



ESoA-IRACON COURSE ON  
**LARGE-SCALE RADIO PROPAGATION**



Louvain-la-Neuve, June 12-16, 2017



musics



## Course Schedule

### Monday June 12, 2017

9.00 – 10.00 h	<i>Welcome, Introduction, Overview, Mobile and Wireless Communication Systems</i> Prof. Claude Oestges, Université catholique de Louvain
10.00 – 10.30 h	<i>General Theory of Propagation: Physical Aspects Part I (Path loss, Spreading factor, Fading)</i> Prof. Vittorio Degli-Esposti, University of Bologna
10.30 – 11.00 h	Coffee Break
11.00 - 12.30h	<i>General Theory of Propagation: Physical Aspects Part II (Reflection, Diffraction, Scattering, Multipaths)</i> Prof. Vittorio Degli-Esposti, University of Bologna
12.30 – 13.30 h	Lunch Break
13.30 – 15.00 h	<i>Stochastic and Multidimensional Aspects Part I (Rayleigh and Rice Fading, Channel Transfer Functions)</i> Prof. Vittorio Degli-Esposti, University of Bologna
15.00 – 15.30 h	Coffee Break
15.30 – 17.00 h	<i>Stochastic and Multidimensional Aspects Part II (Spreading in Time, Angles, Selectivity in Frequency, Space, Multidimensional Parameters)</i> Prof. Vittorio Degli-Esposti, University of Bologna
17.00 - 18.00 h	<i>Exercises</i> Prof. Conor Brennan, Dublin City University

### Tuesday June 13, 2017

9.00 – 10.00 h	<i>GIS Data for Radio network Planning Part I</i> Prof. Thomas Kürner, Technische Universität Braunschweig
10.00 – 10.30 h	Coffee Break
10.30 - 12.30h	<i>GIS Data for Radio network Planning Part II</i> Prof. Thomas Kürner, Technische Universität Braunschweig
12.30 – 13.30 h	Lunch Break
13.30 – 15.00 h	<i>Localisation</i> Prof. Vittorio Degli-Esposti, University of Bologna
15.00 – 15.30 h	Coffee Break
15.30 – 17.30 h	<i>Path Loss Modeling for Cellular Networks</i> Prof. Thomas Kürner, Technische Universität Braunschweig
17.30 - 18.30 h	<i>Exercises</i> Prof. Conor Brennan, Dublin City University

**Wednesday June 14, 2017**

9.00 – 10.30 h	<i>Coverage Planning and Planning Tools</i> Prof. Thomas Kürner, Technische Universität Braunschweig
10.30 – 11.00 h	Coffee Break
11.00 - 13.00h	<i>Propagation Modeling for High-Speed Railways</i> Prof. Thomas Kürner, Technische Universität Braunschweig
13.00 – 14.00 h	Lunch Break
14.00 – 15.30 h	<i>Propagation and Channel Modeling for Car2X Communication, Part I</i> Prof. Werner Wiesbeck, Karlsruhe Institute of Technology
15.30 – 16.00 h	Coffee Break
16.00 – 17.30 h	<i>Propagation and Channel Modeling for Car2X Communication, Part II</i> Prof. Werner Wiesbeck, Karlsruhe Institute of Technology
17.30 - 18.30 h	<i>Exercises</i> Prof. Conor Brennan, Dublin City University
19.00	<i>Dinner</i>

**Thursday June 15, 2017**

9.00 – 10.30 h	<i>Deterministic and semi-empirical channel models for urban areas Part I</i> Prof. Conor Brennan, Dublin City University
10.30 – 11.00 h	Coffee Break
11.00 - 12.00h	<i>Deterministic and semi-empirical channel models for urban areas Part II</i> Prof. Conor Brennan, Dublin City University
12.00 – 13.00 h	Lunch Break
13.00 – 14.30 h	<i>Advanced electromagnetic models</i> Prof. Conor Brennan, Dublin City University
14.30 – 15.00 h	Coffee Break
15.00 – 17.00 h	<i>MIMO Channels: steering vectors, eigenvalues, MIMO models, beamforming, massive MIMO, etc.</i> Prof. Claude Oestges, Université catholique de Louvain
17.00 - 18.00 h	<i>Exercises</i> Prof. Conor Brennan, Dublin City University

**Friday June 16, 2017**

9.00 – 10.30 h	<i>4G to 5G Channel Models Part I</i> Prof. Claude Oestges, Université catholique de Louvain
10.30 – 11.00 h	Coffee Break
11.00 - 12.30 h	<i>4G to 5G Channel Models Part II</i> Prof. Claude Oestges, Université catholique de Louvain
12.30 – 13.30 h	<i>Final exam</i>
13.30 – 14.30h	Lunch Break
14.30 – 15.00h	<i>Wrap-up and distribution of certificates</i>