Mechanics student's skills at the end of the 4th year

At the end of the 4th year the students are able to:

- Use INVENTOR
- Cable (wire up) an electro-pneumatic circuit
- Use FLUIDISM, a comprehensive software for the creation, simulation, instruction and study of electropneumatic, electrohydraulic, digital and electronic circuits
- Use a lathe (at a basic level)
- Programming a CNC milling machine in Heidenhain language
- Use measurement tools such as callipers, micrometers, …
- Use work tables for all those tests related to mechanical planning, designing and production

Energy students'skills at the end of the 4th year

At the end of the 4th year the students are able to:

- Use Autocad
- Use Revit (Architecture 3D model)
- Describe a traditional heating system equipped with a boiler or solar panel
- Knowledge of the key components of a fire protection system
- Cable (wire up) an electro-pneumatic circuit
- Use FLUIDISM, a comprehensive software for the creation, simulation, instruction and study of electropneumatic, electrohydraulic, digital and electronic circuits
- Use a lathe (at a basic level)
- Use measurement tools such as callipers, micrometers, …
- Use work tables for testing
- Use work tables for all those tests related to planning, designing and production in the fields of mechanics and renewable energy

As you can see some skills are really similar.

ICT students' skills at the end of the 4th year

At the end of the 4th year the student are able to:

- use the Internet and its services
- use Google Apps for Education platform
- use Microsoft Visual Studio Code
- use Git and GitHub to manage software projects
- use Docker to run applications in isolated environments
- develop a program with command-line interface using Java programming language
- develop a program using Python programming language
- develop programs able to manage dynamic data
- develop programs based on object-oriented technology
- use sockets in Java
- use concurrent applications in Java
- develop a Web Application using Angular
- create websites using HTML5 and CSS3
- create and manage images and animations in SVG format
- create client-side web applications using Javascript and JQUERY
- use JSON and XML files
- install and configure operating systems in virtual machines
- use Windows and Linux operating systems as client
- use the main commands of Linux shell
- create simple Linux scripts
- disassemble and assemble a PC
- use Cisco Packet Tracer network simulator
- design and make local networks in Lab
- configure CISCO 2960 switch and use CLI interface with IOS commands

Electronics and Automation students' skills at the end of the 4th year

At the end of the fourth year students of Electronics and Automation can:

- Describe, and program a system microcontroller (Arduino based) using a high level language (C language).
- Know and use different types of sensors and analog and digital actuators, integrating them into a PLC system or microcontroller (using LCD, ultrasonic capsules, gages, variable resistors, H-Bridge, DC motors and stepper motors).
- Create simple human machine interfaces (HMI) for the management of processes and systems, and control systems using LabVIEW and serial communication.
- describe and program a PLC system using a "Contact language" or visual ladder (in specific KOP Siemens in TIA Portal environment).
- operate and manage simple electro-pneumatic systems by simulating the operation using specific software (FluidSim).
- create electric circuit schematics using the main software available on the market (e.g. SPAC).
- perform the circuit analysis in DC and AC (with the phasor method).
- Know the main devices and functions of digital electronics (NOT, OR, AND, HALF-ADDER, FULL - ADDER, ALU, sequential devices, Flip Flop and Latch, Register shift, etc.)
- Know how the main electrical and electronic devices work (resistors, capacitors, inductors, diodes and transistors)
- use laboratory and field instrumentation and apply the methods of measurement in order to carry out checks, inspections and tests. Specifically, the student will be able to make measurements using testers, oscilloscopes and function generators.
- refer to the technical documentation of devices and systems, also in the English language.
- Know the basics of programming an Arm Robot to perform simple tasks (e.g. pick and place) and how to manage it by the teaching box device.