND IMPROVING OPERATIONS (4) OPS
461 PROJECT MANAGEMENT (4)
OPS 463 ENTERPRISE RESOURCE PLANNING SYSTEMS (4)
PHYS 220 PHYSICS W/ CALCULUS IV (4)
PHYS 224 MODERN PHYSICS I (4)
PHYS 225 MODERN PHYSICS II (3)
PHYS 339 OPTICS (3)
PHYS 350 ENGINEERING THERMODYNAMICS (3)
PHYS 368 ELECTROMAGNETISM I (3)
PHYS 369 ELECTROMAGNETISM II (3)

Electrical and Computer Engineering professors:

Qi Cheng, Assistant Professor, starting Spring 2020
Xichen Jiang, Associate Professor: jiangx2@wwu.edu ET268
Junaid Khan, Assistant Professor, khanj@wwu.edu
Andy Klein, Professor: kleina5@wwu.edu ET270

Ying Lin, Associate Professor: liny4@wwu.edu ET271
John Lund, Associate Professor: lundj9@wwu.edu ET274
Todd Morton, Professor: toddm@wwu.edu ET204
Amr Radwan, Assistant Professor: radwana@wwu.edu ET269