INSTITUT NATIONAL DES SCIENCES APPLIQUÉES STRASBOURG

Job description

Duties: Senior Lecturer in Electrical Engineering (section 63)

Occupation or type of work*: Teacher-researcher* REME, REFERENS, BIBLIOFI

Job description

Category: A

Status (tenured, non-tenured, open): tenured

Specialty: Electrical Engineering

Quota : 100%

Affectation

Administrative : INSA Strasbourg
Department or platform: GEE Department, Electrical Engineering specialization
Geographical : INSA Strasbourg / 24 boulevard de la Victoire / 67084 Strasbourg Cedex

L'INSA Strasbourg

Strasbourg's Institut National de Sciences Appliquées (INSA) is a public scientific, cultural and professional institution. It welcomes 2,000 engineering and architecture students to its premises on the Esplanade campus, close to the city center.
The school has access to the nearby Université de Strasbourg canteen, university libraries and sports facilities.
It employs 270 permanent and contract staff.
Its missions are :
- initial training of engineers and architects, scientific and technological research, continuing education of engineers and technicians, dissemination of scientific and technical culture.
INSA Strasbourg offers :
- 7 engineering specialties: civil engineering, surveying, electrical engineering, mechanical engineering, plastics processing, mechatronics, climate and energy engineering
- 6 apprenticeship programs (FIP, FISA)
- 1 training course in architecture

On January 1, 2013, INSA Strasbourg became part of the extended responsibilities and competencies of the Group.

INSA has set up a system to combat psycho-social risks (RPS), which focuses on 3 areas: preventing risks, detecting them, acting on them and dealing with them.

INSA Strasbourg has also set up a system to deal with sexist, sexual, homophobic or transphobic violence, aimed at staff and students.

Lastly, INSA Strasbourg has set up a professional equality plan to demonstrate its determination to move resolutely towards real equality between men and women.

INSA has been awarded the HRS4R label (European Human Resources Strategy for Researchers) since March 15, 2022.

The school has access to the nearby University of Strasbourg's canteen and sports facilities, as well as to university libraries.

As part of its policy in favor of sustainable development, INSA contributes to the financing of soft mobility for its staff (reimbursement of 50% of public transport costs and sustainable mobility package (bicycle, carpooling, shared mobility services, etc.).

Eligible employees can also telework, in accordance with the rules laid down by the school's governing bodies.

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Electrical Engineering

ICUBE Laboratory - EM3 Team

The Electrical and Energy Engineering (GEE) department comprises two specialties: Electrical Engineering (GE) and Thermal, Energy and Environmental Engineering (GTEE).

The Electrical Engineering specialization covers all areas of electrical energy. It trains engineers over 4 years with a strong practical dimension.

The candidate's research activity will take place within the ICube laboratory (UMR 7357 - Engineering, Computer Science and Imaging Laboratory). The candidate will be expected to integrate his or her research into one of the activities of the ICube laboratory, in particular the EM3 team.

Missions

Main mission :
Provide initial and continuing training in higher education; conduct basic and applied research); contribute to dialogue between science and society.
Main teaching activities:
Teaching is offered in French and English within the Electrical and Power Engineering department and other departments as required.
Over the 2 semesters, the teacher will be responsible for teaching electrical engineering to third-(L3) and fourth-year (M1) students.
They will cover the following topics: power electronics, electrical engineering and analog electronics.
The teacher will be required to give lectures, practical work (TP), tutorials (TD) and projects (P).
Projects are an important part of the Electrical Engineering curriculum, involving the production of prototypes. Many projects are carried out with industrial partners or with research teams from the Icube laboratory.
Candidates are also expected to become progressively involved in teaching responsibilities and administrative tasks.

Teaching contact :
Thomas LAFONT
thomas.lafont@insa-strasbourg.fr
Head of the Electrical Engineering specialization

Main research activities :
The research conducted by the candidate will unfold within the ICube laboratory (UMR 7357 - Laboratory of Engineering Sciences, Computer Science, and Imaging). The candidate will be tasked with directing their research towards one of the thematic areas of the ICube laboratory, aligning with the fields of "electric mobility" and "energy management and storage." Since 2017, this focus has been established at INSA Strasbourg (ICube Laboratory), within the EM3 team (formerly SMH) - Electronics, Microelectronics, and Modeling for Multidomain Systems.
Specifically, the INSA Strasbourg-based EM3 team focuses on the intelligent management of hybrid energy storage systems for electric vehicles, employing optimal, predictive, and advanced approaches based on artificial intelligence. Furthermore, the team explores multi-scale modeling, encompassing both macroscopic (behavioral) and microscopic (physical phenomenon) levels, using AI-based methods. This includes thermal modeling of storage
devices for predicting thermal runaway and remaining useful lifespan.
The undertaken research aims to develop methodologies ensuring the continuity of work. The candidate will position their project in relation to ongoing research at the ICube laboratory, aligning it with existing work, and detailing objectives within the research axes associated with the position, particularly concerning the modeling of storage devices to predict the degradation of physical behaviors.

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A strong foundation of scientific and technical expertise in the field of Electrical Engineering "high current" (electrotechnics, energy conversion, power electronics, actuators, etc.) and high-level expertise in electrical energy conversion and storage are expected. There is a willingness to acquire additional skills in specific methodologies within an emerging research area combining artificial intelligence and energy storage devices. In addition to academic research activities, the candidate may assume responsibilities for project management, development, and collaboration with partner companies and institutions (public/private) at the national and international levels. Initiatives for technology transfer for innovative research in collaboration with SATT Conectus may also form an integral part of their responsibilities.

Research contacts :
EM3-INSA: Tedjani MESBAHI
tedjani.mesbahi@insa-strasbourg.fr
Senior Lecturer HdR
ICube Laboratory (UMR7357)

EM3: Morgan MADEC
morgan.madec@unistra.fr
Associate Professor HdR
ICube Laboratory (UMR7357)
EM3 team leader (ex: SMH-ICube) : Electronics, microelectronics and modeling for multi-domain systems

Special working conditions:

Supervision: possible (not the first year)

Project management: possible (not the first year)

Travel: occasional

Remuneration: salary scale for senior lecturers

Compétences
Knowledge : - Disciplinary field: Electrical engineering
Know-how : - Apply scientific investigation and documentation techniques - Design educational tools - Public speaking - Work in a team - Use software specific to the activity
People skills : - Autonomy / Self-confidence - Organizational skills - Ability to manage stress - Creativity / Sense of innovation - Rigor / Reliability - Critical thinking skills - Conceptualization skills - Intellectual curiosity - Interpersonal skills - Self-control

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Profil de candidature
Level of study (with specialization if applicable) : Doctorate (PhD)
Level of experience: All levels
Language (and level required) : French and English: must be able to teach in French and English

Suivi et modalités de candidature
Vacancy date: September 1, 2024
Publication dates: February 22, 2024 on the Galaxie des personnels du supérieur website
Elements of the application : ➢ Copy of identity document, diplomas and qualifications, ➢ Curriculum vitae with presentation of work ➢ Letter of motivation ➢ Any other relevant documents
Candidates may be asked to take part in role-playing exercises.
Application address: on Galaxie only
Contact person for information about the position: thomas.lafont@insa-strasbourg.fr