

Joint Certificate in Energy Electronics

Certificat interuniversitaire en

ELECTRONIQUE

de l'**ENERGIE**

Workshop on Energy Electronics
Mons, October 27, 2023

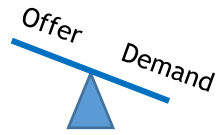


Industrial Needs



The Why

A training programme arising from **strong industrial needs**:



- Demand for engineers trained in Power Electronics greater than the offer
- Staff retirements leading to expertise exhaustion
- Gaps observed on core skills
 - Young engineers (too) quickly involved in projects
 - Simulation too often used with no sufficient in-depth understanding



In order to meet these industrial needs, many companies organise their own internal training courses on various topics:

EMC, control, reliability, etc.



ThalesAlenia
Space

ALSTOM



UMONS
Université de Mons

ULB



UCLouvain

Industrial Needs

In this context:

The Joint Certificat in Energy Electronics aims at **pooling industrial and academic expertise** in the field to offer appropriate training



The Why



A **flagship activity** of the New Academic Chair in Energy Electronics !

DE SEPT 2023 à JUIN 2024

Nouvelle édition

Certificat interuniversitaire en **ELECTRONIQUE** de l'**ENERGIE**

Formation agréée congé-éducation payé et chèque-formation en Région wallonne

8 unités d'enseignement (20 crédits) pendant 1 an, horaire adapté

www.uo-fwb.be



Why organize this training in Charleroi ?

CampusUCharleroi



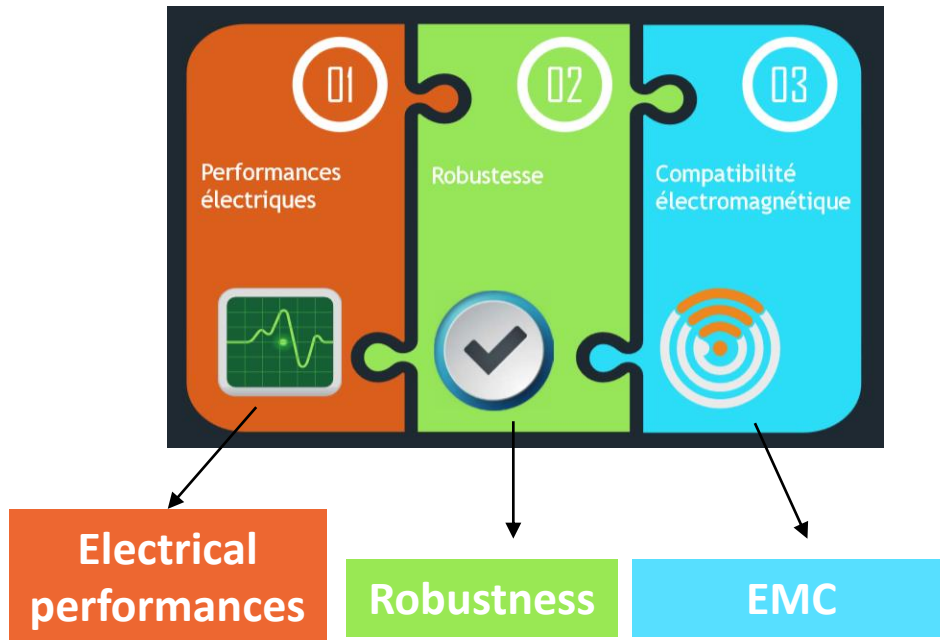
- Major industrial basin reorienting itself towards economic activities centered on cutting-edge technologies
- Companies active in the field of energy electronics located in the area
- Strong commitment for developing higher-education programmes in Charleroi



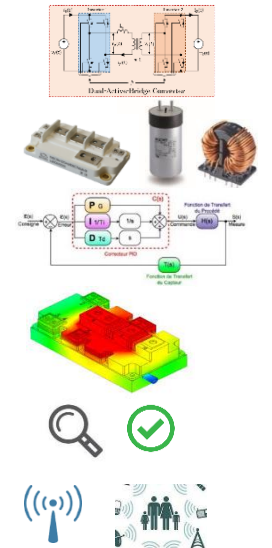
A Multidisciplinary Training Content



Red thread of the training: the power electronic converter

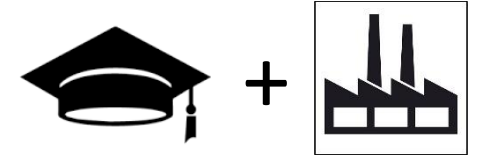


		ECTS	Heures
UE1	Sources, Storage and Energy Conversion	1	16
UE2	Conception of Power Electronic Converters	3	34
UE3	Components Technology	3	31
UE4	Control and Command applied to Energy Conversion	2	25
UE5	Thermal management of Power Electronic Converters	2	22
UE6	Reliability and Safety of Power Electronic Converters	2	20
UE7	Electro-Magnetic Compatibility (EMC)	2	25
UE8	Project	5	4
		20	177



One-year training, staggered schedule, face-to-face

A Unique Collaboration Between Universities and Industry



Academic staff (7)



Pr Olivier Deblecker (UMONS)
Department of Electrical Power
Engineering
Academic Coordinator



Ir Véronique Beauvois (ULiège)
Lecturer, Head of EMC Lab



Dr Bashir Bakhshideh Zad (UMONS)
Department of Electrical Power
Engineering
ALSTOM Chair Holder



Dr Fabrice Frebel (ULiège)
Department of Electrical Engineering
and Computer Science



Pr Emmanuel De Jaeger (UCL)
MEED (Mechatronic, Electrical Energy,
and Dynamic Systems department)



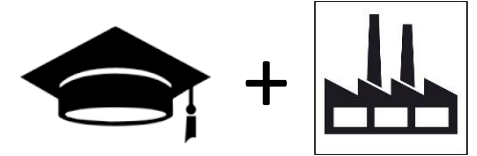
Pr Christophe Geuzaine (ULiège)
Department of Electrical Engineering
and Computer Science



Pr Johan Gyselinck (ULB)
BEAMS (Bio- Electro- And Mechanical
Systems) department



A Unique Collaboration Between Universities and Industry



Industrial experts (9)



Dr Marc Bekemans (Thales Alenia Space)
R&I Director, Lecturer at UCL in power electronics

Industrial coordinator



Ir Rosario Salamone (Thales Alenia Space)
Reliability and safety expert



Dr Christophe Versèle (Alstom)
Power Design Engineer, Traction specialist



Dr Isabelle Liemans (Thales Alenia Space)
R&I Engineer, thermal design expert



Ir Laurent Marguet (Alstom)
RAMS traction team leader, reliability and safety expert



Ir Ludovic Rucquoy (Alstom)
Traction System Manager



Ir Michel Melotte (Thales Alenia Space)
R&D team, specialist ionizing radiations in space



Ir Johnny Bou Saada (Alstom)
Expert R&D



Ir Jonathan Scottini (Alstom)
Design engineer, magnetic components specialist

A richness of learning opportunities based on diversity of the teacher profiles

In a nutshell ...

- Joint Certificate organised since 2019
- 10-15 participants per year
- Continued assessment, passing rate about 80%
- Participant profiles
 - Young engineers active in industry (holders of master's degrees in Electrical Engineering, Electronics or Electromechanics typically)
 - Engineers from consulting companies
 - Others (higher-education teacher, PhD students, etc.)
- Interest to broaden the visibility of this certificate (Belgium and northern France)





Université Ouverte
asbl