

**Development of a control system for adsorption isotherm measurement system**

**Abstract**

Adsorption isotherm measurement has long been used as an efficient method to study the surface of such adsorbents. An adsorption isotherm measuring device provides a complete solution to characterize the adsorbent in terms of its pore size, volume, surface area, etc. An adsorption isotherm measurement device uses different types of gas dosing valves, pressure sensors, vacuum gauges and temperature measurement and control.

The project work includes development of a control system for adsorption isotherm system. In the scope of this project, a PLC based control system using LabVIEW software will be developed. For system operation and gas dosing, various kinds of solenoid valves, vacuum pumping system will be controlled remotely.Data logging of pressure, vacuum and temperature sensors will be done through PLC and input/output modules. Also feedback control logic will be developed for automatic operation of the gas dosing during adsorption test measurement.

**Duration:**10 Months

**References:**

1. Christian Day, “Use of porous materials for cryopumping”, hand book of surface and interference of materials, Academic press, 2001, Vol 5
2. Hauer.V, and Chr. Day., Cryosorbent characterization of activated charcoal in the Coolsorb Facility, Forschungszentrum Karlsruhe, Karlsruhe, 2002.
3. Autosorb-iQ Gas sorption analyser system manual, Quantachrome Corporation, Boynton Beach, Florida. P/N 05098-1.1 Rev D, 2009.

**Eligibility:**

Students of Electronics/Instrumentation branches can submit their application at following email addresses

[**ranjana@ipr.res.in**](http://?)**[Guide e-mail address]**

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