

# AUTOMATED BUILDING CONTROLS CERTIFICATE

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Division: Career Technical Education

PROGRAM CODE: 1C31189

The **Automated Building Controls Certificate** provides students with a career path for attaining the communication skills, practical knowledge, and technical training necessary for pursuing a career in controls and energy management. This training also prepares students to install, service, operate, maintain, and troubleshoot building automation systems (BAS) in commercial buildings, controlling Heating, Ventilation, and Air Conditioning (HVAC) Systems, energy management systems, as well as lighting, life safety, and security systems. Students who complete this program can significantly impact building operation and energy consumption. To earn a Certificate, students must complete: (1) all major course requirements with a grade of C or better; (2) have a minimum GPA of 2.0. At least 50% of all major course work must be completed at Cypress College. This certificate requires a total of 41 units.

Code	Title	Units
<b>Required Courses (41 units):</b>		
<b>Courses are listed in suggested sequence</b>		
AC/R 100 C	Principles of Thermodynamics and Heat Transfer	3
AC/R 105 C	Electricity for Air Conditioning and Refrigeration I	3
AC/R 106 C	Electricity for Air Conditioning and Refrigeration II	3
AC/R 205 C	Commercial Air Conditioning	3
AC/R 220 C	Introduction to Air Conditioning Controls (formerly A/C Controls and Energy Management)	2
AC/R 272 C	Fundamentals of Direct Current Electricity	3
AC/R 273 C	Introduction to Personal Computer Hardware and Software	2
AC/R 137 C	Blueprints and Dimension Analysis (formerly AC/R 037 C)	2
AC/R 276 C	Automation Hardware	2
AC/R 277 C	Control Logic Programming	3
AC/R 215 C	Codes and Commissioning (formerly Estimating for HVAC)	3
AC/R 275 C	System Networking	3
AC/R 274 C	Instrumentation for Hydronic and Air Distribution	2
AC/R 278 C	Building Performance and Energy Auditing	3
AC/R 279 C	Building Automation Control Systems	2
AC/R 280 C	Automation Capstone Project	2
<b>Total Units</b>		<b>41</b>

## Program Student Learning Outcomes:

**OUTCOME 1:** Acquire the workforce preparation skills, including communication, practical knowledge, technical training, necessary for entry level job positions in energy management.