Our mission: Empowering our partners for the digital age!

Fraunhofer IOSB-INA is a leading research institute in the field of industrial automation, providing support on digital transformation to suppliers, mechanical and plant engineers as well as operators of automated technical systems.

As a leading research institute in the field of industrial automation we support suppliers, mechanical and plant engineers, as well as operators of automated technical systems in digital transformation. Our expertise lies in the application knowledge of industrial automation, including networking, analysis, monitoring and user-friendly design of technical systems. Application knowledge of industrial automation – the networking, analysis and monitoring as well as the user-friendly design of technical systems - are our core competencies.

Our business areas:

- Industrial Internet (IIoT)
- Intelligent automation
- Assistance systems
- Cyber security in production

**PROFILE**
I4.0 PRODUCTION LINES

Industry 4.0 applications can significantly improve the resource efficiency of manufacturing processes. The secure acquisition of process data via high performance sensor systems, detailed system analytics and optimization as well as human machine interaction are key functions for more performance and efficiency.

Fraunhofer IOSB-INA and OWL University of Applied Sciences have implemented SmartFactoryOWL in Lemgo/Germany as a cutting-edge living lab for information and communication technology based automation. In SmartFactoryOWL it is aimed to cover the most important research topics for digitization at the shop floor level of the factory of the future comprising Industry 4.0 production equipment, labs for cyber security and big data analytics.

In order to sensitize and inspire companies for the application of such Industry 4.0 technologies and digitization, we offer completely customized Industry 4.0 production lines. The production lines are intended as technology demonstrators and can be used by companies as a starting point for future production. Closely related to these production lines, we offer customer specific Industry 4.0 training and education services.

TRAINING COURSES

(1) Industry 4.0 Basics and Political Alignment introduces to the technology, depicts worldwide activities such as China 2025 and includes commercial examples.

(2) Smart Sensor Systems issues how smart sensor systems support production processes to dynamically adapt to changing environmental conditions.

(3) Industrial Real-Time Internet focuses on state of the art industrial communication technologies such as PROFINET and high-precision clock synchronization.

(4) Big Data Management in Industrial Environments shows how big data processing supports applications like anomaly detection, condition monitoring and predictive maintenance.

(5) Usability of Technical Systems shows how assistance systems support workers for improving efficiency and quality.

(6) Additional Trainings are focusing on topics like indoor localization and tracking, collaborative robots, 3D printing, cyber security of Industry 4.0, Industrial Internet of Things (IIoT) and OPC UA communication.

RANGE OF SERVICES

(1) Potential analysis studies: We investigate the commercial and technical potential of Industry 4.0 production lines while taking the existing technical infrastructure and customer specific requirements into account.

(2) Design, implementation, and integration of Industry 4.0 production lines: We focus on demonstration of state-of-the-art technologies from research and industry.

(3) Training and education services at premises of Fraunhofer IOSB-INA or partner companies: We are covering both theoretical background and practical training at our production lines or within our labs.

SELECTED PROJECT REFERENCES

(1) Advanced Industry 4.0 Production Line Hual’An

(2) Customer Specific Production System of SmartFactoryOWL shown at various international exhibitions and fairs in Germany

(3) Study on Condition Monitoring of Car Body Welding at Audi

(4) Big data in production based on data acquisition, management and analysis with Bayer and Claas

(5) Increased efficiency of mobile waste compactors via intelligent remote monitoring for Betron

(6) Energy efficiency optimization for a pallet loader of Wesergold