

# 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 if you took CS1131)*

A minimum of 4 credits are required with the Enterprise Design option. *(5 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 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

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**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	EE4495	S/H Design Multi-media systems
EE3261	Classic Control Systems	EE5496	GPU & Multi-core Programming
EE4262	Digital and Non-linear Control	EE4735	EmbSysPgm/SnsrNetwks/Mobile Robots
EE5750	Distributed Embedded Control systems	EE5750	Distributed Embedded Control Systems
EE4735	Emb Sys Pgm/Sensr ntwrks/mobile robots	CS3331	Concurrent Programming
EE3733	Intro. Programmable Controllers	CS4331	Intro to Parallel Programming
EE4373	Advanced Programmable Contr.	CS4411	Operating Systems
EE5496	GPU & Multi-core Programming	CS4451	Network Administration
EE4219	Intro Elec. Machinery & Drives	CS4461	Computer Networks
EE4220	Intro Elec. Mach. & Drives Lab	CS4471	Computer Security
CS4461	Computer Networks	CS4811	Artificial Intelligence
CS4421	Database Systems	CS4121	Programming Languages
MEEM4705	Intro to Robotics and Mechatronics	CS4130	Compiler Design & Optimization
		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****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
CS4421	Database 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