Helmholtz Zentrum Berlin

The Electrochemical Conversion team is seeking a skilled Automation Engineer student to develop and implement PLC control systems for our smart electrolyzer unit. This system integrates pumps, gas analyzers, and various sensors (temperature, pressure, pH, conductivity, etc.) to optimize CO2/CO electrolysis processes. The ideal candidate will also support data acquisition and analysis using open-source tools like InfluxDB and Grafana. We also welcome Master's students, interns, and working students interested in automation, PLC programming, and data analysis to contribute to this project in a research-focused environment.

Student Assistant (m/f/d) Specializing in Mechatronics/Informatics

for Development of CO2 Electrolyzer PLC & Data Management System

City: Berlin; Starting date (earliest): 01/04/25; Duration: fixed-term of 6-18 months; Remuneration: remuneration through payment according to TVöD Bund; Reference number: CE 2025/2

Working field

-Develop and program PLC control systems for electrolysis unit operation, ensuring reliability and safety.
-Integrate sensors and actuators into the control system, managing signals from gas analyzers, pressure transducers, and chemical sensors.
-Optimize process automation to enhance system efficiency, stability, and response time.
-Implement industrial communication protocols (Modbus, OPC-UA, MQTT) for real-time data transfer.
-Design and configure SCADA/HMI interfaces for user-friendly monitoring and control.
-Set up data acquisition pipelines using InfluxDB, Grafana, and other open-source tools for real-time monitoring and historical analysis.
-Analyze system performance and suggest improvements based on collected data.
-Collaborate with cross-functional teams (mechanical, electrical, and chemical engineers) to integrate automation solutions seamlessly.
-Troubleshoot and maintain automation systems, ensuring high uptime and operational stability.

Requirements

-Bachelor's or Master's degree (or ongoing studies) in Electrical Engineering, Automation, Mechatronics, or a related field
-Proven experience in PLC programming (Siemens TIA Portal, Allen-Bradley, Beckhoff, or similar)
-Experience with data acquisition and visualization tools like InfluxDB and Grafana (or willingness to learn)
-Strong problem-solving and troubleshooting skills in automation and control
-Ability to work in a research-oriented environment and collaborate with scientists and

engineers
-Basic understanding of electrochemical processes or gas handling systems is a plus, as is proficiency in Python, SQL, or other scripting languages for data processing

What we offer

-Opportunity to contribute to the development of innovative materials and technological solutions for a climate-neutral future in cooperation with leading international researchers
-Commitment to diversity and sustainability through an inclusive working environment, promotion of diversity sensitivity and implementation of sustainable and climate-neutral methods
-Further development opportunities and training programmes
-Attractive remuneration through payment according to TVöD Bund
-30 days holiday/year (full-time job)
-Extensive additional benefits, such as company pension plan (VBL), subsidy for public transport (Deutschlandticket Job) and company sports programmes
-Good work-life balance through counselling services on family and career and flexible working time models: Flexitime, part-time, hybrid working
-And a team that is looking forward to meeting you!

Fixed term contract for 18 months. The position is a part-time position with Working time depends on type of position (internship, thesis, working student) hours a week.

Application

-Work on cutting-edge CO_2 utilization technologies
-Be part of a collaborative research environment at Helmholtz-Zentrum Berlin
-Opportunity to contribute to the development of sustainable energy solutions
-Flexible engagement options for students and early-career professionals
-Target start date: 01.04.2025
-Duration: fixed-term of 6-18 months, depending on type of candidate and scope of work (with possibility to extend beyond 18 mo. pending project success). Full-time or part-time is possible, depending on candidate qualifications and availability.
-Workplace: HZB Wannsee campus

To apply, input your information using the link below. Please include a motivation letter which includes details about your student status and desired type of position (intern, thesis, working student). We look forward to receiving your application via our application management system by . For reasons of data protection regulations, we are unfortunately unable to consider applications that reach us by other means (such as email or mail) in the application process.
We very much want our workplace to be diverse, and welcome applications from people with different backgrounds. It is our mission to promote equal opportunities and to improve women’s representation in the workforce. We are therefore very interested in receiving applications from women. Where the qualifications are met, we will give preference to people with disabilities.