



ASSETS+
Alliance for Strategic Skills addressing Emerging Technologies in Defence

EDUCATION & TRAINING

Prototyped programme:

**Instructions into machine control
units to start operation**



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

 **LEONARDO**
TECHNICAL TRAINING

Learn from the basics to some advanced techniques in this 20-hours free course:

- Machine Control Units architecture
- Set up
- Input data
- Machine part program
- Machine program structure
- Machine code or language program
- Data transfer instructions
- Arithmetic instructions
- Logic instructions
- String manipulation instruction
- Control transfer instruction
- Loop control instructions
- Processor control instructions



General information

- **Format: Online**
- **Language: English**
- **EQF level: 5**
- **Hours: 20**
- **Instructors:**
Marco Coraggio; Andrea Giusti; Francesco De Lellis; Davide Salzano
- **Host institution:**
Leonardo Technical Training (Italy)



Programme calendar

	19 May 2022 8.30 AM (4h)	24 May 2022 8.30 AM (4h)	31 May 2022 8.30 AM (4h)	6 June 2022 8.30 AM (4h)	9 June 2022 8.30 AM (4h)
Main characteristics of machine control unit (1h)	Key elements of machine control unit: commands, instructions and specifications (2h)	Machine tools (2h)	Set up the controls of a machine and supply with appropriate tools (2h)PBL- Project Based Learning	Performing the main software of the machine control unit (3h) PBL- Project Based Learning	
Operations of machine control unit (2h)	Instruction into machine control units to start operation (2h)	Cyber Security (1h)	Set up the product design in the machine unit controller (2h)PBL- Project Based Learning	Exam (1h)	
Technical documentation (1h)		Set up the controls of a machine and supply with appropriate tools (1h)PBL- Project Based Learning			



This programme is focused on:

- Professionals working in Defence and AeroSpace Industry (up-skilling and re-skilling activities) and
- University Licence students

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](#).

Faculty



Andrea Giusti: Control Systems Engineer, degree in Automatic Control Engineering
Teacher and trainer for the development of nonlinear distributed control algorithms for formation control of robotic swarms, stability analysis of multi-agent systems, Complex networks, Microcontrollers, On board electronics.

Davide Salzano: degree in Automation Engineering
Teacher and trainer for the Mathematical modelling and control theory, Mathematical modelling, Multivariable control systems, Nonlinear systems dynamics and control, Dynamics and control of electrical machines and drives, Systems identification, Optimal control, Operative Research, Robot mechanics and control.

Marco Coraggio: Control Systems Engineer, degree in Automation Engineering
Teacher and trainer for the data-driven and machine learning-based control strategies with application to complex networks, including power systems and epidemics, Developing and implementation in Matlab on algorithm to control power flow in smart power grids, maximizing robustness to line faults, through a decentralized feedback controller that solves an optimization problem in real time.

Francesco De Lellis: Control Systems Engineer, degree in Automation Engineering
Teacher and trainer for the Non Linear Dynamics and Control Neural Networks and Deep Learning, Analysis and Control of Complex Systems Reinforcement Learning, Robot Control, Dynamics and Control of Electrical Machines, Discrete Event Systems.



Learning outcomes:

Knowledge:

- Main characteristics of machine control unit, PLCs, ecc
- Operations of machine control unit
- Key elements of machine control unit: commands, instructions and specifications
- Actuator equipment for automation, electrical drives and modulation (DC motor, brushless motor, inverter, PWM); use of technical manuals
- Computation and control systems, and communication protocols
- Machine tools
- Cyber security

Skill:

- Consult technical resources
- Set up the product design in the machine unit controller
- Start the main operative activity: enter commands, instructions or specifications into machine equipment
- Set up the controls of a machine and supply with appropriate tools
- Using technical documentation



More information and registration:

<https://assets-plus.eu/education-training/instructions-into-machine-control-units-to-start-operation>



www.assets-plus.eu



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