

## Restricted Area Electives

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The following is a list of approved Restricted Area Electives for EE and CE students. The electives are grouped by suggested areas of study within Electric and Computer Engineering. However, a student is free to choose any elective listed that does not duplicate other program requirements. Special topics courses such as ECE 491 and ECE 493 may also be approved by petition.

### AREA 1: SOFTWARE AND EMBEDDED SYSTEMS

AEM 249 Algorithm Development Implementation  
CS 101 Computer Science II  
CS 200 Software Design and Engineering  
CS 201 Data Structures and Algorithms  
CS 202 Web Foundations  
CS 300 Operating Systems  
CS 301 Database Management Systems  
CS 403 Programming Languages  
CS 407 Software Interface Design  
CS 434 Compiler Construction  
CS 435 Computer Graphics  
CS 451 Data Science  
CS 460 Introduction to Autonomous Robotics  
CS 465 Artificial Intelligence  
CS 470 Computer Algorithms  
CS 480 Computer Simulations  
ECE 408 Communications  
ECE 409 Communications Lab  
ECE 480 Digital Systems Design  
ECE 481 Digital Systems Design Lab  
ECE 482 Computer Vision & Digital Image Processing  
ECE 483 Introduction to Machine Learning  
ECE 484 Computer Architecture  
ECE 485 Programmable Logic Controllers  
ECE 486 Embedded Systems  
ECE 487 Embedded Systems Lab  
ECE 488 Computational Intelligence  
ME 456 Mechatronics

### AREA 2: ELECTROMECHANICAL SYSTEMS

ECE 451 Power Electronics  
ECE 452 Power Electronics Lab  
ECE 453 Power Systems  
ECE 454 Power Systems Lab  
ECE 455 Electromechanical Systems  
ECE 475 Control Systems Analysis  
ECE 476 Control Systems Lab  
ECE 479 Digital Control Systems  
ME 454 Automotive Electrical and Electronic Systems

AREAS 3 & 4: MATERIALS AND DEVICES; ELECTROMAGNETICS

CH 341 Physical Chemistry  
ECE 430 Solid State Devices  
ECE 438 Integrated Circuit Fabrication Principles  
ECE 439 Thin Film Technology  
ECE 440 Electromagnetic Waves  
ECE 461 Quantum Well Electronics and Devices  
ECE 462 Semiconductor Optoelectronics  
ECE 463 Magnetic Materials and Devices  
ECE 466 Fundamentals of Nanotechnology  
MTE 271 Engineering Materials: Structure and Properties  
MTE 450 Plasma Processing of Thin Films  
MTE 481 Analytical Methods for Materials

AREA 5: GENERAL COURSES

Aerospace Engineering and Mechanics – AEM 201, AEM 349

Mechanical Engineering – ME 215, ME 305, ME 349, ME 372

GES – GES 400

Mathematics (MATH) – All courses above MATH 238 not duplicating other courses required in the curriculum. Exceptions to this include all courses with math education as the primary emphasis (e.g. MATH 403, 404, 405, 409).

Physics (PH) – All courses 300 and above not duplicating other courses required in the curriculum.

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