

## JOB DESCRIPTION

**Occupation:** Assistant Professor (Maître de conférences)

**CNU section:** 63

**Department:** Electronics and Telecommunications (E&T)

**Laboratory:** IETR –ASIC Team

**Profile:** Embedded, energy efficient and secure systems for digital communications applications.

### INSA Rennes

INSA Rennes, a founding member of the INSA Group, is the largest public engineering school in Brittany. It welcomes 2,200 students and apprentices and graduates more than 340 engineers, 60 masters students and 40 PhDs each year. Composed of 9 teaching departments, including 7 engineering specialities and one by apprenticeship, and supervised by 6 research laboratories, INSA employs around 500 public employees (research teachers, teachers, permanent and contractual BIATSS) and more than 400 temporary employees, notably from companies.

By positioning itself as an impact institute, INSA Rennes intends to be part of a positive metamorphosis aimed at building a fairer and more sustainable world for future generations. Being an engineering school today, producing skills and knowledge, requires more than ever to assert its responsibility; to anticipate the impact of inventions on individuals, society and the environment; to place itself at the service of a reasoned economy and of social progress, a source of well-being.

More aware than ever of its social impact, the institute also intends to go further in the diversification of profiles and to provide each person with the keys to blossom and succeed in his or her studies, regardless of the educational investment he or she made before entering a prestigious school.

The Impact Institute is above all a lever for transformation in the service of society and for meeting the challenges of sustainable development as defined by the United Nations.

This affirmed trajectory has been materialised by the adoption of its 2021-2026 strategic project, which can be consulted on the school's website: [www.insa-rennes.fr](http://www.insa-rennes.fr)

### Education :

The teaching service will be carried out within the Electronics and Telecommunications Department of INSA Rennes.

The field of teaching concerns digital systems applied to communications systems.

The skills required are as follows

- Architecture of embedded systems (microcontrollers, DSP)
- Digital electronics,
- Logic and programmable logic (FPGA circuits),
- Design of digital and heterogeneous systems (VHDL),
- Digital communication systems
- Systems programming (C, C++, Python languages)
- Security of embedded systems

The courses will be given mainly in the 3rd, 4th and 5th years of the engineering cycle in the form of lectures, tutorials, practical work and projects. They may also be carried out within the E-SET department (apprenticeship training) of INSA Rennes.

The person recruited will have to plan to be involved in the medium and long term in the responsibilities linked to teaching activities: module responsibilities (short term), teaching responsibilities, monitoring of student projects and administrative responsibilities

(medium term), in particular in the ESOS project (Sustainable, Open and Sovereign Electronics).

### **Research:**

Within the IETR laboratory, the ASIC team conducts research in the fields of embedded systems for digital communications. These research themes include the study of digital communication systems, embedded and secure communicating systems, communicating electronics, and networks and infrastructures.

The candidate will carry out his/her research at the Institut d'Electronique et des Technologies du Numériques (IETR), and more precisely in the ASIC team (Architectures Systèmes et Infrastructures Communicantes).

The IETR (<http://www.ietr.fr>) is a public research laboratory specialised in the field of electronics and digital technologies. Structured in 13 thematic research teams, the work carried out addresses multiple scientific challenges mainly related to the digital transformation of society, but also to its transitions in terms of environment, ecology, energy and health.

The IETR's main areas of expertise range from materials for digital technology to systems. They cover the following main disciplinary fields (1) microwave antennas and devices over a very wide frequency spectrum ranging from a few MHz to sub-THz, (2) EMC and electromagnetism for biomedical applications, (3) multifunctional materials for miniaturisation, reconfigurability, communications, or energy recovery or storage, (4) micro-technologies and micro-sensors along two lines (low temperature silicon, organic electronics) for the study of circuits or micro-sensors, (5) digital communication systems and associated processing, as well as connected electronics and embedded systems, (6) remote sensing, multimodal imaging and propagation problems (indoor, outdoor, propagation in complex environments), and finally (7) image analysis and processing (compression, prototyping, cryptography and content security, multimodal analysis, analysis of emotions)

Description of additional activities:

The lecturer recruited will have to get involved in the ASIC team's axes and participate particularly in the development of the problems of energy optimisation and/or system security, with an applicative aim towards communicating objects..

### **More information:**

#### **Contacts :**

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**Nelly Jutge** ([nelly.jutge@insa-rennes.fr](mailto:nelly.jutge@insa-rennes.fr)) - Human Resources Manager

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