ELECTRICAL ENGINEERING TRACK ELECTIVES

A MINIMUM OF SEVEN COURSES AND A MINIMUM OF 24 CREDITS MUST BE COMPLETED.

COMMUNICATIONS, CONTROL, SIGNAL PROCESSING
ECEN 410 (3-0) Cr 3 - Intro to Medical Imaging (MATH 222 or 251 or 253; ECEN 314 or 444, U3/U4)
ECEN 419 (3-0) Cr 3 - Genomic Signal Processing (ECEN 314, U3/U4)
ECEN 420 (3-0) Cr 3 - Linear Control Systems (ECEN 314, MATH 308)
ECEN 422 (3-2) Cr 3 - Control Engineering and Design Methodology (ECEN 420)
ECEN 424 (3-0) Cr 3 - Fundamentals of Networking (ECEN 303 or STAT 211)
ECEN 442 (2-3) Cr 3 - DSP Based Electromech Motion (ECEN 314, U3/U4)
ECEN 444 (3-3) Cr 4 - Digital Signal Processing (ECEN 314, U3/U4)
ECEN 447 (3-3) Cr 4 - Digital Image Processing (ECEN 314, U3/U4)
ECEN 448 (2-3) Cr 3 - Real Time Digital Signal Processing (ECEN 444, U3/U4)
ECEN 455 (3-3) Cr 4 - Digital Communications (ECEN 314)
ECEN 463 (2-3) Cr 3 - Magnetic Res Eng (ECEN 410 or 411, U3/U4)
ECEN 478 (3-0) Cr 3 - Wireless Communications (ECEN 455, U3/U4)

COMPUTER ENGINEERING AND SYSTEMS
ECEN 424 (3-0) Cr 3 - Fundamentals of Networking (ECEN 303 or STAT 211)
ECEN 434 (3-0) Cr 3 - Optimization for ECEN (MATH 304, 309 or 311, MATH 251)
ECEN 449 (2-2) Cr 3 - Microprocessor Systems Design (ECEN 248)
ECEN 445 (2-2) Cr 3 - Digital Integrated Circuit Design (ECEN 314)
ECEN 457 (3-3) Cr 4 - Advanced Logic Design (ECEN 248)
ECEN 475 (3-3) Cr 4 - Intro to VLSI Systems Design (ECEN 248 and ECEN 325)

ELECTRONICS
ECEN 326 (3-3) Cr 4 - Electronic Circuits (ECEN 314 and 325)
ECEN 457 (3-3) Cr 4 - Operational Amplifiers (ECEN 326)
ECEN 458 (3-3) Cr 4 - Active Filter Analysis & Design (ECEN 325)
ECEN 474 (3-3) Cr 4 - VLSI Circuit Design (ECEN 326)

ELECTROPHYSICS, ELECTROOPTICS, MICROWAVES
ECEN 351 (3-0) Cr 3 - Applied Electromagnetic Theory - offered prior to fall 13
ECEN 410 (3-0) Cr 3 - Intro to Medical Imaging (MATH 222 or 251 or 253, ECEN 314 or 444, U3/U4)
ECEN 440 (3-1) Cr 3 - Intro to Thin Film Science & Tech. (U3/U4; Upper Level)
ECEN 445 (3-0) Cr 3 - Applied Electromagnetic Theory (ECEN 322)
ECEN 451 (3-0) Cr 3 - Antenna Engineering (ECEN 322)
ECEN 452, (2-3) Cr 3 - Ultra High Frequency Techniques (ECEN 322 & 351c)
ECEN 453, (3-0) Cr 3 - MW Solid-State Circuits & Systems (ECEN 322)
ECEN 462, (3-0) Cr 3 - Optical Communication Systems (ECEN 322 & ECEN 370)
ECEN 463 (2-3) Cr 3 - Magnetic Res Eng (ECEN 410 or 411, U3/U4)
ECEN 464 (3-0) Cr 3 - Optical Engineering (ECEN 322 & ECEN 370)
ECEN 465 (2-7) Cr 4 - Experimental Optics (U3/U4)
ECEN 472 (3-3) Cr 4 - Microelectronic Circuit Fabrication (ECEN 325 & ECEN 370)
ECEN 473, (3-0) Cr 3 - Microelectronic Device Design (ECEN 325 or ECEN 370)
ECEN 480 (3-0) Cr 3 - RF & Microwave Wireless Systems (ECEN 322)

POWER / POWER ELECTRONICS
ECEN 415 (3-0) Cr 3 - Phy & Econ Oper of Sustain. Energy Sys. (ECEN 214, 420 or 460)
ECEN 438 (3-3) Cr 4 - Power Electronics (U3/U4)
ECEN 441 (3-3) Cr 4 - Electronic Motor Drives (U3/U4)
ECEN 442 (2-3) Cr 3 - DSP Based Electromech Motion (ECEN 314, U3/U4)
ECEN 459 (3-2) Cr 4 - Power Sys. Fault Analysis & Protec. (ECEN 215 or 314)
ECEN 460 (3-2) Cr 4 - Power System Operation & Control (ECEN 215 or 314)

BIOMEDICAL IMAGING, SENSING AND SYSTEMS
ECEN 410 (3-0) Cr 3 - Intro to Medical Imaging (MATH 222 or 251 or 253, ECEN 314 or 444, U3/U4)
ECEN 411 (2-3) Cr 3 - Intro to MRI and MRS (U3/U4; MATH 251, PHYS 208)
ECEN 412 (3-0) Cr 3 - Ultrasound Imaging (ECEN 314, U3/U4)
ECEN 414 (2-2) Cr 3 - Biosensors (U4)
ECEN 419 (3-0) Cr 3 - Genomic Signal Processing (ECEN 314, U3/U4)
ECEN 447 (3-3) Cr 4 - Digital Image Processing (ECEN 314, U3/U4)
ECEN 451 (3-0) Cr 3 - Antenna Engineering (ECEN 322)
ECEN 463 (2-3) Cr 3 - Magnetic Res Eng (ECEN 410 or 411, U3/U4)

Requirements
a. Students must take at least three courses from one area.
b. Students must take electives from at least two areas not selected in (a)
c. Remaining ECEN electives may be selected from any 300 or 400 level ECEN course

Additional considerations
* ELEN Students should view the advising course on eCampus to find the tentative course offerings for the upcoming academic year.
* In addition, a varying number of ECEN 489-Special Topics may be offered. Each course will apply to one of the specialty areas, usually classified according to the professor's research area.
* ENGR 385 Co-op, ECEN 485 Directed Studies & ECEN 491 Research may be counted towards the 24-credit elective total, but they DO NOT replace any of the seven elective courses.

Updated 5-5-14