

# Renewable Energy

## 33-Hour Certificate Substation Technician



This educational program will produce a qualified workforce of Wind Energy Technicians to serve the emerging wind industry throughout the United States and potentially worldwide. Graduates of the program will possess the necessary skills to secure a position with a modern commercial wind farm operation or an industry career related to the production of electrical energy. A certificate is part of a stackable degree plan where a student who takes the first year of the associate program can get gainful employment based upon receiving a certification in the discipline.

### General Education Required Courses **6 cr**

- Communications Requirement* **3**
- \_\_CM101 English Composition I (3cr) *or*
  - \_\_CM120 Survey of Technical Writing (3 cr) *or*
  - \_\_CM115 Public Speaking (3 cr) *or*
  - \_\_CM240 Interpersonal Communications (3 cr)
- Mathematics Requirement* **3**
- \_\_MA104 Technical Math (3 cr) *or*
  - \_\_MA110 Intermediate Algebra *or*
  - \_\_Mathematics General Education Course

*General Education substitutions must be approved by the Vice President for Academic Affairs.*

*Program substitutions must be approved by the department chair.*

### **Recommended Course Sequence:**

First Semester: WE110, WE202, WE250, WE270,  
MA110, Communications Requirement  
Second Semester: WE105, WE210, WE215, WE225, WE230

### Required Substation Courses **24 cr**

- \_\_WE105 Employability Skills, Safety, & Blueprint Reading **3**
- \_\_WE110 Electrical Theory **3**
- \_\_WE202 Electrical Power Delivery **3**
- \_\_WE215 Electrical System Protection & Coordination **3**
- \_\_WE225 Motors, Generators, PLC's **3**
- \_\_WE230 Substation & Voltage Regulation **3**
- \_\_WE250 Data Acquisition & Communication **3**
- \_\_WE270 Transformer Theory **3**

### **First Semester:**

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### **Second Semester:**

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### Elective Courses\* **3 cr**

- \_\_SE100 Introduction to Solar Energy **3**
- \_\_UA100 sUAS Ground School **3**
- \_\_WE100 Introduction to Wind Energy **3**
- \_\_WE210 Electronics **3**

Anticipated Completion \_\_\_\_\_ Total Hours \_\_\_\_\_  
Minimum 33 credit hrs. with minimum GPA 2.0.

### Total Credits Required 33

*\* Electives should be selected with assistance from an advisor.*



There are many factors to consider when picking the college and the degree that are the best match for you. Explore [ksdegreestats.org](https://ksdegreestats.org) to learn more about the specific costs of each undergraduate degree program offered in Kansas, and the earnings those graduates are making today.

# GENERAL EDUCATION COURSES

## Catalog year 2023 – 24

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### COMMUNICATIONS

- CM101 English Composition I [placement]
- CM102 English Composition II [Comp I]
- CM106 Creative Writing (AA/AS only)
- CM115 Public Speaking
- CM120 Survey of Technical Writing (Cert/AAS/AGS only)  
[placement or Transitional English]
- CM240 Interpersonal Communications

### HUMANITIES

Arts AR100 Art Appreciation

#### Foreign Language

- FL105 French I
- FL111 Spanish I
- FL113 German I

#### History

- HI108 Women in American Society
- HI120 World History I
- HI121 World History II
- HI122 US History I
- HI123 US History II
- HI124 Introduction to History

#### Humanities

- CM106 Creative Writing
- HU201 Humanities I [Comp I]
- HU202 Humanities II [Comp I]
- JN100 Mass Media in Society

#### Literature

- CM121 Intro to Literature [Comp I]
- CM122 American Literature I [Comp I]
- CM123 American Literature II [Comp I]
- CM124 World Literature [Comp I]
- CM127 The Short Story [Comp I]

#### Music

- MU100 Music Appreciation
- MU101 American Music
- MU102 World Music
- MU103 History of Rock Music

#### Philosophy

- PH100 Intro to Philosophy
- PH105 Ethics
- RE104 World Religion

#### Theatre

- CM140 Theater Appreciation
- CM148 American Cinema Appreciation

### MATHEMATICS

- MA104 Technical Math (Cert/AAS only)
- MA105 Survey of Math (Cert/AAS only)
- MA110 Intermediate Algebra [placement]  
(Cert/AAS/AGS only)
- MA111 College Algebra [placement]
- MA112 Trigonometry [Col Alg or placement]
- MA114 Elementary Statistics [placement or College Alg]
- MA115 General Calculus [College Algebra]

### MATH CON'T.

- MA120 Analytical Geom/Calc I [see catalog]
- MA121 Analytical Geom/Calc II [Calc I]
- MA130 Contemporary Math [placement or Interm Alg]

### NATURAL SCIENCES

#### Biological Science

- SC101 General Biology
- SC110 Principles of Biology I
- SC120 Human Anatomy & Physiology I
- SC126 Anatomy and Physiology
- SC151 Principles of Biology II

#### Physical Science

- SC103 Physical Science [Int Alg or placement]
- SC104 Geology
- SC105 General Astronomy
- SC107 Meteorology
- SC130 General Chemistry [Elem Alg or placement]
- SC131 Chemistry I [Int Alg or placement]
- SC137 Natural Hazards & Disasters
- SC138 Natural Hazards & Disasters Lab
- SC140 College Physics I [see catalog]
- SC142 University Physics [co-req Calc I]
- SC146 Environmental Science and Conservation
- SC147 Environmental Science and Conservation Lab

### SOCIAL / BEHAVIORAL SCIENCES

#### Anthropology

- SS125 Intro to Cultural Anthropology

#### Economics

- EC101 Principles of Macroeconomics
- EC102 Principles of Microeconomics

#### Geography

- GE101 World Geography

#### Political Science

- SS140 US Government – National
- SS141 US Government – State & Local
- SS142 Current Political Issues
- SS150 Introduction to International Relations

#### Psychology

- SS101 General Psychology
- SS105 Human Growth & Development

#### Sociology

- SS106 Marriage & Family
- SS130 Introduction to Sociology
- SS131 Cultural Diversity and Ethnicity
- SS201 Social Problems

Pre-requisites are listed in [ ]

Students should see the current catalog for specific program requirements.

The Kansas Board of Regents has approved courses for guaranteed transfer among all Kansas public postsecondary institutions. Visit [www.kansasregents.org/transfer\\_articulation](http://www.kansasregents.org/transfer_articulation) for more information.

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