



ASSETS+
Alliance for Strategic Skills addressing Emerging Technologies in Defence

EDUCATION & TRAINING

RF architectures for software radio transceivers in defence environments



Co-funded by the
Erasmus+ Programme
of the European Union



POLITÉCNICA

DESCRIPTION OF THE COURSE:

- **Context:** Software Defined Radio is the new paradigm in radio communication receivers. This technology is growing in an exponential way and it is changing completely the way of designing, prototyping and exploiting communication transceivers.
- **Contents:** In this very short course an introduction about SDR is provided and the main architectures are presented, specially focussing in their operation in defence environments, where they have to face a crowded spectrum and the possibility of hostile interference. The current status of technology and challenges are also presented.
- **Objectives:**
 - To learn what are the capabilities and limitations of this technology
 - To develop the skills for sketching a high level architecture of a SDR RF transceiver
 - To link the limitations of the individual devices to the overall performance in defence environments
- **Pre-requisites:** General knowledge on communications systems, analog to digital conversion, digital electronics, signal theory and radio architectures



This programme is focused on:

- Professionals working in Defence and AeroSpace Industry (up-skilling and re-skilling activities)
- More focused on project advisors and high level designers than on technicians
- Also useful for graduate students willing to learn about this technology

IMPORTANT: This prototyped programme is **EXCLUSIVE FOR** partners of the [ASSETs+ consortium](#) and [associated stakeholders](#).

If you want to join the ASSETs+ Stakeholders Group and become part of our ecosystem, please, [click here](#).



General information

- **Format: Online**
- **Language: English**
- **EQF level: 7**
- **Instructor: Mateo Burgos**
- **Hours: 2h synchronous lectures + 1h asynchronous test + 10 h individual design work**
- **Host institution: UPM**



Programme schedule

21 June, 2023 16:00 – 17:00	-Introduction to SDR: capabilities and limitations (0,5h) -The analog fron-end of an SDR. Arquitechtures (0,5h)
22 June, 2023 16:00 – 17:00	- ADC and DAC specifications (0,5h) - Direct Digital Synthesis (0,5h)
23 June, 2023	Asynchronous test (1 h max)
26-30 June, 2023	Individual design activity (10 hours at home, on line tutorships)



Learning outcomes:

Knowledge about software defined radio capabilities and its limitations in defence environments

Knowledge about the technologies employed in SDR front-ends, and its current state of the art

Perform a high-level design of a Software Defined Radio front-end transceiver



More information

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www.assets-plus.eu



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