



## **JOB PROFILE**

### **CAMPAIGN 2025**

## **ASSOCIATE PROFESSOR POSITION IN COMPUTATIONAL MECHANICS (SECTION CNU 60)**

### **Context**

The National School of Engineers of Brest is an EPSCP created in 1961. It operates under the supervision of the Ministry in charge of higher education. It is affiliated with the Institut Mines Télécom and is a founding member of the Alliance Universitaire de Bretagne. The school is located on the Brest-Iroise technology park, on the oceanfront. The teaching team is made up of around sixty tenured teachers and around forty people active in research. The total number of students is around 800. On 1 January 2025, ENIB will join the newly created National Polytechnic Institute of Brittany as an internal school under Article L 7139-9 of the Education Code. This institutional transformation is accompanied by a strong commitment by ENIB to integrating ecological transition issues into all of its activities, functions and professions.

ENIB trains general field engineers in electronics, IT and mechatronics systems in five years. The courses provided are geared towards the business world through numerous internships, as well as towards the research activities of the institution. The school prepares its student engineers to practice their future profession in an international setting. The pedagogy values reflexivity, activities in small groups, the use of projects and collective work, as well as the societal commitment of students, which is the signature of ENIB. The program approach is currently being rolled out. In addition, the institution offers four master's courses and two doctorates. Nearly 40% of students complete a second degree during their studies, a master's degree with the IAE of the University of Brest, a DU with the PEPITE center, one of the 25 international master's abroad or a final one under a professionalization contract. The school is the main supervisory body for the UMR, CNRS IRDL and Lab-STICC. It is also a member of the doctoral schools MathSTIC Bretagne Océane and SPI.bzh and is accredited to award the doctoral degree within the framework of these doctoral schools. It is also affiliated with the Carnot ARTS Institute, the CominLabs labEx, the I&R competitiveness cluster, the Continuum EquipEx and the EUR ISblue. ENIB also hosts the Brest site of the IRT [irt.com](http://irt.com) and is active within the SATT Ouest Valorisation and the PUI Blue Box

The recruited person will carry out their research at the iRDL, which is organized into 5 thematic research centers (PTR) and their teaching will be primarily in the mechatronics department.

### **1. Research**

The ambition of the IRDL is to play, in the short term, an even more important role at the regional, national and international levels in resolving current issues related to the engineering of materials and systems used in industrial sectors related to the automobile, energy, aeronautics, health, transport and more particularly all areas in dynamic interaction with the marine environment, such as shipbuilding and offshore, marine energies.

The associate professor will take part in the research activities pursued within one of the iRDL PTRs that will be in line with his/her project. However, a thematic orientation towards modeling and numerical simulation in continuum mechanics will be favored, possibly including one or more couplings (fluid/structure, multi-physics, different scales, etc.). Significant skills will be appreciated in numerical methods (finite elements, finite volumes, etc.) and its implementation for intensive computing. Skills in HPC would be appreciated. The modeling approach may be combined with original numerical techniques (possibly discretization), either to solve certain direct problems or with

a view to developing digital twins. An openness to the experimental characterization of mechanical and multi-physical behavior will allow collaboration with iRDL researchers.

The CNRS roadmap for the IRDL (Joint Research Unit since early 2018) focuses on marine engineering. The application of research to this field is desirable, but not necessary to participate in the current dynamics of the laboratory.

The candidate will have to contribute to the active search for thesis funding, and will participate in the supervision of theses at the ENIB. He or she will participate in the setting up of collaborative projects (ANR type, funded by Bpifrance, European), and in the development of international collaborations within a network. He or she will also have to participate in the development of industrial partnerships. Finally, the candidate will be involved in the dynamics of the various mechanical research teams at the ENIB. He or she will be able to participate in the organization of scientific events and meetings, and get involved in learned societies.

## **2. Education**

To respond to the growing complexity of the technological systems that surround us, ENIB offers training that brings together three engineering sciences, electronics, mechanics and computer science. In particular, mechatronics is now spreading in all industries to meet at least five challenges to develop products that are more respectful of environmental constraints and ensure an ecological transition: i) a design challenge to integrate the various technologies into the system created as early as possible, ii) a challenge in the choice of materials, iii) a challenge in production methods to manufacture and industrialize these integrated systems, iv) a quality challenge, because this approach improves reliability and maintenance in product life cycle management, while generating new hazards, v) a cultural challenge, that of breaking down the silos of the company to achieve a completely transversal approach to the product.

The associate professor will join the teaching team of the mechatronics teaching department. The candidate must be dynamic and show an appetite for the study of complex systems involving different fields of expertise in engineering sciences. The person recruited will essentially participate to mechanics courses in the general engineering training. He or she will participate in multi- or transdisciplinary projects in coordination with the other members of the teaching team. Knowledge of the specificities of teaching in an engineering school would be advantageous. The teaching fields concerned range from solid mechanics, structural calculation, to mechanical design office, with the aim of training general engineers for mechanical design and prototyping functions. As part of the upcoming reform of the fourth and fifth years of ENIB training, the person recruited must be able to invest themselves and propose the creation of new courses in line with the desired research profile above, linking modeling of certain aspects of continuous media, and numerical simulation, with the ultimate objective of increasing the flow of students towards the master 2 in mechanics.

The associate professor will contribute to the deployment of the skills approach to which the ENIB is committed. The person recruited will be involved in the institutional life of the ENIB. In particular, he or she will participate in the supervision of student projects, get involved in the collective tasks of the school (monitoring students on internships, participating in defenses, participating in juries, etc.). Finally, an ability to teach in English is expected.

**Location :** ENIB, technopôle Brest Iroise, 29280 PLOUZANÉ

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### **Useful links**

**[ENIB website– Working at school](#)**

[www.enib.fr](http://www.enib.fr)  
[www.irdl.fr](http://www.irdl.fr)

*In order to promote equitable representation of women and men among its staff, ENIB encourages female applications. ENIB is open to all diversities. ENIB's hiring policy aims to improve the representation of people with disabilities within its workforce. All applications meeting the required qualifications will be considered.*