CIT UPC

TECHNOLOGY CENTER

UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONA**TECH**

INDUSTRY 4.0

RESEARCH, DEVELOPMENT AND INNOVATION AT THE UNIVERSITAT POLITÈCNICA DE CATALUNYA (UPC)

The Universitat Politècnica de Catalunya (UPC) specializes in the areas of architecture, science and engineering, including Industry 4.0 technologies. In this field, the main focus areas are:

- Advanced manufacturing technologies
- Collaborative & autonomous robots
- The industrial internet of things
- Augmented reality
- Data science
- Cybersecurity
- Additive manufacturing

As a result of the UPC's recognized research track record in its areas of specialization, we can offer a wide range of services:

- R&D technology transfer projects
- Consortium for national and H2020 projects
- Patents
- Technology assessment
- Specialized facilities

The UPC is the leading university in Spain in volume of research and technology transfer to companies, and has become one of the major hubs of knowledge in Southern Europe.

TECHNOLOGICAL CAPABILITIES

ADVANCED MANUFACTURING TECHNOLOGIES

- Techniques for controlling and monitoring process/product quality
- Flexible manufacturing processes
- Advanced decision-making tools for Zero Defects Manufacturing (ZDM)
- Digital control with microprocessors and Digital Signal Processing (DSP)
- Human-machine collaboration
- Computer vision
- Assessment of environmental impact

COLLABORATIVE & AUTONOMOUS ROBOTS

- Human-machine communication interfaces (dialog systems)
- Advanced information models for knowledge generation and learning
- Perception systems: vision to control and guide robots

| SYNCHRONIZED ENTERPRISE | ROBOTICS | LOGISTICS |

THE INDUSTRIAL INTERNET OF THINGS

- Industrial communication
- Artificial intelligence
- Intelligent monitoring of industrial processes
- Energy saving through smart monitoring
- Sensor systems and data extraction

AUGMENTED REALITY

- Advanced 3D graphic interaction systems
- Physically-based animation
- Virtual reality, immersive interaction and geometric & volume modelling

DATA SCIENCE

- Big data analytics
- Data graphs
- Advanced statistical analysis
- Control panels and decision support systems

INDUSTRIAL AUTOMATION & COMMUNICATION

ENERGY EFFICIENCY

WASTE OPTIMIZATION

CYBERSECURITY

- Logical security. Audits, penetration tests for heterogeneous networks and forensic analysis

- High availability infrastructure

- Intrusion detection and intrusion response mechanisms

ADDITIVE MANUFACTURING

- Rapid prototyping

- 3D Printing

- Stereolithography (SLA)

- Selective Laser Sintering (SLS)

- Fused Deposition Modeling (FDM)

DYNAMIC SUPPLY
CHAIN NETWORKS

INNOVATIVE CONSUMER
DELIVERY

INDUSTRIAL DESIGN

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