

**ELECTRICAL SYSTEMS TECHNOLOGY**

Bachelor of Science (BS) Degree

Minimum Credits: 130.0

Contact Hours: 153.0

**INTRODUCTION** The bachelor's degree program is designed to train individuals to install, modify, maintain, troubleshoot, and perform functional test 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**

<b>COURSE</b>	<b>TITLE</b>	<b>CREDITS</b>	<b>CONTACT HOURS</b>
ENG 111 or ENG 120	English Composition I or Applied Communications	3.0	3.0
ENG 112 or ENG 123	English Composition II or Technical Communication	3.0	3.0
MTH 123	Algebra & Analytic Trigonometry	4.0	4.0
ECN 231	Economics (Micro)	3.0	3.0
PSY 101	General Psychology	3.0	3.0
SPE 123	Public Communication	3.0	3.0
CEM 111 or CEM 121	General Chemistry or General and Inorganic Chemistry	4.0	7.0
PHY 221	Physics	<u>5.0</u>	<u>7.0</u>
<b>GENERAL EDUCATION CREDITS/CONTACT HOURS:</b>		28.0	33.0

**CORE PROGRAM COURSES**

<b>COURSE</b>	<b>TITLE</b>	<b>CREDITS</b>	<b>CONTACT HOURS</b>
APP 100E	Electrical Studies for Trades <sup>B</sup>	3.0	4.0
APP 104E	AC/DC Fundamentals <sup>B</sup>	3.0	4.0
APP 111E	Motor Controls <sup>B</sup>	3.0	4.0
APP 114E	PLC Programming <sup>B</sup>	3.0	4.0
APP 122E	Digital Electronics <sup>B</sup>	3.0	4.0
BUS 390	Utility Financing and Accounting <sup>B</sup>	3.0	3.0
BUS 391	Utility Regulations <sup>B</sup>	3.0	3.0
EPT 230	Poly-Phase Metering <sup>B</sup>	3.0	4.0
EST 301	Power Systems <sup>B</sup>	3.0	3.0
EST 302	Circuits <sup>B</sup>	4.0	4.0
EST 304	Three Phase Power/Phasor Analysis <sup>B</sup>	3.0	3.0
EST 306	Electric Power Generation <sup>B</sup>	3.0	3.0
EST 307	Introduction to Computer Modeling Power Systems <sup>B</sup>	3.0	4.0
EST 308	Distribution/Transmission Power <sup>B</sup>	3.0	3.0
EST 401	Renewables <sup>B</sup>	3.0	3.0
EST 402	SCADA (Supervisory Control and Data Acquisition) <sup>B</sup>	3.0	4.0
EST 403	Protection <sup>B</sup>	3.0	3.0
EST 404	Power Line Parameters <sup>B</sup>	3.0	4.0
EST 405	Relaying <sup>B</sup>	3.0	4.0
EST 406	The Grid <sup>B</sup>	3.0	3.0
EST 408	Electrical Systems Capstone Course	3.0	4.0
UTT 300	Utility Systems and Equipment	<u>7.0</u>	<u>8.0</u>
<b>CORE PROGRAM CREDITS/CONTACT HOURS:</b>		71.0	83.0

**ADDITIONAL PROGRAM COURSES**

BUS 121	Introduction to Business	3.0	3.0
CNS 151	Network Cabling	3.0	4.0
GEO 151	Introduction to GIS	1.5	2.0
GEO 152	Advanced GIS	1.5	2.0
IND 120	Introduction to Computers & Networking	3.0	4.0
MTH 131	Calculus I	5.0	5.0
MTH 221	C++ Programming	3.0	4.0
PHY 222	Physics	5.0	7.0
PLS 221	American Government and Politics	3.0	3.0
PSY 241	Social Psychology	<u>3.0</u>	<u>3.0</u>
<b>ADDITIONAL PROGRAM CREDITS/CONTACT HOURS:</b>		<u>31.0</u>	<u>37.0</u>
<b>MINIMUM PROGRAM CREDITS/CONTACT HOURS:</b>		130.0	153.0

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Minimum Credits: 130.0

Contact Hours: 153.0

**SUGGESTED SEQUENCING OF COURSES:**

<b>SUGGESTED SEQUENCING OF COURSES:</b>					
<b>YEAR 1 (FALL SEMESTER) <u>16.0</u> CREDITS</b>	<b>CREDITS</b>	<b>CONTACT HRS</b>	<b>YEAR 1 (SPRING SEMESTER) <u>17.0</u> CREDITS</b>	<b>CREDITS</b>	<b>CONTACT HRS</b>
APP 100E Electrical Studies for Trades	3.0	4.0	APP 104E AC/DC Fundamentals	3.0	4.0
BUS 121 Introduction to Business	3.0	3.0	ECN 231 Economics (Micro)	3.0	3.0
ENG 111 or ENG 120 English Composition I or Applied Communication	3.0	3.0	ENG 112 or ENG 123 English Composition II or Technical Communication	3.0	3.0
MTH 123 Algebra & Analytic Trigonometry	4.0	4.0	MTH 131 Calculus I	5.0	5.0
PSY 101 General Psychology	<u>3.0</u>	<u>3.0</u>	SPE 123 Public Communication	<u>3.0</u>	<u>3.0</u>
<b>TOTAL</b>	<b>16.0</b>	<b>17.0</b>	<b>TOTAL</b>	<b>17.0</b>	<b>18.0</b>
<b>YEAR 2 (FALL SEMESTER) <u>15.0</u> CREDITS</b>	<b>CREDITS</b>	<b>CONTACT HRS</b>	<b>YEAR 2 (SPRING SEMESTER) <u>17.0</u> CREDITS</b>	<b>CREDITS</b>	<b>CONTACT HRS</b>
APP 111E Motor Controls	3.0	4.0	APP 114E PLC Programming	3.0	4.0
APP 122E Digital Electronics	3.0	4.0	MTH 221 C++ Programming	3.0	4.0
CEM 111 or CEM 121 General Chemistry or General & Inorganic Chemistry	4.0	7.0	PHY 222 Physics	5.0	7.0
PHY 221 Physics	<u>5.0</u>	<u>7.0</u>	PLS 221 American Government & Politics	3.0	3.0
<b>TOTAL</b>	<b>15.0</b>	<b>22.0</b>	PSY 241 Social Psychology	<u>3.0</u>	<u>3.0</u>
			<b>TOTAL</b>	<b>17.0</b>	<b>21.0</b>
<b>YEAR 3 (FALL SEMESTER) <u>16.0</u> CREDITS</b>	<b>CREDITS</b>	<b>CONTACT HRS</b>	<b>YEAR 3 (SPRING SEMESTER) <u>19.0</u> CREDITS</b>	<b>CREDITS</b>	<b>CONTACT HRS</b>
CNS 151 Network Cabling	3.0	4.0	EPT 230 Poly-Phase Metering	3.0	4.0
EST 302 Circuits	3.0	3.0	EST 301 Power Systems	3.0	3.0
EST 304 Three Phase Power/Phasor Analysis	3.0	3.0	EST 308 Distribution/Transmission Power	3.0	3.0
EST 306 Electric Power Generation	3.0	3.0	GEO 151 Introduction to GIS	1.5	2.0
IND 120 Intro to Computers & Networking	<u>4.0</u>	<u>4.0</u>	GEO 152 Advanced GIS	1.5	2.0
<b>TOTAL</b>	<b>16.0</b>	<b>18.0</b>	UTT 300 (UTT 201, 202, 204)	<u>7.0</u>	<u>8.0</u>
			<b>TOTAL</b>	<b>19.0</b>	<b>22.0</b>
<b>YEAR 4 (FALL SEMESTER) <u>15.0</u> CREDITS</b>	<b>CREDITS</b>	<b>CONTACT HRS</b>	<b>YEAR 4 (SPRING SEMESTER) <u>15.0</u> CREDITS</b>	<b>CREDITS</b>	<b>CONTACT HRS</b>
BUS 390 Utility Financing & Accounting	3.0	3.0	BUS 391 Utility Regulations	3.0	3.0
EST 401 Renewables	3.0	3.0	EST 307 Intro to Comp Modeling Power Syst	3.0	4.0
EST 402 SCADA	3.0	4.0	EST 403 Protection	3.0	4.0
EST 404 Power Line Parameters	3.0	4.0	EST 405 Relaying	3.0	3.0
EST 406 The Grid	<u>3.0</u>	<u>3.0</u>	EST 408 Electrical Systems Capstone	<u>3.0</u>	<u>4.0</u>
<b>TOTAL</b>	<b>15.0</b>	<b>17.0</b>	<b>TOTAL</b>	<b>15.0</b>	<b>18.0</b>

**NOTES:****A** It is recommended that students intending to transfer work closely with their academic advisor and transfer destination.**B** Included in occupational specialty: GPA of 2.0 or higher must be maintained in the area of occupational specialty.