

Digital Electromagnetic Sub-Systems

Thursday 25th April 2024

Loughborough University, Leicestershire, 10:00am to 4:00pm

This is the fourth of five CPD training modules; designed as a comprehensive introduction to working in the Electromagnetic Environment to be delivered at Loughborough University and online.

This module is aimed at industry and academic participants who have an interest in developing knowledge and understanding of basic analogue modulation, electromagnetic interference and compatibility, electronic jamming and the radio spectrum regulatory framework in the UK and abroad. The module is for new graduates or experienced personnel who may wish to revise their basic knowledge or who may want to move into this area from other domains.

Third Module, (Digital Electromagnetic Sub-Systems) intended learning outcomes:

- **Explain the digital communication process, including encoding and modulation, with spread spectrum modulation as an example. Understand the importance of error detection and correction in noisy environments.**
- **Explain basic sampling theory, including Nyquist–Shannon sampling theorem, the trade-offs between quantization levels, resolution, and quantization noise.**
- **Describe the functions of analogue to digital and digital to analogue converters, and the use of the fast Fourier transform in signal processing.**
- **Describe the basic architecture of a Field Programmable Gate Array (FPGA) and understand how they are used in example Defence applications. Know the basics of programming, deploying and verifying a FPGA**
- **Through practical lab work, use a Hardware Description Language (HDL) to design and deploy a simple digital system to an FPGA.**

This module does not require security clearance to attend, however participants must apply and receive a formal invitation prior to attendance. The module is FREE to attend.

Register your interest by contacting EMEHUB@lboro.ac.uk

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