

# EE Professional Preparation Curriculum Planning

## Power Area Examples

In addition to the required courses in the BSEE curriculum and flowchart, students choose **9 Engineering Support Electives units** and **11 Technical Electives units**. If you are interested in careers in any of the following **Electrical Engineering Power Area Examples**, we would recommend that you review courses offerings from the following **Engineering Support Electives** and **Technical Electives course listings**. We provide example lists of course arrangements here ( \* - choose at most one of these non-EE technical electives).

### Power Systems Analysis and Design Example:

MATH 304 Vector Analysis (4)  
MATH 248 Methods of Proof in Mathematics (4)  
MATH 306 Linear Algebra II (4)  
MATH 451 Numerical Analysis I (4)  
MATH 453 Numerical Optimization (4)  
EE 406 Power Systems Analysis I (4) [F]  
EE 407 Power Systems Analysis II (4) [W]  
EE 410 Power Electronics I with Lab (4) [F]  
EE 444 Power Systems Lab (1) [S]  
EE 518 Power System Protection (4) [S]  
EE 519 Advanced Analysis of Power Systems (4) [S]

### Power Electronics Design Example:

ME 211 Engineering Statics (3)  
ME 212 Engineering Dynamics (3)  
ME 302 Thermodynamics (3)  
EE 410 Power Electronics I with Lab (4) [F]  
EE 411 Power Electronics II with Lab (4) [W]  
EE 406 Power Systems Analysis I (4) [F]  
EE 527 Advanced Topics in Power Electronics (4) [S]

### Magnetic Devices and Machine Design Example:

ME 211 Engineering Statics (3)  
ME 212 Engineering Dynamics (3)  
MATE 210 Materials Engineering (3)  
MATE 340 Electronic Materials Systems (3)  
EE 417 Alternating Current Machines with Lab (4) [F]

EE 433 Intro. to Magnetic Design with Lab (4) [S]  
EE 406 Power Systems Analysis I (4) [F]  
EE 410 Power Electronics I with Lab (4) [F]  
EE 511 Electric Machines Theory (4) [S]

### Sustainable Energy Example:

IME 314 Engineering Economics (3)  
CSC 341 Numerical Engineering Analysis (4)  
PHYS 310 Physics of Energy (3)  
EE 420 Sustainable Electric Energy Conversion with Lab (4) [W]  
EE 406 Power Systems Analysis I (4) [F]  
EE 410 Power Electronics I with Lab (4) [F]  
EE 520 Solar Photovoltaic Systems Design(4) [S]  
EE 434 Automotive Engineering for a Sustainable Future (4) [SP]

### Control Systems Example:

MATH 248. Methods of Proof in Mathematics (4)  
MATH 306 Linear Algebra II (4)  
ME 211 Engineering Statics (3)  
ME 212 Engineering Dynamics (3)  
EE 432 Digital Control Systems (3) [F]  
EE 472 Digital Control Systems Lab (1) [F]  
EE 513 Control System Theory (4) [W]  
EE 509 Computational Intelligence (4) [S]  
EE 514 Adv. Topics in Auto. Control (4) [S]

## **Engineering Support Electives Listing for Power Area:**

MATH 304 Vector Analysis (4)  
MATH 248 Methods of Proof in Mathematics (4)  
MATH 306 Linear Algebra II (4)  
MATH 451 Numerical Analysis I (4)  
MATH 453 Numerical Optimization (4)  
ME 211 Engineering Statics (3)  
ME 212 Engineering Dynamics (3)  
ME 302 Thermodynamics (3)  
MATE 210 Materials Engineering (3)  
MATE 340 Electronic Materials Systems (3)  
IME 314 Engineering Economics (3)  
CSC 341 Numerical Engineering Analysis (4)  
PHYS 310 Physics of Energy (3)

## **Technical Electives Listing for Power Area**

EE 406 Power Systems Analysis I (4) [F]  
EE 407 Power Systems Analysis II (4) [W]  
EE 444 Power Systems Lab (1) [S]  
EE 518 Power System Protection (4) [S]  
EE 519 Advanced Analysis of Power Systems (4) [S]  
EE 410 Power Electronics I with Lab (4) [F]  
EE 411 Power Electronics II with Lab (4) [W]  
EE 527 Advanced Topics in Power Electronics (4) [S]  
EE 417 Alternating Current Machines with Lab (4) [F]  
EE 433 Intro. to Magnetic Design with Lab (4) [S]  
EE 406 Power Systems Analysis I (4) [F]  
EE 410 Power Electronics I with Lab (4) [F]  
EE 511 Electric Machines Theory (4) [S]  
EE 420 Sustainable Electric Energy Conversion with  
Lab (4) [W]  
EE 520 Solar Photovoltaic Systems Design(4) [S]  
EE 434 Automotive Engineering for a Sustainable  
Future (4) [SP]  
EE 432 Digital Control Systems (3) [F]  
EE 472 Digital Control Systems Lab (1) [F]  
EE 513 Control System Theory (4) [W]  
EE 509 Computational Intelligence (4) [S]  
EE 514 Adv. Topics in Auto. Control (4) [S]