

# MECHATRONICS EXPLAINED BY COMPANIES

*Present and future of industrial machines design*



Politecnico di Torino  
May 10, 2018



# WORKSHOP AGENDA

## OPENING SESSION

Welcome greeting by **Politecnico di Torino**

**Sabina Cristini**

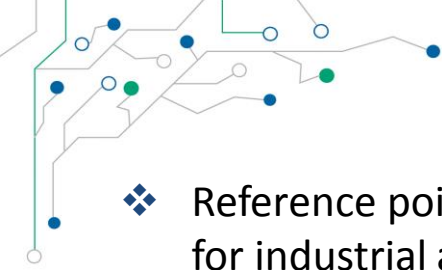
*President of Mechatronics Group*

## OEM SESSION

Case history: how the machine manufacturer operates - **FAMAR Group**

## TECHNOLOGY PROVIDERS SESSION

<b>TRANSMISSION AND MECHANICAL DESIGN</b>	
Kinematics chain and dimensioning	WITTENSTEIN - BECKHOFF AUTOMATION
Energy efficiency	RITTAL
<b>SAFETY AND SECURITY</b>	
Safety	SCHMERSAL ITALIA - SICK
Cyber security	PHOENIX CONTACT
<b>AUTOMATION AND CONTROL</b>	
Electrical design	SDPROGET INDUSTRIAL SOFTWARE - LAPP ITALIA
Motion control	ESA AUTOMATION
Communication	BALLUFF AUTOMATION
<b>SIMULATION AND VIRTUALIZATION</b>	LENZE ITALIA - SIEMENS
<b>LOGISTICS</b>	OMRON ELECTRONICS - SEW EURODRIVE



# ANIE Automazione

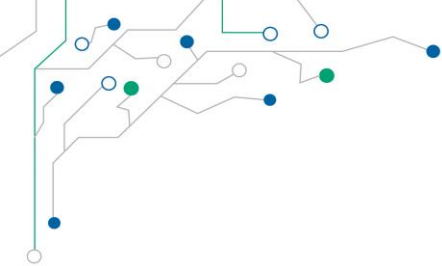
- ❖ Reference point for companies supplying advanced technological systems and solutions for industrial automation.
- ❖ Member companies are organized into working groups, distributed on two areas:

PRODUCT	SYSTEM
VARIABLE SPEED DRIVES	MECHATRONICS
COMPONENTS AND TECHNOLOGIES FOR MEASUREMENT AND CONTROL WG ENCODER, NETWORKING, RFID, SAFETY, WIRELESS, VISION SYSTEMS	INDUSTRIAL SOFTWARE
PROCESS CONTROL	REMOTE CONTROL SYSTEMS
HMI-IPC-SCADA	INTELLIGENT TRANSPORT SYSTEMS
PLC-I/O	
UPS	

- ❖ A network committed to supporting and promoting the technological excellence of the sector.
- ❖ At the forefront on issues of digitalization and Industry 4.0.

# Companies of Mechatronics Group





**FORUMECCATRONICA**

**26 SETTEMBRE 2018**  
Torino, CNH Industrial Village  
**5ª edizione**



**L'ESPERIENZA MANIFATTURIERA ITALIANA  
NEL PASSAGGIO AL 4.0:  
TECNOLOGIE E COMPETENZE**



[www.forumeccatronica.it](http://www.forumeccatronica.it)





# Production requirements

- ❑ Production of different, limited, high quality batches:
  - Flexible and quick configurability of machines
  - Reliability and low maintenance
  - Detection of process data and performance in the field
  
- ❑ Efficient and reliable new machine projects, reduce time to market:
  - Design approach with modular solutions
  - Easily adaptable and reconfigurable SW&HW platforms
  - Virtual prototyping and simulation



# Smart Factory

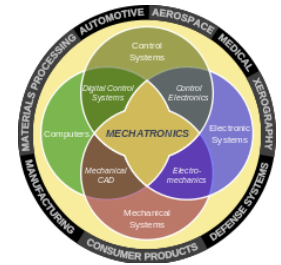
Industry 4.0 gives direction to improve the plants' technological base  
Some large technology areas for the Smart factory:

- Innovations that touch the heart of the manufacturing process:
  - more automated plants
  - smart solutions capable of offering high productivity, flexibility, efficiency
  - machines that interact with each other
  
- Innovations that support decisions to manage a factory:
  - systems to manage big data
  - IT solutions that allow operational management, eg. stocks and suppliers
  - solutions for managing risk: service monitoring on the line

# The winning role of Mechatronics

In modern concept of **Smart factory**, mechatronic technologies play a Fundamental role with competitive impact:

- Mechatronic design means integrating technologies and solutions, but also **adopting new management methods and use of knowledge**.
- Engineering of more and more **reliable** and **versatile** machines, optimizing also the **prototyping phase with virtual simulations**.
- Production that ensures the optimization of resources, the reconfiguration flexibility and the use of energy with repercussions in terms of improving **production and energy efficiency**.
- Monitoring of parameters to perform in line with performance expectations and quality needs for **self-learning and continuous improvement**.





# OEM SESSION

FAUSTO MARINELLO - FAMAR GROUP

*Pier Luca Carruccio*

# TECHNOLOGIES SESSION

## 1. Transmission & Mechanical design

- 1.1 Kinematics chain & dimensioning
- 1.2 Kinematics chain & dimensioning
- 1.3 Energy efficiency

## 2. Safety & Security

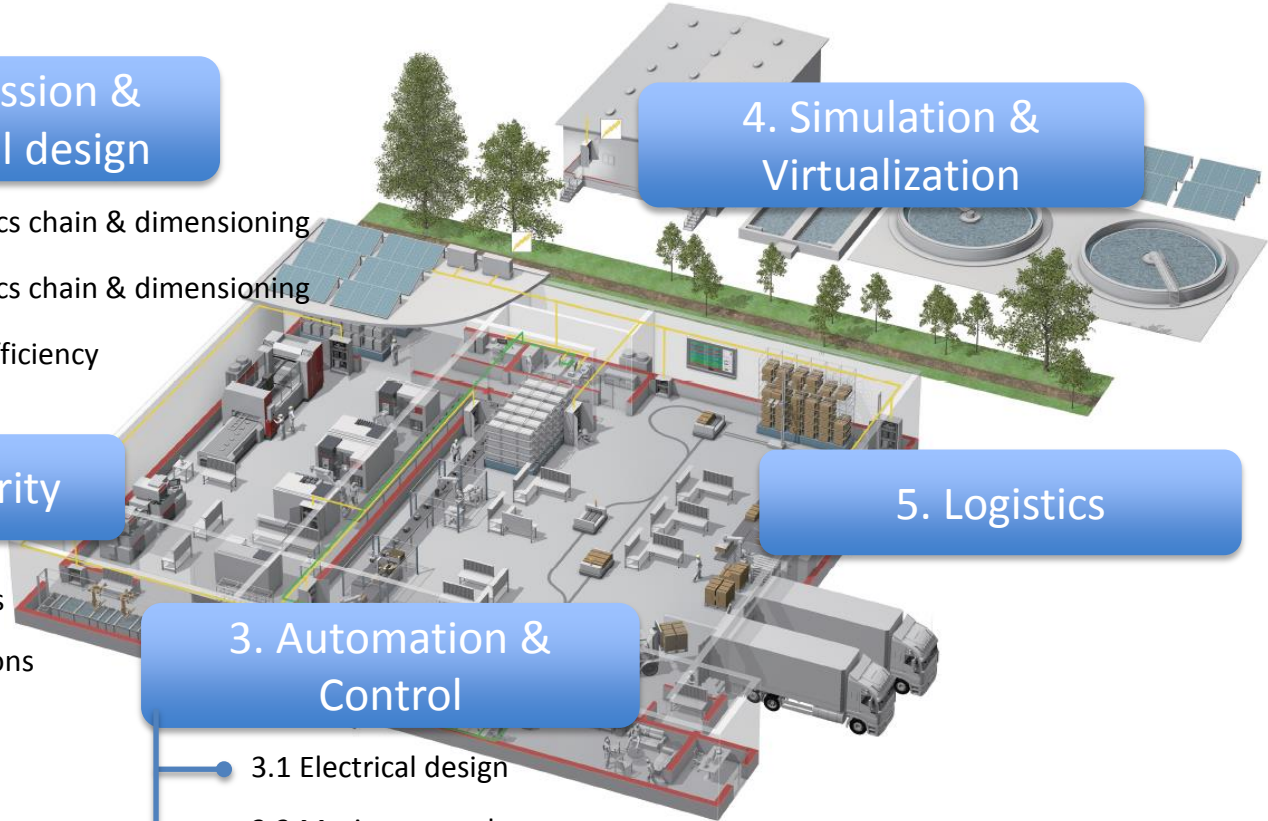
- 2.1 Safety standards
- 2.2 Safety applications
- 2.3 Cyber security

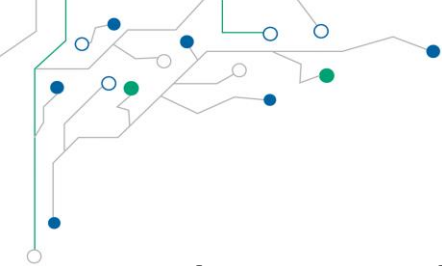
## 3. Automation & Control

- 3.1 Electrical design
- 3.2 Motion control
- 3.3 Communication

## 4. Simulation & Virtualization

## 5. Logistics





The workshop proceedings will be available on  
**[www.anieautomazione.it](http://www.anieautomazione.it)**

Contact us for the certificate of participation  
**[anieautomazione@anie.it](mailto:anieautomazione@anie.it)**