

**Annual Forum of Electrical Engineering Deans of Chinese Universities  
18 October 2020**

**KEYNOTE**  
**“EXPERIENCE OF AN INDUSTRY-ORIENTED MASTER DEGREE IN FRANCE  
based on a strong research and international background”**



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**ABSTRACT**

In 1999, the European Union started to uniform the higher education degrees in 48 countries by structural reforms. In 2002 the BMD (Bachelor, Master, Doctorate) process defined a baseline of 3 years for Bachelor, 2 years for Master, and 3 years for Doctorate to increase staff and students' mobility and to facilitate employability. In 2010, the European Higher Education Area (EHEA, <http://www.ehea.info/>) is created to build a common set of commitment.

The BMD process has been adopted in France in 2002, for a progressive transition to the new European scheme. From the previous French organization, the Master degrees are organized in 2 different options in France: Master for Research (dedicated to continue in Doctorate) and Master for Industry (dedicated for direct employability in industry).

After a short presentation of the higher education system in Europe and in France, this webinar will present the experience of the Master “Automatic control & Electrical Systems” of University of Lille (200 students per year). In the second year, this Master is composed of 4 options: 1 dedicated to Research, 2 dedicated to Industry, and 1 hybrid. The case of the Master option “Smart Electric Vehicles” will be discussed as it has been recently created to respond to the necessary change in the automotive industry.

**BIOGRAPHY**



**Alain BOUSCAYROL** received Ph.D. degree in Electrical Engineering from Polytechnic National Institute of Toulouse, France, in 1995. From 1996 to 2005, he was Associate Professor at University of Lille, France, where he has been a Professor since 2005. From 2004 to 2020, he managed the national scientific network on Energy Management of Hybrid Electric Vehicles (MEGEVH) France. Since 2015, he has been coordinator of the CUMIM (Campus of University with Mobility based on Innovation and carbon Neutrality) interdisciplinary program of University of Lille. Since 2018, he has been co-director of the international research lab e-CAMPUS on sustainable mobility (France-Canada). He is coordinator of PANDA, a European H2020 project on simulation and testing of electrified vehicles, a H2020 European project.

His research interests at the L2EP (Laboratory of Electrical Engineering and Power electronics) include control of electric drives, wind energy conversion systems, railway traction systems, hybrid electric vehicles and hardware-in-the-loop simulation. His collaborative works with industry on energy management for vehicles include Siemens Mobility, Siemens Software, PSA Peugeot Citroen, Renault, Valeo and SNCF. In January 2014, he has been nominated Chair of the Vehicle Power Propulsion technical committee by IEEE Vehicular Technology Society (VTS). From 2014 to 2018, he had been Associate Editor of IEEE transactions on Vehicular Technology. Since 2016, has been elected Distinguished Lecturer by IEEE VTS.

His education activities deal with electrical engineering and system engineering with application to electrical systems, renewable energy conversion systems, and transportation systems, with a special emphasis on modelling, control, and energy management. From 2004 to 2012, he has been responsible of the Master option “Electrical Grid” of University (industry-oriented). In 2008, he has been nominated head of the Master “Automatic control & Electrical Systems” of university of Lille (<http://master-ase.univ-lille1.fr/>). In 2015 he has created the new industry-oriented Master option “Smart Electric Vehicles”. Moreover, since 2006, he is chair of the annual international summer school “Energetic Macroscopic Representation” (<http://www.emrwebsite.org/>).