

## ELECTRONIC TECHNOLOGY

### Credentials

|  |           |
|--|-----------|
| Electronic Technology skills certificate | 16 cr.    |
| Electronic Technology certificate        | 33-34 cr. |
| Electronic Technology AAS degree         | 60-66 cr. |

### Major Description

Schoolcraft provides students interested in electronics a variety of educational options to increase their opportunities to become an electronics repair professional or an electronics engineering technician.

- The electronic technology skills certificate is designed for students who want to gain the basic skills needed for entry-level jobs in electronics.
  - With an electronic technology certificate, students will have a solid foundation for positions such as an electronic repairer that require a thorough understanding of electronic fundamentals. The certificate is also required to apply for entrance into Schoolcraft's biomedical engineering technology associate degree program.
  - The associate of applied science in electronic technology gives students a strong background in electronics and the fundamentals of electricity, and opens up positions as an electronics engineering technician where they will be able to work with engineers to design and test computers, electronic devices, appliances, and medical and industrial equipment.
- Students gain additional knowledge of microcontrollers, programmable logic controllers and digital and analog circuits in Schoolcraft's labs, while lectures focus on taking measurements and reporting findings in a clear, concise manner.

### Electronic Technology Skills Certificate

Schoolcraft program code # CRT.00320

The electronic technology certificate is intended for students wishing to gain the basic skills needed for entry-level jobs in electronics. Completion of the skills certificate permits the student to take electrical measurements, understand DC and AC signals, and apply solid-state troubleshooting techniques used in modern jobs involving electronics.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

#### SAMPLE SCHEDULE OF COURSES

##### First Year—Fall Semester

##### First Year—Winter Semester

|           |                                      |          |           |                                     |          |
|-----------|--------------------------------------|----------|-----------|-------------------------------------|----------|
| ELECT 131 | Basic Measurement & Reporting Skills | 3        | ELECT 138 | AC Circuits & Mathematical Modeling | 5        |
| ELECT 137 | DC Circuits & Mathematical Modeling  | 5        | ELECT 139 | Diodes & Transistors                | 3        |
|           | <b>Total Credits</b>                 | <b>8</b> |           | <b>Total Credits</b>                | <b>8</b> |

#### PROGRAM TOTAL 16 CREDITS

Not all courses are offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them.

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor or counselor. Number of credits may vary depending on the course selection.

### Electronic Technology Certificate

Schoolcraft program code # 1YC.00125

The certificate for electronics provides the student with a solid foundation for many jobs that require a thorough understanding of electronic fundamentals. Completion of the certificate program also offers the student the opportunity to pursue advanced technical credentials in healthcare, in manufacturing, or in computer systems.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

#### SAMPLE SCHEDULE OF COURSES

##### First Year—Fall Semester

##### First Year—Winter Semester

|           |                                      |              |           |                                     |           |
|-----------|--------------------------------------|--------------|-----------|-------------------------------------|-----------|
| ELECT 131 | Basic Measurement & Reporting Skills | 3            | ELECT 138 | AC Circuits & Mathematical Modeling | 5         |
| ELECT 137 | DC Circuits & Mathematical Modeling  | 5            | ELECT 139 | Diodes & Transistors                | 3         |
| Science   | <i>Select one</i>                    | 4-5          | ELECT 180 | LabVIEW Programming CORE 1 & 2      | 5         |
| BIOL 105  | Basic Human Anatomy & Physiology*    |              |           | <b>Total Credits</b>                | <b>13</b> |
| CHEM 111  | General Chemistry 1                  |              |           |                                     |           |
| PHYS 123  | Applied Physics                      |              |           |                                     |           |
|           | <b>Total Credits</b>                 | <b>12-13</b> |           |                                     |           |

##### First Year—Spring/Summer Session

|           |   |   |
|-----------|---|---|
| ELECT 215 | Operational Amplifiers & Linear Integrated Circuits | 4 |
|-----------|---|---|

|           |                        |          |
|-----------|------------------------|----------|
| ELECT 219 | Digital Logic Circuits | 4        |
|           | <b>Total Credits</b>   | <b>8</b> |

**PROGRAM TOTAL 33-34 CREDITS**

\*BIOL 105 is required for the BMET program internship sequence.

**Electronic Technology Certificate (continued)**

Not all courses are offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them.

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**Electronic Technology Certificate**

Schoolcraft program code # 1YC.00125

This electronics program is designed to give students a strong background in the fundamentals of electricity, electronic devices and basic circuits (digital and linear). The curriculum includes laboratory demonstration of the principles taught in class affording practical experience in fabrication, instrumentation and presentation.

The program is not directly aimed at specific products. With the multiplicity of equipment presently in use and the rapid advance and change in technology, the department stresses the development of a broad background that will enable students to find employment and be able to further their skills in a diversified number of industries.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**

**First Year—Winter Semester**

|           |                                      |              |           |                                     |           |
|-----------|--------------------------------------|--------------|-----------|-------------------------------------|-----------|
| ELECT 131 | Basic Measurement & Reporting Skills | 3            | ELECT 138 | AC Circuits & Mathematical Modeling | 5         |
| ELECT 137 | DC Circuits & Mathematical Modeling  | 5            | ELECT 139 | Diodes & Transistors                | 3         |
| ENG 101   | English Composition 1                | 3            | ELECT 180 | LabVIEW Programming CORE 1 & 2      | 5         |
| Science   | <i>Select one</i>                    | 4-5          |           | <b>Total Credits</b>                | <b>13</b> |
| BIOL 105  | Basic Human Anatomy & Physiology     |              |           |                                     |           |
| CHEM 111  | General Chemistry 1                  |              |           |                                     |           |
| PHYS 123  | Applied Physics                      |              |           |                                     |           |
|           | <b>Total Credits</b>                 | <b>15-16</b> |           |                                     |           |

**First Year—Spring/Summer Session**

|           |   |          |
|-----------|---|----------|
| ELECT 215 | Operational Amplifiers & Linear Integrated Circuits | 4        |
| ELECT 219 | Digital Logic Circuits                              | 4        |
|           | <b>Total Credits</b>                                | <b>8</b> |

**Second Year—Fall Semester**

**Second Year—Winter Semester**

|                |   |              |            |   |              |
|----------------|---|--------------|------------|---|--------------|
| ELECT 144      | Introduction to Microcontrollers                      | 3            | ELECT 251  | Programmable Logic & Industrial Controls          | 4            |
| ELECT 218      | AC/DC Motors  | 3            | Elective   | <i>Select from list</i>                           | 3-4          |
| Social Science | <i>Select General Education Social Science course</i> | 3-4          | MATH 102   | Technical Mathematics                             | 4            |
| PSYCH 153      | Human Relations (recommended)                         |              | Humanities | <i>Select General Education Humanities course</i> | 1-4          |
| English        | <i>Select one</i>                                     | 3            | COMA 103   | Fundamentals of Speech (recommended)              |              |
| ENG 102        | English Composition 2                                 |              |            | <b>Total Credits</b>                              | <b>12-16</b> |
| ENG 116        | Technical Writing                                     |              |            |   |              |
|                | <b>Total Credits</b>                                  | <b>12-13</b> |            |   |              |

**PROGRAM TOTAL 60-66 CREDITS**

**Electives**

|           |  |   |
|-----------|--|---|
| BMET 125  | Laser Safety Concepts                  | 3 |
| CIS 115   | Introduction to Computer Based Systems | 3 |
| CIS 171   | Introduction to Networking             | 3 |
| CIS 176   | Visual Basic.Net                       | 3 |
| CNT 130   | Computer Hardware & Troubleshooting    | 3 |
| ELECT 133 | Introduction to Battery Technology     | 3 |
| ELECT 145 | Fluid Power                            | 4 |
| ELECT 228 | Electronic Troubleshooting             | 3 |
| ELECT 252 | Programmable Logic System Design       | 4 |
| MET 103   | Introduction to Materials Science      | 3 |

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