

Telecom – 5G System Designer

5-days session

Title	Telecom - 5G System Designer Training
Overview	<p>This training will allow current students, engineers and telecom designers to have the required skills and know-how for implementing and running software defined 4G and 5G radio services on Linux PCs with some hardware acceleration boards (FPGA or GPU). Labs will focus on the 5G implementation.</p> <p><u>The course/training will mainly focus on the following items:</u></p> <ul style="list-style-type: none"> ▪ 4G architecture from Layer 1 to Layer 3 ▪ 5G architecture compared to 4G ▪ Radio Access Network (RAN) Architecture ▪ Core Network (CN) Architecture ▪ Timing and synchronization on the network ▪ Diving into the 5G Software Stack ▪ Diving into the 5G-NR and NB-IoT protocol configuration ▪ Intel processors intrinsics for performance coding ▪ FPGA acceleration of the 5G stack ▪ Network Virtualization and slicing ▪ Network Orchestration, elastic monitoring and management
Labs	<ul style="list-style-type: none"> ▪ 5G software stack RAN configuration ▪ 5G software stack CN configuration ▪ Generating and Analyzing DownLink (DL) and UpLink (UL) RF signals ▪ SIM card configuration for network attachment ▪ Data Analytics configuration <p>Practical Labs will be held on:</p> <ul style="list-style-type: none"> - 2 PCs for running the Core Network (CN) and the Radio Access Network (RAN). - 2 FPGA boards acting as processing accelerators allowing to have higher 5G data throughput. - RF boards for transmission and reception of the eNodeB or gNodeB allowing thus User Equipment (UE) attachment.
Audience	Software and telecom engineers that intend to upgrade their skills to 5G networks, virtualization and software defined radio architectures
Prerequisite	<ul style="list-style-type: none"> ▪ Experience in C and C++ programming ▪ Experience in Linux OS ▪ Basic knowledge of FPGA architecture
Seats	[min = 8, max = 16]
Duration	5 days – 40 hours (50% courses, 50% Labs)