

**ELECTRO-MECHANICAL TECHNOLOGY**
**AAS DEGREE**

The **Electrician Apprenticeship degree** program, in partnership with the Joint Apprenticeship and Training Committee (JATC) of the International Brotherhood of Electrical Workers (IBEW) Local Union, is open only to individuals admitted into the Electrician Apprenticeship Program of the IBEW. This degree will fulfill the classroom component of the IBEW/JATC apprenticeship experience. This program requires a minimum of 64 credits in program requirements and general education as listed below.

**Field of Study Code: ELMEC.AAS.ELECA**

**Program Requirements..... 45 to 48**

Elmec 1110	Motor and Generator Fundamentals .....	3
Elmec 1130	Industrial Electricity.....	3
Elmec 1150	National Electrical Code .....	3
Elmec 1190	Introduction to Programmable Logic Controllers.....	3
Elmec 2860	Internship (Career & Technical Education) .....	1 to 4
Elmec 2863	Internship (Career & Technical Education) .....	3
Elmec 2864	Internship (Career & Technical Education) .....	4
Elect 1100	Electricity and Electronics Fundamentals .....	3
Elect 1101	Circuits I.....	3
Elect 1120	Electronic Documentation .....	2
Elect 1130	Electronics Materials and Fabrication .....	2
Elect 1141	Digital Fundamentals .....	3
Elect 1151	Electronic Devices and Applications.....	4
Elect 2220	Electronic Instruments, Measurements and Control.....	3
Manuf 1101	Industrial Design/CAD .....	3
Manuf 2280	Industrial Safety .....	2

**General Education ..... 18**  
(In addition to the courses listed above.)

**Total Credits Required..... 64 to 70**

**AAS DEGREE**

The **Electro-Mechanical Technology degree** prepares students to enter the industrial and manufacturing workplace with knowledge and skill levels in three areas: programmable controllers, process control instrumentation and mechanical maintenance.

**Field of Study Code: ELMEC.AAS.ELMET**

**Program Requirements..... 40**

Elect 1100	Electricity and Electronics Fundamentals .....	3
Elect 1101	Circuits I .....	3
Elect 1151	Electronic Devices and Applications .....	4
Elmec 1101	Survey of Automation .....	3
Elmec 1106	Power Electricity and Rotating Machines .....	4
Elmec 1110	Motor and Generator Fundamentals.....	3
Elmec 1141	Hydraulics and Pneumatics .....	3
Elmec 1171	Introduction to Robotic Technology .....	3
Elmec 1190	Introduction to Programmable Logic Controllers .....	3
Elmec 1420	Drive Components .....	2
Elmec 2410	Programmable Controller II (PLC II) .....	3
Elmec 2510	Process and Automation Controls .....	3
Elmec 2600	Motion Control: Motor Drive Application and Control .....	3

**Program Electives ..... 7**

Choose 7 credits in Electro-Mechanical Technology or Electronics Technology. (In addition to the courses listed above.)

**General Education ..... 18**  
(In addition to the courses listed above.)

**Total Credits Required..... 65**

**CERTIFICATE**

The **Electrician's Preparation certificate** provides knowledge, skills, and competencies to students for work in the area of residential, commercial, and industrial wiring. National Electric Code, residential, commercial and industrial wiring are studied. This certificate does not provide license or certification to perform electrical work and requires 15 credits in the courses listed below.

**Field of Study Code: ELMEC.CER.EPREP**

**Total Credits Required ..... 15**

**Program Requirements..... 12**

Elmec 1120	Residential Wiring .....	3
Elmec 1140	Commercial and Industrial Wiring .....	3
Elmec 1150	National Electrical Code.....	3
Elect 1100	Electricity and Electronics Fundamentals .....	3

**Program Electives .....3**

Choose one of the following courses below. (In addition to the courses listed above.)

Elmec 1110	Motor and Generator Fundamentals .....3
Elmec 1130	Industrial Electricity.....3

**CERTIFICATE**

Students earning the **Mechanical Maintenance certificate** learn skills in power trains, drive components, mechanical alignment of couplings, pumps and motors, and troubleshooting and repair of industrial components. This certificate requires 34 credits in the courses listed below.

**Field of Study Code: ELMEC.CER.MECH**
**Total Credits Required .....34**

Elmec 1101	Survey of Automation .....3
Elmec 1110	Motor and Generator Fundamentals .....3
Elmec 1130	Industrial Electricity.....3
Elmec 1141	Hydraulics and Pneumatics .....3
Elmec 1150	National Electrical Code .....3
Elmec 1171	Introduction to Robotic Technology .....3
Elmec 1190	Introduction to Programmable Logic Controllers.....3
Elmec 1420	Drive Components.....2
Elect 1100	Electricity and Electronics Fundamentals .....3
Manuf 1104	Technical Mechanics .....2
Manuf 1151	Machine Shop I.....3
Weld 1100	Welding I .....3

**CERTIFICATE**

The **Advanced Mechatronics certificate** provides students with multidisciplinary skills in the areas of mechanics, electricity, electronics, instrumentation, robotics, and manufacturing. This certificate prepares students for careers in industrial mechatronics.

**Field of Study Code: ELMEC.CER.ADVMEC**
**Total Credits Required .....27**
**Program Requirements .....24**

Elect 1100	Electricity and Electronics Fundamentals .....3
Elmec 1110	Motor and Generator Fundamentals .....3
Elmec 1141	Hydraulics and Pneumatics .....3
Elmec 1190	Introduction to Programmable Logic Controllers .....3
Elmec 1420	Drive Components .....2
Elmec 2510	Process and Automation Controls.....3
Elmec 2520	Industrial Control and Data Acquisition .....3
Elmec 1106	Power Electricity and Rotating Machines .....4

**Electives .....3**

Take one of the following courses

Elmec 1130	Industrial Electricity.....3
Elmec 1150	National Electric Code .....3

Elmec 1171	Introduction to Robotic Technology .....3
Elmec 2600	Motion Control: Motor Drive Application and Control .....3

**CERTIFICATE**

The **Process Control Instrumentation certificate** trains the student to inspect, calibrate, troubleshoot and repair various temperature, pressure, flow and level measurement instruments. This certificate requires 21 credits in the courses listed below.

**Field of Study Code: ELMEC.CER.PROC**
**Total Credits Required.....21**

Elmec 1110	Motor and Generator Fundamentals.....3
Elmec 1141	Hydraulics and Pneumatics .....3
Elmec 1190	Introduction to Programmable Logic Controllers .....3
Elmec 2410	Programmable Controller II (PLCII) .....3
Elmec 2510	Process and Automation Controls .....3
Elmec 2520	Industrial Control and Data Acquisition .....3
Elect 1100	Electricity and Electronics Fundamentals .....3

**CERTIFICATE**

The **Programmable Logic Controllers in Automation certificate** involves programming and maintenance of various programmable controllers in automation applications. This certificate requires 18 credits in the courses listed below.

**Field of Study Code: ELMEC.CER.PROLOG**
**Total Credits Required.....18**
**Program Requirements .....15**

Elmec 1110	Motor and Generator Fundamentals.....3
Elmec 1190	Introduction to Programmable Logic Controllers .....3
Elmec 2410	Programmable Controller II (PLC II) .....3
Elmec 2510	Process and Automation Controls .....3
Elect 1100	Electricity and Electronics Fundamentals .....3

**Program Electives .....3**

Choose one of the following courses below. (In addition to the courses listed above.)

Elmec 1130	Industrial Electricity .....3
Elmec 1141	Hydraulics and Pneumatics .....3

**CERTIFICATE**

**Mechatronics Technology (MET)** is designed to meet industry needs for multi-functional technicians competent in mechanics, computers, and electrical/electronic technology.

**Field of Study Code: ELMEC.CER.MECTEC**

**Total Credits Required.....17**

**Program Requirements.....14**

Elect 1100	Electricity and Electronics Fundamentals .....	3
Elmec 1110	Motor and Generator Fundamentals .....	3
Elmec 1141	Hydraulics and Pneumatics .....	3
Elmec 1190	Introduction to Programmable Logic Controllers.....	3
Elmec 1420	Drive Components.....	2

**Program Electives .....3**

Select one of the following courses.

Elmec 2510	Process and Automation Controls.....	3
Elmec 2600	Motion Control: Motor Drive Application and Control .....	3