DREXEL UNIVERSITY
Electrical and Computer Engineering
College of Engineering

APPLICATION AREAS

Machine Learning > data analytics, computer vision, autonomous cars

- ECEC 487, ECEC 486, ECE 361, CS 383, CS 380

Electronic Devices and VLSI circuits > processor & chip design

- ECEE 302, ECEE 352, ECEE 434, ECEE 421, ECEE 422, ECEC 471, ECEC 472, ECEC 474, ECEC 475

Cyber-physical Systems > internet of things, embedded systems

- ECEC 201/301, ECEC 302, ECEC 204/304, ECE 302, ECE 403

Computer System Design > processor & chip design, parallel programming, comp architecture

- ECEC 355, ECEC 353, ECEC 412, ECEC 413

Special Topics (WILL CHANGE)

- Cyber security, hardware security, machine learning, data science

Wireless and Optical Electronics > antenna design, cellular communication, microwaves, sensors, electronic devices

- ECEE 304, ECEE 354, ECES 306, ECES 354, ECEC 357, ECEC 432, ECEE 471, ECEE 472, ECEE 473
- Complimentary courses: ECEE 302, ECEE 352, ECEE 434, ECEE 421, ECEE 422

Digital Signal Processing > wireless systems, autonomous cars, audio signals, image analysis, biomedical applications, sensors, communications

- ECES 434, ECES 435, ECES 436, S 441, S 450
- Complimentary courses: ECES 306, ECE 361, ECES 354, ECEC 486, ECEC 487

Automation and Robotics > motion control, machine tools, industrial process control (chemical factories), vehicle system control, biomedical applications

- ECES 304, ECES 356, ECES 444, ECES 461
- Complimentary courses: ECEE 352, ECEE 302, ECE 361, ECEP 352, ECE 302, ECEC 204/304

Alternative Energy > residential, industrial, utility scale energy system analysis & design

- Renewable: ECEP 380, ECEP 480, ECEE 302, ECEP 352, ECEP 411
- Complimentary courses: CHE 431, MATE 482, MEM 445, MEM 361, CHE 430

Electrical Power > smart grid, micro grid, big data, demand-side management, electric vehicles, energy storage, power plants

- ECEP 352, ECEE 302, ECE 361, ECEP 411, ECEP 412, ECEP 413, ECEP 421, ECEP 422, ECEP 423, ECEP 441, ECEP 451, ECEP 452, ECEP 453
- Nuclear: ECEP 371, ECEP 372, ECEP 402, ECEP 403, ECEP 406, PHYS 330
- Complimentary courses: ECEP 380, ECEP 480, ECES 304, ECES 306, ECEE 352, ECEE 421, ECEE 422, MATE 450

NOTE: Lists do not include all pre-requisites
BLUE = 300 level classes | RED = Not on 2019 TMS, but may be offered in future | ORANGE = level change 300 to 200 (effective 201815)

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COURSE TITLES

ECEC 201/301 Advanced Programming (3)
ECEC 302 Digital Systems Projects (3)
ECEC 204/304 Design with Microcontrollers (3)
ECEC 353 Systems programming (3)
ECEC 355 Computer Organization and Architecture (3)
ECEC 357 Introduction to Computer Networks (3)
ECEC 402 Digital System Projects Embedded Design (3)
ECEC 412 Modern Processor Design (3)
ECEC 413 Intro Parallel Computer Architecture (3)
ECEC 432 Internet Architecture and Protocols (3)
ECEC 433 Network Programming (3)
ECEC 471 Intro to VLSI Design (3)
ECEC 472 Custom VLSI Design & Analysis I (3)
ECEC 474 ASIC Design I (3)
ECEC 475 ASIC Design II (3)
ECEC 486 Cell and Tissue Image Analysis (3)
ECEC 487 Pattern Recognition (3)

ECEE 302 Electronic Devices (4)
ECEE 304 Electromagnetic Fields & Waives (4)
ECEE 352 Analog Electronics (4)
ECEE 354 Wireless and Optical Electronics (4)
ECEE 421 Advanced Electronics (4)
ECEE 422 Advanced Electronic Circuits (3)
ECEE 434 Digital Electronics (4)
ECEE 471 RF Components and Techniques (4)
ECEE 472 RF Electronics (4)
ECEE 473 Antennas and Radiating Systems (4)

ECES 304 Dynamic Systems and Stability (4)
ECES 306 Analog & Digital Communication (4)
ECES 354 Wireless, Mobile & Cellular Communications (4)
ECES 356 Theory of Control (4)
ECES 434 Applied Digital Signal Processing (4)
ECES 435 Recent Advances in Digital Signal Processing (4)
ECES 436 Multi-disciplinary Digital Signal Processing (4)
ECES 441 Bioinformatics (3)
ECES 444 Systems and Controls I (4)
ECES 445 Systems and Controls II (4)
ECES 450 Statistical Analysis of Metagenomics (3)
ECES 461 Medical Robotics I (3)

ECEP 352 Electric Motor Control Principles (4)
ECEP 371 Intro to Nuclear Engineering (2)
ECEP 372 Radiation Detection and Measurement (3)
ECEP 380 Intro to Renewable Energy (3)
ECEP 402 Theory of Nuclear Reactors (4)
ECEP 403 Nuclear Power Plant Design & Operation (3)
ECEP 406 Intro to Radiation Health Principles (3)
ECEP 411 Power Systems I (3)
ECEP 412 Power Systems II (4)
ECEP 413 Power Systems III (3)

ECEP 421 Modeling & Analysis of Electric Power Distribution Systems (3)
ECEP 422 Power Distribution Automation & Control (3)
ECEP 423 Service Power Quality Distribution Systems (3)
ECEP 441 Protective Relaying (3)
ECEP 451 Power Electronic Converter Fundamentals (3)
ECEP 452 Experimental Study of Power Electronic Converters (3)
ECEP 453 Application f Power Electronic Converters (3)
ECEP 480 Solar Energy Engineering (3)

ECE 302 Design with Embedded Processors (3)
ECE 361 Probability for Engineers (4)

CS 383 Machine Learning (3)
CS 380 Artificial Intelligence (3)
PHYS 330 Intro to Nuclear Physics (2)
CHE 431 Fundamental of Solar Cells (3)
CHE 430 Intro to Sustainable Engineering (3)
MATE 450 The Nuclear Fuel Cycle & Materials (3)
MATE 482 Materials for Energy Storage (3)
MEM 361 Engineering Reliability (3)
MEM 445 Solar Energy Fundamentals (3)

Updated 6/11/19