

Electrical Engineering Electives; Other Engineering Electives; Group A Focus Area & Group B Project Lab Options					
2023 - 2024					
Successful completion of all prerequisite courses required as well as a minimum 2.5 TTU GPA					
ECE	Descriptive Title & Pre-Requisite(s)	OEE	Title & Pre-Requisite(s) (May choose a MAX of Two From OEE)	Group B	Project Lab in Focus Area (Choose Two to complete along with ECE 3331 & ECE 4333)
ECE 3325	Computer Networks (ECE 3303 & ECE 3308)	CHE 2321	Chem Engr Thermo I (CHE 2310 & MATH 2450 (concurrent allowed))	ECE 3332	Microcontroller Project Lab (ECE 3331, ECE 3311, & ECE 3362 or ECE 3363)
ECE 4310	Introduction to VLSI Design (ECE 3311)	CHE 3322	Chem Engr Thermo II (CHE 2321, CHE 2310, MATH 3350, & CHEM 3305 (concurrent allowed))	ECE 3333	RF Communications Project Lab (ECE 3331, ECE 3303, ECE 3308, ECE 3311, & ECE 3362 or ECE 3363)
ECE 4314	Solid State Devices (ECE 3311)	CHE 3330	Engineering Materials Science (CHE 2321, CHEM 1308, & MATH 1452)	ECE 3334	Digital Comms Project Lab (ECE 3331, ECE 3303, ECE 3308, ECE 3311, & ECE 3362 or ECE 3363)
ECE 4316	Power Electronics (ECE 3311 & ECE 3353)	CHE 4342	Polymer Physics & Engineering (CHE 3330)	ECE 3335	Power Systems Project Lab (ECE 3331, ECE 3303, ECE 3311, & ECE 3341)
ECE 4321	Applications of Analog Integrated Circuits (ECE 3312 & ECE 3353)	CE 2301	Statics (MATH 1452 & PHYS 1408 (concurrent allowed))	ECE 3336	Software Development Project Lab (ECE 3331 & CS 3365)
ECE 4323	Modern Communication Circuits (ECE 3312 & ECE 3323)	CE 3302	Dynamics (CE 2301 or ME 2301; MATH 2450 (concurrent allowed))	ECE 3337	Electromagnetics Project Lab (ECE 3331, ECE 3306, & ECE 3342 (may be taken concurrently))
ECE 4331	Individual Studies in EE (instructor consent)(may NOT be repeated for credit)	CE 3303	Mechanics of Solids (CE 2301 or ME 2301)	ECE 3338	Computer Networks Project Lab (ECE 3331, ECE 3325 or ECE 4325)
ECE 4332	Topics in Electrical Engineering (may be repeated for credit)	CE 3305	Mechanics of Fluids (CE 2301 or ME 2301)		
ECE 4340	Steady-State Analysis of Power Systems (ECE 3306)	CS 2413	Data Structures (CS 1412)		Link to 2023 - 2024 Catalog Course Descriptions
ECE 4341	Microwave Engineering (ECE 3342)	CS 3365	Software Engineering (CS 2365 or CS 2413, & MATH 3342 (or equivalent))		
ECE 4342	Microwave Solid-State Circuits (ECE 3312)	CS 3368	Intro to Artificial Intelligence (CS 1382 & CS 2413)		
ECE 4343	Introduction to Power Systems (ECE 3341)	IE 3311	Deterministic Operations Research (MATH 2360)		
ECE 4344	Antennas & Radiating Systems (ECE 3342)	IE 3346	Quality Assurance and Engr Statistics (IE 2341)		
ECE 4349	Modern Radar Circuits & Systems (ECE 3341)	IE 4316	Simulation Systems Modeling (IE 2341 & IE 3312)		
ECE 4354	Power Semiconductor Devices (ECE 4314)	MATH 4310	Introduction to Numerical Analysis I (MATH 3350)		
ECE 4360	Fiber Optic Systems (ECE 3341)	MATH 4312	Introduction to Numerical Analysis II (MATH 2360)		
ECE 4362	Modern Optics for Engineers (ECE 3341)	ME 2301	Statics (MATH 1452 & PHYS 1408)		
ECE 4363	Pattern Recognition (ECE 3308 or MATH 3342 or IE 2341; MATH 3350; ECE 3303, & ECE 3304 or ECE 3323)	ME 2302	Dynamics (MATH 2450 & ME 2301)		
ECE 4364	Digital Signal Processing (ECE 3303)	ME 2322	Engineering Thermo I (MATH 1452 & PHYS 1408)		
ECE 4365	Parametric & Functional Device Testing (ECE 3331 & ECE 3308 or MATH 3342 or IE 2341)	ME 3311	Materials Science (CHEM 1307 & CHEM 1107)		
ECE 4366	Testing of Digital Systems (ECE 3331 & ECE 3308 or MATH 3342 or IE 2341)	ME 3322	Engineering Thermo II (ME 2322)		
ECE 4367	Image Processing (ECE 3303; ECE 3304 or ECE 3323; ECE 3308 or MATH 3342 or IE 2341; MATH 3350)	ME 3370	Fluid Mechanics (ME 2301 & ME 2322 or CE 2301)		
ECE 4369	Security of Industrial Control Systems (ECE 3353)	ME 3371	Heat Transfer (ME 3370 & ME 3215 or ME 2315 & PHYS 2401)		
ECE 4370	Machine Learning (MATH 2360, MATH 3350, & ECE 3308 or MATH 3342 or IE 2341)	PHYS 4301	Computational Phys (PHYS 1408, PHYS 2305, PHYS 2401, & PHYS 2402 or PHYS 3301)		
ECE 4372	Renewable Power Generation & Integration (ECE 3311)	PHYS 4302	Stat & Therm Phys (PHYS 2402 or PHYS 3301; MATH 3350 or MATH 3354 or PHYS 4325)		
ECE 4373	Synchrophasor Applications for Utility Grid Integration (ECE 3306)	PHYS 4304	Mechanics (PHYS 1408; MATH 3350 or MATH 3354 or PHYS 4325)		
ECE 4375	Microprocessor Architecture (ECE 3362 or ECE 3363 or CS 3350 & ECE 3311)	PHYS 4307	Quantum Mechs I (PHYS 3301 or PHYS 2402; MATH 3351 or MATH 4354 or PHYS 4325)		
ECE 4377	Innovation and Entrepreneurship (ECE 3331)	PHYS 4308	Quantum Mechanics II (PHYS 4307)		
ECE 4378	Solar Energy (ECE 3331)	PHYS 4309	Solid State Physics (PHYS 3305 & knowledge of elementary quantum mechanics)		
ECE 4379	Unmanned Aircraft Systems	PHYS 4312	Nuclear & Particle Physics (PHYS 4307)		
ECE 4380	Embedded Systems (ECE 3362 or ECE 3363 or CS 3350; ECE 3303 or ECE 3304)	RE 3300	Wind Energy Sci & Tech I (RE 1300) WE DEPT WILL WAIVE THIS PRE-REQ FOR EE'S - EMAIL EE ADVISOR)		
ECE 4381	VLSI Processing (ECE 3311, PHYS 2401, & MATH 3350)	RE 3301	Wind Energy Sci & Tech II (RE 3300)		
ECE 4382	Digital IC Analysis and Design (ECE 3311 & ECE 3362 or ECE 3363)	RE 3315	Renewable Energy & the Environment		
ECE 4385	Introduction to Microsystems I (ECE 3303 & ECE 3311)	RE 4300	Wind Energy Grid Integration (RE 3301)		
ECE 4386	Introduction to Microsystems II (ECE 4385)	RE 4310	Wind Mod & Design (ENGL 1302, RE 2300, RE 3300, RE 3301, RE 3100, & RE 3310)		
ECE 4391	Electric Machines & Drives (ECE 3341 & ECE 3353)	RE 4313	Wind Energy Geo Info Sys & Mapping (RE 2310 & RE 3100)		
ECE 4395	Metamaterials & Integrated Nanophotonics (ECE 3342)	RE 4321	Wind Dynamics for Wind Energy (RE 4323)		
		RE 4322	Wind Turbine Aerodynamics (RE 3301)		
Group A	Focus Area (Choose Two to complete)	RE 4323	Meteorology for Wind Energy (RE 1311 & RE 2310)		
ECE 3312	Advanced Electronics (ECE 3311, ECE 3303, & MATH 3350)				◆ cannot receive degree credit for both courses
ECE 3323	Principles of Communication Systems (ECE 3306 & ECE 3308)				★ cannot receive degree credit for both courses
ECE 3342	Electromagnetic Fields II (ECE 3341 & MATH 3351 or ECE 3309)				▶ cannot receive degree credit for both courses
ECE 3353	Control System Analysis & Design (ECE 3303 & MATH 3350)				