Courses approved for CpE Technical Electives

The list may vary (a little) by catalog year – the best place for the list that pertains to you – is in your degree audit report which you run in Banweb – Student Records.

2012-2013; 2013-2014

Applies to B.S.-ECP Degree requirements for audit years listed above.

A minimum of 6 credits are required with the Senior Design option. \(7 \text{ if you took CS1131}\)
A minimum of 4 credits are required with the Enterprise Design option. \(5 \text{ if you took CS1131}\)

Courses graded pass/fail or taken under ‘audit’ option do not qualify toward degree requirements.

EE3140  Electromagnetics
EE3180  Probability and Random Signal Analysis \((EE3180 \text{ may be taken in place of MA3710 or as technical elective. Not both.})\)
EE4001 – EE4899  Exclude: EE4000, EE4805, EE4900, EE4901, EE4910
EE5000 – EE7999  Exclude: EE5290

CS3141  Team Software Project
CS3311  Formal Models of Comp.
CS4001 – CS4999  Exclude: CS4000, CS4090, CS4099, CS4431, CS4791, CS4792
CS5000 – CS5899  Exclude: CS5090, CS5091

MA3202  Intro to Coding Theory
MA3203  Intro to Cryptography

MEEM4705  Intro Robotics and Mechatronics

Basic math and fundamentals:  MA3202, MA3203, EE3180

Electrical engineering areas:

Control:  EE3261, EE4262, EE4219, EE4220
Electronics:  EE4271, EE4231, EE4232, EE4240
Signal Processing:  EE4252, EE4253
Power:  EE3120, EE4221, EE4222, EE5223, EE5224, EE5250, EE4226, EE4227, EE4228
Electromagnetics:  EE4411, EE4441
Photonics:  EE3090, EE3290, EE4490
Communication: EE3250, EE5525
Computing:  EE4271, EE4272, EE4723, EE4495, EE5496, EE4735
1) IC Design; Microelectronic; Electronics Industry

EE4227 Power Electronics
EE4228 Power Electronics Lab
EE4231 Physical Electronics
EE4240 Introduction to MEMS
EE4271 VLSI Design
EE4495 S/H Design Multi-media systems
EE4496 GPU & Multi-core Programming
EE4252 DSP and it’s Applications

2) Communication Industry

EE3180 Random Signal Analysis & Probability
EE4250 Communication Theory
EE4252 DSP and it’s Applications
EE4253 Real-time Signal Processing
EE5525 Wireless Communications
EE5522 Digital Image Processing
EE4272 Computer Networks
EE4290 Optical Communication
EE4495 S/H Design Multi-media systems
EE5750 Distributed Embedded Control systems
CS4421 Database Systems
CS4461 Computer Networks
EE4296 GPU & Multi-core Programming

3) Control; Robotics; Industrial Plants; Power Engineering

EE3180 Random Signal Analysis & Probability
EE3261 Classic Control Systems
EE4262 Digital and Non-linear Control
EE5750 Distributed Embedded Control systems
EE4735 Emb Sys Pgm/Snsr ntwrks/mobile robots
EE3733 Intro. Programmable Controllers
EE4373 Advanced Programmable Contr.
EE5496 GPU & Multi-core Programming
EE4219 Intro Elec. Machinery & Drives
EE4220 Intro Elec. Mach. & Drives Lab
CS4461 Computer Networks
CS4421 Database Systems
MEEM4705 Intro to Robotics and Mechatronics

4) Photonics Industry; Optical Engineering

EE4490 Optical Sensing and Imaging
EE3290 Photonic Material and Devices
EE4231 Physical Electronics
EE4240 Intro to MEMS
EE4256 Fourier Optics
EE4490 Optical Communication
EE4411 Engineering Electromagnetics
EE4441 Laser Types; Laser Design;

5) Power Engineering

EE4219 Intro Elec. Machinery & Drives
EE4220 Intro Elec. Machinery & Drives Lab
EE4221 Power Analysis 1
EE4222 Power Analysis 2
EE4226 Power Engineering Lab
EE4227 Power Electronics
EE4228 Power Electronics Lab
EE5223 Power Systems Protection
EE5224 Power Systems Protection Lab
EE5225 Distribution Engineering

6) Computer Engineering; Embedded Systems; Distributed Systems; Large-scale Systems; Computer Networks Industry

EE4495 S/H Design Multi-media systems
EE5496 GPU & Multi-core Programming
EE4735 EmbSysPgm/SnsrNetwks/Mobile Robots
EE5750 Distributed Embedded Control systems
CS3331 Concurrent Programming
CS4331 Intro to Parallel Programming
CS4411 Operating Systems
CS4461 Computer Networks
CS4471 Computer Security
CS4611 Computer Graphics
CS4710 Model-driven Software Devel.
CS4711 Software Processes and Mgmt.
CS4712 Software Quality Assurance
CS4760 Human-Computer Interactions
CS4811 Artificial Intelligence
MA3202 Intro to Coding Theory
MA3203 Intro to Cryptography

7) Software Engineering; Embedded Systems; Computer Science, Computer Engineering

CS3141 Team Software Project
CS3311 Formal Models of Computation
CS3331 Concurrent Programming
CS4121 Programming Languages
CS4130 Compiler Design & Optimization
CS4331 Intro to Parallel Programming
CS4411 Operating Systems
CS4461 Computer Networks
CS4471 Computer Security
CS4611 Computer Graphics
CS4710 Model-driven Software Devel.
CS4711 Software Processes and Mgmt.
CS4712 Software Quality Assurance
CS4760 Human-Computer Interactions
CS4811 Artificial Intelligence
MA3202 Intro to Coding Theory
MA3203 Intro to Cryptography