

## Available Position – Research Engineer

Position type: Full time (16-month contract)

Qualification : PhD in Electrical Engineering or relevant area

### Job description:

The work associated with this position will consist in developing a tool for the prediction of inter-turn constraints appearing in electrical machines powered by PWM. This is to anticipate the lifetime of actuators in the context of defined mission profile. This task will be based on many studies carried out over the last ten years at the LSEE and will aim to obtain a computer code that can be used in an industrial environment in order to bring additional information to machine designers concerning the Electrical Insulation System required to meet the mission profile request. The work will be divided between the realization of a software tool allowing the predictive computation of the constraints and an experimental work in laboratory aiming to validate the implemented simulation procedure.

### Required skills :

- Knowledge of electric machine topologies and their design
- Knowledge of electric machine control
- Knowledge of metrology
- Knowledge in the field of machine electric insulation would be appreciated
- Extensive computer and programming skills (C, Python, Matlab, ...)
- Ability to address broad problems
- Ability to design and build experimental set-ups with complex metrological apparatuses.
- Ability to research and analyze scientific publications and write scientific reports

**Salary:** 2200 € per month

**Work location :** Laboratoire Systèmes Electrotechniques et Environnement Faculté des Sciences Appliquées  
62400 Béthune

### Laboratory description:

The Electrotechnical Systems and Environnement Research Lab (LSEE) is specialized in electrical engineering. The group activities are focused on the components of electrical machines: from the magnetic circuit conductors to mechanical components. The conducted works on electrical machines and power transformers are the following:

- Increase their energy efficiency,
- Monitoring their deterioration and aging using original predictive methods,
- Designing new high temperature actuators
- Reducing their vibratory and acoustic signatures
- Testing

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