

# Electromechanical Technology

PJC offers an Associate of Applied Science degree in Electromechanical Technology. The AAS degree program in electromechanical technology is designed to prepare students to work in industrial maintenance or other related areas.

The student will study electricity, electronics, hydraulics, pneumatics, mechanical, drives, computer based automated systems, industrial operations, and current industry practices. Instructional emphasis is placed on understanding of and troubleshooting of electromechanical systems.

## Associate of Applied Science In Electromechanical Technology Electronic Option (70 Credit Hours)

First Semester	Second Semester
CETT1403* RBTC 1459 ELMT 2433** MATH 1314 ENGL 1301	RBTC 1451 RBTC 1401* MATH 1316 CETT 1405** GOVT 2306
Third Semester	Fourth Semester
CETT 1425* CETT 1445 HYDR 1405 ELMT 2437 SPCH 1321	ELMT 2441 ENTC 1449 Visual/Fine Arts or Humanities CETT 1429*

\* Fulfills THECB computer competency requirement.

\*\* Tech Prep courses, which may have been completed in high school.

## Associate of Applied Science In Electromechanical Technology Industrial Maintenance (71 Credit Hours)

First Semester	Second Semester
CETT 1403* Visual/Fine Arts or Humanities WLDG 1430 MATH 1314 ENGL 1301	ELMT 2433** HYDR 1405 MATH 1316 CETT 1405* GOVT 2306

Third Semester	Fourth Semester
HART 1407 WLDG 1434 RBTC 1401* RBTC 1459 SPCH 1318	DRFT 1409 ENTC 1449 HART 2441 RBTC 1451

\* Fulfills THECB computer competency requirement.

\*\* Tech Prep courses, which may have been completed in high school.

### Associate of Applied Science In Electromechanical Technology Mechanical Specialty (70 Credit Hours)

First Semester	Second Semester
CETT 1403* RBTC 1459 WLDG 1401 MATH 1314 ENGL 1301	ELMT 2433** HYDR 1405 MATH 1316 CETT 1405** GOVT 2306
Third Semester	Fourth Semester
RBTC 1401 Visual/Fine Arts or Humanities RBTC 1451 CETT 1425 SPCH 1321	ELMT 2441* ENTC 1449 ELMT 2437 CETT 1445

\* Fulfills THECB computer competency requirement.

\*\* Tech Prep courses, which may have been completed in high school.

### CERTIFICATE IN ELECTROMECHANICAL TECHNOLOGY (38 Credit Hours)

#### First Semester

- CETT 1403 ..... DC Circuits\*
- HYDR 1405..... Hydraulics
- RBTC 1451..... Robotic Mechanisms (Power Transmission)
- ELMT 2433 ..... Industrial Electronics\*\*
- EEIR 1201 ..... Math for Electronic Technicians

#### Second Semester

- ELMT 2437 ..... Electronic Troubleshooting
- RBTC 1401..... Programmable Controllers\*

RBTC 1459.....	Pneumatics
ELMT 2441 .....	Electromechanical Systems
CETT 1425 .....	Digital Fundamentals*

\* Fulfills THECB computer competency requirement.

\*\* Tech Prep courses, which may have been completed in high school.

**CERTIFICATE IN ELECTROMECHANICAL TECHNOLOGY**

**LEVEL I (16 Credit Hours)**

**First Semester**

HYDR 1405.....	Hydraulics
or RBTC 1459 .....	Pneumatics
RBTC 1401.....	Programmable Controllers*

**Second Semester**

RBTC 1451.....	Robotic Mechanisms (Power Transmission)
ELMT 2441 .....	Electromechanical Systems*

\* Fulfills THECB computer competency requirement.

**ELMT 1191 Special Topics in Electromechanical Technology 1.0.2**

This course will cover new technology as required by local industry. Students will be assigned special laboratory problems and given individualized instruction in advanced electromechanical technology areas. Topics will be covered which are beyond the scope of the general electromechanical technology program objectives.

**ELMT 1291 Special Topics in Electromechanical Technology 2.1.2**

This course will cover new technology as required by local industry. Students will be assigned special laboratory problems and given individualized instruction in advanced electromechanical technology areas. Topics will be covered which are beyond the scope of the general electromechanical technology program objectives.

**ELMT 1380 Cooperative Work Experience I 3.1.8**

This course is designed to integrate on-campus classroom study with practical hands-on work experience in the student’s major field of study. The student, the student’s supervisor, and the cooperative work experience faculty coordinator will establish specific goals for the student to accomplish. This course also requires an average of one hour per week of life/work skills seminars. Note: Qualified employment is not provided by Paris Junior College and is the responsibility of the student.

**ELMT 1391 Special Topics in Electromechanical Technology 3.1.4**

This course will cover new technology as required by local industry. Students will be assigned special laboratory problems and given individualized instruction in advanced electromechanical technology areas. Topics will be covered which are beyond the scope of the general electromechanical technology program

objectives.

<b>ELMT 1491</b>	<b>Special Topics in Electromechanical Technology</b> This course will cover new technology as required by local industry. Students will be assigned special laboratory problems and given individualized instruction in advanced electromechanical technology areas. Topics will be covered which are beyond the scope of the general electromechanical technology program objectives.	<b>4.1.6</b>
<b>ELMT</b>	<b>2441 Electromechanical Systems</b> This course is a study in advanced programming in RSLogix 500 on an industrial level motion control trainer and process control trainer and an introduction to ControlLogix and programming in RSLogix 5000. The student will use RSLogix 500 to program an industrial conveyor system to perform several different operations. The project will simulate the real world industrial environment where the technician must program a system to perform certain functions in the proper sequence. The student will use RSLogix 500 to program and tune an industrial environment process control system controlling flow rate, pressure, and level. The student will learn to program RSLogix 5000 on the ControlLogix platform. The programs will be simulated and tested on a ControlLogix simulator trainer. The trainer will also be used in conjunction with the electro-pneumatic and motor control trainers to simulate more industrial type systems.	<b>4.3.2</b>
<b>ELMT 2380</b>	<b>Cooperative Work Experience II</b> A continuation of ELMT 1380.	<b>3.1.19</b>
<b>ELMT 2381</b>	<b>Cooperative Work Experience II</b> A continuation of ELMT 2380.	<b>3.1.19</b>
<b>ELMT 1480</b>	<b>Cooperative Work Experience I</b> This course is designed to integrate on-campus classroom study with practical hands-on work experience in the student's major field of study. The student, the student's supervisor, and the cooperative work experience faculty coordinator will establish specific goals for the student to accomplish. This course also requires an average of one hour per week of life/work skills seminars. Note: Qualified employment is not provided by Paris Junior College and is the responsibility of the student.	<b>3.1.21</b>
<b>ELMT 2480</b>	<b>Cooperative Work Experience I</b> A continuation of ELMT 1480	<b>3.1.21</b>
<b>ELMT 2480</b>	<b>Cooperative Work Experience I</b> A continuation of ELMT 2480	<b>3.1.21</b>

- ELMT 2433 Industrial Electronics** 4.3.3  
 A study of devices, circuits, and systems primarily used in automated manufacturing and/or process control including computer controls and interfacing between mechanical, electrical, and electronic, and computer equipment. Presentation of programming schemes.
- ELMT 2437 Electronic Troubleshooting** 4.3.3  
 In-depth coverage of electronic systems, maintenance, troubleshooting, and repair. Topics include symptom identification, proper repair procedures, repair checkout, preventive maintenance. Emphasis on safety and proper use of test equipment. May be offered as a capstone course.
- ENTC 1449 Reliability and Maintainability** 4.2.4  
 A study of equipment reliability and maintainability to improve the efficiency of operations including utilizing the latest equipment and techniques to implement effective prevention and predictive maintenance programs.
- RBTC 1401 Programmable Controllers** 4.3.3  
 A study in programmable controllers. Topics include processor units, numbering systems, memory organization, relay type devices, timers, counters, data manipulators, and programming. Fee charged.
- RBTC 1451 Robotic Mechanisms (Power Transmission)** 4.3.3  
 This course will familiarize the student with the fundamentals of power transmission and mechanical drives. Proper component application, troubleshooting, lubrication and preventive maintenance will be emphasized. Hands on laboratory experiments will be conducted with all components. This knowledge, accompanied by detailed study of various types of drive systems will give the student the skills and techniques and objectivity required to analyze, troubleshoot, repair and construct mechanical drive trains. Fundamentals of force, velocity, work, horsepower, torque, RPM, ratios, coefficient of friction, useful formulae, conversion factors and solving for unknowns will be covered.
- RBTC 1459 Pneumatics** 4.2.3  
 A study of principles of pneumatics, including formulas, functions, and circuits with hands-on experience in these industrial automated systems. Fee charged.
- HYDR 1405 – Hydraulics – 4.3.3**  
 An overview of the fundamentals of fluid power as applied to automated systems. Topics include the application, function, construction and operations of pumps, motors, cylinders, valves, and other components. Fee charged.
- RBTC 2441 Hydraulic Servos** 4.3.3  
 A study of hydraulic servo systems, including the influences of operating pressures in locating, clamping and feedback devices.