

# ELECTRICAL SYSTEMS TECHNOLOGY

BACHELOR IN SCIENCE (BS) DEGREE

DESCRIPTION: This bachelor's degree program is designed to train individuals to install, modify, maintain, troubleshoot, and perform functional tests on electrical grid systems equipment for employment in the fields of electric distribution, transmission, and generation. This includes grounding grids, power transformers, circuit breakers, lightning arresters, switches, and various protective relay equipment including electromechanical and microprocessor based hardware.

## GENERAL EDUCATION COURSES CREDITS: 28

ENG 111 or ENG 120	ENGLISH COMPOSITION I (3/3) or APPLIED COMMUNICATION (3/3)
ENG 112 or ENG 123	ENGLISH COMPOSITION II (3/3) or TECHNICAL COMMUNICATION (3/3)
MTH 123 ECN 231 PSY 101 SPE 123	ALGEBRA & ANALYTIC TRIGONOMETRY (4/4) ECONOMICS (MICRO) (3/3) GENERAL PSYCHOLOGY (3/3) PUBLIC COMMUNICATION (3/3)
CEM 111 or CEM 121	GENERAL CHEMISTRY (4/7) or GENERAL & INORGANIC CHEMISTRY (4/7)
PHY 221	PHYSICS (5/7)

## CORE PROGRAM REQUIREMENTS CREDITS: 70

APP 100E	ELECTRICAL STUDIES FOR TRADES (3/4) <sup>A</sup>
APP 104E	AC & DC FUNDAMENTALS (3/4) <sup>A</sup>
APP 111E	ELECTRIC MOTOR CONTROL (3/4) <sup>A</sup>
APP 114E	PROGRAMMABLE CONTROLLERS (3/4) <sup>A</sup>
APP 122E	DIGITAL ELECTRONICS FOR ELECTRICIANS (3/4) <sup>A</sup>
BUS 390	UTILITY FINANCING & ACCOUNTING (3/3) <sup>A</sup>
BUS 391	UTILITY REGULATIONS (3/3) <sup>A</sup>
EPT 230	POLY-PHASE METERING (2/3) <sup>A</sup>
EST 301	POWER SYSTEMS (3/3) <sup>A</sup>
EST 302	CIRCUITS (4/4) <sup>A</sup>
EST 304	THREE PHASE POWER/PHASOR ANALYSIS (3/3) <sup>A</sup>
EST 306	ELECTRIC POWER GENERATION (3/3) <sup>A</sup>
EST 307	INTRO TO COMPUTER MODELING POWER SYSTEMS (3/4) <sup>A</sup>
EST 308	DISTRIBUTION/TRANSMISSION POWER (3/3) <sup>A</sup>
EST 401	RENEWABLES (3/3) <sup>A</sup>
EST 402	SCADA (SUPERVISORY CONTROL & DATA ACQUISITION) (3/4) <sup>A</sup>
EST 403	PROTECTION (3/3) <sup>A</sup>
EST 404	POWER LINE PARAMETERS (3/4) <sup>A</sup>
EST 405	RELAYING (3/4) <sup>A</sup>
EST 406	THE GRID (3/3) <sup>A</sup>
EST 408	ELECTRICAL SYSTEMS CAPSTONE PROJECT (3/4) <sup>A</sup>
UTT 300	UTILITY SYSTEMS & EQUIPMENT (7/8) <sup>A</sup>

*GPA of 2.0 or higher must be maintained in occupational specialty courses*

ADDITIONAL PROGRAM REQUIREMENTS	CREDITS: 34
BUS 121	INTRODUCTION TO BUSINESS (3/3)
CNS 151	NETWORK CABLING (3/4)
GEO 151	INTRODUCTION TO GIS (1.5/2)
GEO 152	ADVANCED GIS (1.5/2)
IND 120	INTRO TO COMPUTERS & NETWORKING (3/4)
MTH 131	CALCULUS I (5/5)
MTH 221	C++ PROGRAMMING (4/5)
PHY 222	PHYSICS (5/7)
PLS 221	AMERICAN GOVERNMENT & POLITICS (3/3)
PSY 241	SOCIAL PSYCHOLOGY (3/3)

## MINIMUM 130 CREDIT HOURS/153 CONTACT HOURS

### NOTES:

<sup>A</sup> Included in occupational specialty

It is recommended that students intending to transfer work closely with their academic advisor and transfer destination.

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SUGGESTED SEQUENCE OF COURSES

## YEAR 1 (FALL SEMESTER)

**CREDITS: 16**

APP 100E ELECTRICAL STUDIES FOR TRADES (3/4)  
BUS 121 INTRODUCTION TO BUSINESS (3/3)

ENG 111 *or* ENGLISH COMPOSITION I (3/3) *or*  
ENG 120 APPLIED COMMUNICATION (3/3)

MTH 123 ALGEBRA & ANALYTIC TRIGONOMETRY (4/4)  
PSY 101 GENERAL PSYCHOLOGY (3/3)

## YEAR 1 (SPRING SEMESTER)

**CREDITS: 17**

APP 104E AC & DC FUNDAMENTALS (3/4)  
ECN 231 ECONOMICS (MICRO) (3/3)

ENG 112 *or* ENGLISH COMPOSITION II (3/3) *or*  
ENG 123 TECHNICAL COMMUNICATION (3/3)

MTH 131 CALCULUS I (5/5)  
SPE 123 PUBLIC COMMUNICATION (3/3)

## YEAR 2 (FALL SEMESTER)

**CREDITS: 15**

APP 111E ELECTRIC MOTOR CONTROL (3/4)  
APP 122E DIGITAL ELECTRONICS FOR ELECTRICIANS (3/4)

CEM 111 *or* GENERAL CHEMISTRY (4/7) *or*  
CEM 121 GENERAL & INORGANIC CHEMISTRY (4/7)

PHY 221 PHYSICS (5/7)

## YEAR 2 (SPRING SEMESTER)

**CREDITS: 18**

APP 114E PROGRAMMABLE CONTROLLERS (3/4)  
MTH 221 C++ PROGRAMMING (4/5)  
PHY 222 PHYSICS (5/7)  
PLS 221 AMERICAN GOVERNMENT & POLITICS (3/3)  
PSY 241 SOCIAL PSYCHOLOGY (3/3)

## YEAR 3 (FALL SEMESTER)

**CREDITS: 16**

CNS 151 NETWORK CABLING (3/4)  
IND 120 INTRO TO COMPUTERS & NETWORKING (3/4)  
EST 302 CIRCUITS (4/4)  
EST 304 THREE PHASE POWER/PHASOR ANALYSIS (3/3)  
EST 306 ELECTRIC POWER GENERATION (3/3)

## YEAR 3 (SPRING SEMESTER)

**CREDITS: 18**

EPT 230 POLY-PHASE METERING (2/3)  
EST 301 POWER SYSTEMS (3/3)  
EST 308 DISTRIBUTION/TRANSMISSION POWER (3/3)  
GEO 151 INTRODUCTION TO GIS (1.5/2)  
GEO 152 ADVANCED GIS (1.5/2)  
UTT 300 UTILITY SYSTEMS & EQUIPMENT (7/8)

## YEAR 4 (FALL SEMESTER)

**CREDITS: 15**

BUS 390 UTILITY FINANCING & ACCOUNTING (3/3)  
EST 401 RENEWABLES (3/3)  
EST 402 SCADA (SUPERVISORY CONTROL & DATA ACQUISITION) (3/4)  
EST 404 POWER LINE PARAMETERS (3/4)  
EST 406 THE GRID (3/3)

## YEAR 4 (SPRING SEMESTER)

**CREDITS: 15**

BUS 391 UTILITY REGULATIONS (3/3)  
EST 307 INTRO TO COMPUTER MODELING POWER SYSTEMS (3/4)  
EST 403 PROTECTION (3/3)  
EST 405 RELAYING (3/4)  
EST 408 ELECTRICAL SYSTEMS CAPSTONE PROJECT (3/4)