



KEY TECHNOLOGIES

The Technical and Human Management of Complex, High Risk Systems

For more than 30 years, the Basse Normandie region has been hosting complex, high-risk facilities in industries such as Agribusiness, Microelectronics, Pharmaceuticals, Chemistry, and Nuclear Power. The Nuclear industry has pioneered expertise and skills, especially in the Contentin region. These advances have been driven by nuclear fuel processing (at the COGEMA plant), the nuclear electric power station at Flamanville, and the nuclear submarine shipyard. Accordingly, this far-reaching experience is enhanced through the control of these facilities, especially in the area of the standard specifications now required in a growing number of fields. The following fields are among the many areas of developed and controlled expertise and skills:

- ▶ Complex system operations and supervision
- ▶ The design, maintenance, and management of hazards
- ▶ The control of human behaviour in clean, hostile or hazardous environments
- ▶ Environment control in clean zones
- ▶ The fight against the spread of nosocomial infections
- ▶ Biodegradation of materials

TEAMS

▶ The personnel at the training centre and the academic teams are tackling the following: human-machine interface, computer data securement, contactless metering instruments, software sensors monitoring complex processes, flow modelling, process control, the acoustic and thermal characterisation of components, large system simulation, smart electronics (self-correcting systems), load-sharing modelling, surface electrostatics, technical-scientific hazards, virtual workstations, and decision-making support tools.

▶ Companies within an association called **EMA – Ensembliers en Maîtrise d’Ambiance** [turnkey solutions for environment control] (dationcommerciale@ema-cleansystem.com) provide a global, integrated offering, drawing on industrial experience in: public works, special machines, air conditioning/environmental control, clean rooms, electricity, automatic control systems, coatings, and flooring, design engineering, clean-up operations, disinfecting, contamination measurement, and piping inspection.



training Centre - Ambiance contrôlée - Cherbourg

- ▶ The CREMA, a scientific and technical co-ordinating group, is in charge of bringing together technological needs and scientific expertise.
- ▶ RESOTEC is a technological platform where innovative technologies are put to work for companies (engineering schools, university technological institutes, and vocational secondary schools).

SPECIAL EQUIPMENT

The Training Centre at Octeville www.pole-de-formation.com handles: the duplication, characterisation, and study of complex system operations for hazard awareness; the identification of the mutual influence of technical and human factors; the drafting of instructions for proper use; the design of, and recommendations for the appropriate training programs.

The facility provides:

- ▶ Realistic remote controlled processes for liquid powder treatment
- ▶ Industrial environment control facilities for sensitive and/or hazardous products
- ▶ A hospital set-up (changing room, technical support centre, and laboratory)
- ▶ An institutional kitchen set-up
- ▶ Premises appropriate for personnel change of wear, and for the processing of products and materials
- ▶ Measuring and testing facilities for clean-up, dustiness, and contamination

CONTACTS

For general technological or scientific information

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For further information:

Browse our website to find out all about the many opportunities in Normandy, at www.normandydev.com or send an email to ndcaen@normandydev.com or ndrouen@normandydev.com

METHODS, SKILLS AND EXPERTISE

The methods, skills, and expertise draw on a long-standing experience in the industrial environment. They are enhanced by desk research or applied research conducted at university laboratories addressing the technical, technological and human aspects. For every case, the problems are modelled at the testing centre, and practical recommendations are provided.

SUPPORT TO BUSINESS SET-UP PROJECTS IN BASSE NORMANDIE

The Basse Normandie Region has rolled out all its resources to support business projects in the following areas:

- ▶ General funding
- ▶ Business project support
- ▶ Training programs
- ▶ Corporate user services at operations site
- ▶ Technology transfer to companies: www.gravir.org and www.crittbn.com

