COMPUTER ENGINEERING AREA ELECTIVES

- Students are required to satisfy at least 2 depth tracks. Satisfying a track requires completing at least 2 courses in each track from the list below. At least 4 courses must be completed.
- Depth tracks are subject to change. Consult your advising office for the current details.
- ECEN 485 Directed Studies & ECEN 491 Research may be counted towards one of the four required electives if a minimum of 3 credits are earned.
- In addition, a varying number of sections of ECEN/CSCE 489-Special Topics may be offered. Each 489 section will apply to one of the specialty areas, usually classified according to the professor’s research.

### Depth Tracks

- **Communications and Networks**
  - CSCE 463 (3), Computer Networks (Prerequisite: CSCE 315 or approval of instructor)
  - CSCE 464 (3), Wireless and Mobile Systems (Prerequisites: CSCE 313; junior or senior classification or approval of instructor)
  - CSCE 465 (3), Computer and Network Security (Prerequisites: CSCE 313; junior or senior classification or approval of instructor)
  - ECEN 424 (3), Fundamentals of Networking (Prerequisites: ECEN 303 or STAT 211)
  - ECEN 434 (3), Optimization for ECEN (MATH 304, 309 or 311; MATH 251)
  - ECEN 455 (4), Digital Communications (Prerequisites: ECEN 314)
  - ECEN 478 (3), Wireless Communications (Prerequisites: ECEN 455; junior or senior classification)
  - MATH 470 (3), Comm. & Cryptography (Prerequisites: MATH 304 or MATH 323 and CSCE 110 and approval of instructor)

- **VLSI**
  - ECEN 326 (4), Electronic Circuits (Prerequisites: ECEN 314 and 325)
  - ECEN 468 (4), Advanced Logic Design (Prerequisite: ECEN 248)
  - ECEN 474 (4), VLSI Circuit Design (Prerequisite: ECEN 326)
  - ECEN 475 (4), Intro to VLSI System Design (Prerequisites: ECEN 248 and ECEN 325)

- **Software Systems and Algorithms**
  - CSCE 314 (3), Programming Languages (Prerequisite: CSCE 221)
  - CSCE 410 (3), Advanced OS (Prerequisite: CSCE 315)
  - CSCE 411 (3), Design and Analysis of Algorithms (Prerequisite: CSCE 315)
  - CSCE 431 (3), Software Engineering (Prerequisite: CSCE 315 or approval of instructor)
  - CSCE 434 (3), Compiler Design (Prerequisite: CSCE 315 or approval of instructor)
  - CSCE 435 (3), Parallel Computing (Prerequisites: CSCE 315 and junior or senior classification or approval of instructor)
  - CSCE 442 (3), Scientific Programming (Prerequisites: Knowledge of C, C++ or Fortran; MATH 304 or MATH 308 or concurrent enrollment in one of these)
  - CSCE 465 (3), Computer and Network Security (Prerequisites: CSCE 313; junior or senior classification or approval of instructor)
  - ECEN 434 (3), Optimization for ECEN (MATH 304, 309 or 311; MATH 251)

- **Signal/Image Processing & Graphics**
  - CSCE 441(3), Computer Graphics (Prerequisite: CSCE 211 or CSCE 221 or approval of instructor)
  - CSCE 443 (3) Game Development (Prerequisite: CSCE 441 or VIST 486 or approval of instructor)
  - ECEN 444 (4), Digital Signal Processing (Prerequisite: ECEN 314)-offered prior to spring 2013
  - ECEN 447 (4), Digital Image Processing (ECEN 314; junior or senior classification)
  - ECEN 448 (3), Real Time DSP (Prerequisites: ECEN 444; junior or senior classification)

- **Robotics/Embedded Systems**
  - CSCE 420 (3), Artificial Intelligence (Prerequisite: CSCE 315 or approval of instructor)
  - CSCE 452 (3), Robotics (Prerequisite: CSCE 315 or approval of instructor)
  - CSCE 456 (4), Real-time Computing (Prerequisites: ECEN 248; MATH 251; knowledge of C or Ada, or approval of instructor)
  - ECEN 420 (3), Linear Control Systems (Prerequisites: ECEN 314; MATH 308)
  - ECEN 421 (3), Digital Control Systems (Prerequisite: ECEN 420 or equivalent)
  - ECEN 422 (3), Control Engineering and Design Methodology (Prerequisite: ECEN 420 or equivalent)

- **Information (agreed 12/12/07)**
  - CSCE 310 (3), Database Systems (Prerequisite: CSCE 211 or CSCE 221)
  - CSCE 444 (3), Structures of Interactive Info. (Prerequisite: CSCE 315 or approval of instructor)
  - CSCE 438 (3), Distributed Objects (Prerequisite: CSCE 315 or approval of instructor)
  - CSCE 363 (3), Computer Human Interaction (Prerequisite: CSCE 315 or approval of instructor)
  - CSCE 470 (3), Information Storage & Retrieval (Prerequisite: CSCE 315 or approval of instructor)
  - ECEN 455 (4), Digital Communications (Prerequisite: ECEN 314)

As of 5-5-14