



# Sample Project: ATLAS Tile Calorimeter Detector Control System

Code	EP5802
Programme	FCT
Department	EP
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## Title

ATLAS Tile Calorimeter Detector Control System

## Description

The Tile Calorimeter is a sub-system of the ATLAS experiment, one of the experiments that operate at the CERN LHC collider. The Tile calorimeter is built in three cylindrical sections, two 3 m long sections and one 6 m long section. Each cylinder is built by joining 64 modules. Most of the front end electronics is installed in drawers in the outer part of the modules, and is controlled and monitored remotely by the detector control system (DCS), a SCADA distributed system based on WinCC running in several PCs. The context of the job offer is to be integrated in the team in charge of the running control systems and in the development of the control systems for the future operation in the environment of the HL-LHC expected to run by 2026. An upgraded DCS is being designed and implemented for "demonstrator" modules (prototype modules equipped with new electronics that is being developed), in a testbeam setup where full equipped modules with different electronics solutions are tested with high energy particles. For such a task, commercial tools as well as tools developed at CERN are used. By being involved in this project, it is possible to get an overall view of the execution of an electronics control and monitoring project, including the development of solutions for the control of new high voltage and low voltage power supplies. Last "state of art" resources will be applied for these tasks. The candidate will take part in the analysis of the data collected by the monitoring system and will interact with the physicists that are running the detector and will have to coordinate actions with them, as well as with the engineers that are developing the new electronics.

## Skills

Information Technologies: Developing distributed computing systems (e.g. clusters, batch systems). Low and High Frequency Engineering: High voltage technology. Networks and Systems: Communication networks, Computer systems, Optical information networks, Sensors. Programming Languages: C, C++

## Disciplines

Information Technologies, Electronic Engineering

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