

ELECTRICAL ENGINEERING DEPARTMENTAL ELECTIVES LIST

2022 - 2023

Successful completion of all prerequisite courses required as well as a minimum 2.5 TTU GPA.

- ECE 3304 – Discrete-Time Signals and Systems (ECE 3303)
- ECE 3306 – Network Analysis (ECE 3302) **(elective option prior to 2013 – 2014 catalog year)**
- ECE 3308 – Probability, Statistics, & Discrete Math (MATH 1452)
- ECE 3309 – Advanced Mathematics and Linear Algebra (ECE 3303, ECE 3308, MATH 2450, & MATH 3350)
- ECE 4310 – Introduction to VLSI Design (ECE 3311)
- ECE 4314 – Solid State Devices (ECE 3311)
- ECE 4316 – Power Electronics (ECE 3311 & ECE 3353)
- ECE 4321 – Applications of Analog Integrated Circuits (ECE 3312, ECE 3323, & ECE 3353)
- ECE 4323 – Modern Communication Circuits (ECE 3312 & ECE 3323)
- ECE 4325 – Telecommunication Networks (ECE 3304 or ECE 3323)
- ECE 4331 – Individual Studies in Electrical Engineering **(instructor consent) (may NOT be repeated for credit)**
- ECE 4332 – Topics in Electrical Engineering **(may be repeated for credit)**
- ECE 4340 – Steady-State Analysis of Power Systems (ECE 3306)
- ECE 4341 – Microwave Engineering (ECE 3342)
- ECE 4342 – Microwave Solid-State Circuits (ECE 3312)
- ECE 4343 – Introduction to Power Systems (ECE 3341)
- ECE 4344 – Antennas and Radiating Systems (ECE 3342)
- ECE 4349 – Modern Radar Circuits and Systems (ECE 3341)
- ECE 4354 – Power Semiconductor Devices (ECE 4314)
- ECE 4360 – Fiber Optic Systems (ECE 3341)
- ECE 4362 – Modern Optics for Engineering (ECE 3341)
- ECE 4363 – Pattern Recognition (MATH 3342, MATH 3350, ECE 3303, & ECE 3304 or ECE 3323) **(TTU GPA \geq 3.0; B or better in pre-reqs)**
- ECE 4364 – Digital Signal Processing (ECE 3304)
- ECE 4365 – Parametric and Functional Device Testing (ECE 3332 & MATH 3342 or IE 3341)
- ECE 4366 – Testing of Digital Systems (ECE 3332 & MATH 3342 or IE 3341)
- ECE 4367 – Image Processing (MATH 3342, MATH 3350, ECE 3303 & ECE 3304 or ECE 3323) **(TTU GPA \geq 3.0; B or better in pre-reqs)**
- ECE 4369 – Security of Industrial Control Systems (ECE 3353)
- ECE 4370 – Machine Learning (MATH 2360, MATH 3342 or IE 3341, & MATH 3350)
- ECE 4375 – Microprocessor Architecture (ECE 3311 & ECE 3362 or CS 3350)
- ECE 4377 – Innovation and Entrepreneurship (ECE 3331)
- ECE 4378 – Solar Energy (ECE 3333 or ECE 3334)
- ECE 4379 – Unmanned Aircraft Systems
- ECE 4380 – Embedded Systems (ECE 3362 or CS 3350; ECE 3303 or ECE 3304)
- ECE 4381 – VLSI Processing (ECE 3311, PHYS 2401 & MATH 3350)
- ECE 4382 – Digital IC Analysis and Design (ECE 3311 & ECE 3362)
- ECE 4385 – Introduction to Microsystems I (ECE 3303 & ECE 3311)
- ECE 4386 – Introduction to Microsystems II (ECE 4385)
- ECE 4391 – Electric Machines and Drives (ECE 3341)

OTHER ENGINEERING ELECTIVES LIST

2022 - 2023

Successful completion of all prerequisite courses required.

CHE	2421	Chemical Engineering Thermodynamics I (CHE 2410 & MATH 2450 – concurrent allowed)
CHE	3322	Chemical Engineering Thermodynamics II (C or better in CHE 2421, CHE 2410, MATH 3350, & CHEM 3305)
CHE	3330♦	Engineering Materials Science (CHE 2421, MATH 1452, & CHEM 1308)
CHE	4342	Polymer Physics and Engineering (CHE 3330)
CE	2301★	Statics (MATH 1452 & PHYS 1408 – concurrent allowed)
CE	3302▲	Dynamics (CE 2301 or ME 2301; MATH 2450 – concurrent allowed)
CE	3303	Mechanics of Solids (CE 2301 or ME 2301)
CE	3305	Mechanics of Fluids (CE 2301 or ME 2301)
CS	2413	Data Structures (CS 1412)
CS	3365	Software Engineering (CS 2365, CS 2413 & MATH 3342 or equivalent)
CS	3368	Introduction to Artificial Intelligence (CS 1382)
IE	3311	Deterministic Operations Research (MATH 2360)
IE	3346	Quality Assurance and Engineering Statistics (C or better in IE 2341)
IE	4316	Simulation Systems Modeling (C or better in IE 3312)
MATH	4310	Introduction to Numerical Analysis I (MATH 3350 or MATH 3354)
MATH	4312	Introduction to Numerical Analysis II (MATH 2360)
ME	2301★	Statics (MATH 1452 & PHYS 1408)
ME	2302▲	Dynamics (C or better in MATH 2450 & ME 2301)
ME	2322	Engineering Thermodynamics I (MATH 1452 & PHYS 1408)
ME	3311♦	Materials Science (CHEM 1307 & CHEM 1107)
ME	3322	Engineering Thermodynamics II (ME 2322)
ME	3370	Fluid Mechanics (ME 2301 or CE 2301 & ME 2322)
ME	3371	Heat Transfer (ME 3215, ME 3370, & PHYS 2401)
PHYS	4301	Computational Physics (C or better in PHYS 1408, PHYS 2305, PHYS 2401, & PHYS 2402 or PHYS 3301)
PHYS	4302	Statistical and Thermal Physics (C or better in PHYS 2402 or PHYS 3301; MATH 3350 or MATH 3354, or PHYS 4325)
PHYS	4304	Mechanics (C or better in PHYS 1408; MATH 3350 or MATH 3354, or PHYS 4325)
PHYS	4307	Quantum Mechanics I (C or better in PHYS 3301 or PHYS 2402; MATH 3351 or MATH 4354, or PHYS 4325)
PHYS	4308	Quantum Mechanics II (C or better in PHYS 4307)
PHYS	4309	Solid State Physics (C or better in PHYS 3305 & knowledge of elementary quantum mechanics)
PHYS	4312	Nuclear and Particle Physics (C or better in PHYS 4307)
WE/RE*	3300	Wind Energy Science and Technology I (WE 1300 – WE DEPARTMENT WILL WAIVE THIS PRE-REQ FOR EE STUDENTS – SUBMIT REQUEST FOR PERMISSION TO ENROLL VIA EMAIL TO ECE ADVISOR)
WE/RE*	3301	Wind Energy Science and Technology II (WE 3300)
WE/RE*	3315	Renewable Energy and the Environment
WE/RE*	4300	Wind Energy Grid Integration (WE 3301)
WE/RE*	4310	Wind Modeling and Design (ENGL 1302, WE 2300, WE 3300, WE 3301, WE 3100, & WE 3310)
WE/RE*	4313	Wind Energy Geographic Information Systems and Mapping (WE 2310 & WE 3100)
WE/RE*	4321	Wind Dynamics for Wind Energy (WE 4323)
WE/RE*	4322	Wind Turbine Aerodynamics (WE 3301)
WE/RE*	4323	Meteorology for Wind Energy (WE 1311 & WE 2310)

- ★ Cannot receive degree credit for both courses.
- ▲ Cannot receive degree credit for both courses.
- ♦ Cannot receive degree credit for both courses.

**"WE" PREFIX CHANGED TO "RE" – EFFECTIVE FALL 2022*