

Computer Engineering Approved Technical Electives

Requirement:

Students must complete 4 technical electives (12 hours total).

Rules & Restrictions:

- Only 3 hours may come from areas other than CPE, EE, or CS.
- CPE449 and CS485 are equivalent courses. Both cannot be taken for credit.
- No ET (Engineering Technology) courses may be used for elective credit.
- Students may choose to do a Cybersecurity Concentration with their 12 hours of electives (see details below)

Approved Course Code, Title, and Prerequisite(s):

Computer Engineering Courses

- CPE412 - Intro to Parallel Programming: Prerequisite(s) CPE212, CS417
- CPE423 - Hardware/Software Co-Design: Prerequisite(s) CPE322, CPE426
- CPE426 - VLSI Hardware Desc Lang/Modl/S: Prerequisite(s) EE202, EE315
- CPE427 - VLSI Design I: Prerequisite(s) EE202, EE315
- CPE449 - Intro to Cybersecurity Engineering: Prerequisite(s) CPE348
- CPE455 - Secure Software Development: Prerequisite(s) CPE353
- CPE457 - Software Reverse Engineering: Prerequisite(s) CPE353
- CPE459 - Systems Security: Prerequisite(s) CPE348, CPE449
- CPE486 - Machine Learning for Engineering App: Prerequisite(s) MA244, EE385 Or ISE390
- CPE487 - Deep Learning for Engineering App: Prerequisite(s) CPE486
- CPE490 - Special Topics in Comp Engr: Prerequisite(s) Advisor Approval

Computer Science Courses

- CS321 - Intro Object-Oriented Prog Java: Prerequisite(s) CS221 Or CPE212
- CS330 - Artificial Intel & Game Dev: Prerequisite(s) CS221 Or CPE212
- CS347 - Intro Video Game Design & Programming: Prerequisite(s) CS221 Or CPE212
- CS371 - Mobile Computing App Inct & D: Prerequisite(s) CS221 Or CPE212
- CS391 – Intro to Network Admin Principles for Windows: Prerequisite(s) CS221 Or CPE212
- CS392 - Int Network Admin Principles for UNIX: Prerequisite(s) CS390
- CS403 – Introduction to Formal Languages& Automata Theory: Prerequisite(s) CS417
- CS424 - Principles Programming Lang: Prerequisite(s) CS417

- CS430 - Survey AI & Machine Learning: Prerequisite(s) CS417
- CS443 - Intro to Multimedia Systems: Prerequisite(s) CS417
- CS445 - Intro Computer Graphics: Prerequisite(s) CPE212, MA244
- CS453 - Client/Server Architectures: Prerequisite(s) CS321
- CS454 - Intro to Cloud Computing: Prerequisite(s) CPE348, CS321 Or CPE353
- CS465 - Network Security: Prerequisite(s) CPE221, CPE348
- CS466 - Offensive Security: Prerequisite(s) CPE348
- CS480 - Mobile Digital Forensics: Prerequisite(s) CPE323
- CS485 - Intro Cybersecurity Engr: Prerequisite(s) CPE348
- CS487 - Database Systems: Prerequisite(s) Senior Standing
- CS488 - Intro to Big Data Computing: Prerequisite(s) CS417
- CS496 - Special Topics: Prerequisite(s) Advisor Approval

Electrical Engineering Courses

- EE307 - Electricity & Magnetism: Prerequisite(s) EE215
- EE308 - Electromagnetic Engr: Prerequisite(s) EE307
- EE386 - Intro Control/Robotic Sys: Prerequisite(s) CPE381 Or EE382
- EE410 - Selected Topics/ECE: Prerequisite(s) Advisor Approval
- EE411 - Electric Power System: Prerequisite(s) CPE381 Or EE382
- EE414 - Analog & Digital Filter Design: Prerequisite(s) EE315, EE383 Or CPE381
- EE416 - Electronics II: Prerequisite(s) EE315
- EE422 – Quantum Communications: Prerequisite(s) EE 383, EE 385
- EE424 - Intro Data Communication Networks: Prerequisite(s) EE383 Or CPE381, EE385
- EE436 - Digital Electronics: Prerequisite(s) EE202, EE315
- EE451 - Optoelectronics: Prerequisite(s) EE307, EE315
- EE453 - Laser Systems: Prerequisite(s) EE307
- EE454 - Optical Fiber Communications: Prerequisite(s) EE307, CPE381
- EE486 - Intro Modern Control Systems: Prerequisite(s) EE386

Industrial & Systems Engineering Courses

- ISE340 - Operations Research: Prerequisite(s) ISE390, MA244
- ISE391 - Prob/Engr Stat II: Prerequisite(s) ISE390
- ISE423 – Intro to Statistical Quality Control: Prerequisite(s) ISE391
- ISE426 - Design & Analysis of Experiments: Prerequisite(s) ISE391
- ISE430 – Manufacturing Sys & Facilities Design: Prerequisite(s) ISE324
- ISE447 - Intro to Systems Simulation: Prerequisite(s) ISE391

Information Systems Electives

- IS463 - Digital Forensics: Prerequisite(s) IS 301

Mathematics Courses

- MA385 - Intro to Probability & Statistics: Prerequisite(s) MA201
- MA415 – Intro Numerical Methods: Prerequisite(s) MA201, MA244, CPE211
- MA442 - Algebraic Structures W/Applications: Prerequisite(s) MA244, MA330 Or MA385
- MA450 - Combinatorial Enumeration: Prerequisite(s) MA385
- MA452 - Intro to Real Analysis: Prerequisite(s) MA330
- MA456 - Methods of Partial Differential Equations: Prerequisite(s) MA238, MA244
- MA458 - Applied Linear Algebra: Prerequisite(s) MA238, MA244
- MA460 - Intro Fourier Analysis: Prerequisite(s) MA238, MA244
- MA465 - Intro to Math Modeling: Prerequisite(s) MA201, MA238, MA244
- MA487 - Intro to Math Statistics: Prerequisite(s) MA201, MA385 Or ISE390

Cybersecurity Concentration Requirements:

Core (complete)

- CPE449 - Intro to Cybersecurity Engineering: Prerequisite(s) CPE348

Computer Engineering Electives (complete 2)

- CPE455 - Secure Software Development: Prerequisite(s) CPE353
- CPE457 - Software Reverse Engineering: Prerequisite(s) CPE353
- CPE459 - Systems Security: Prerequisite(s) CPE348, CPE449

Computer Science Elective (complete 1)

- CS465 - Network Security: Prerequisite(s) CPE221, CPE348
- CS480 - Mobile Digital Forensics: Prerequisite(s) CPE323
- CS488 - Intro to Big Data Computing: Prerequisite(s) CS417