



IEEE IECON 2025

IEEE 1451 Hands-on Lab Workshop

OVERVIEW: A brief introduction on standards and international compliance is covered in the overview, followed by an overview of the IEEE SDO under the IEEE Standards Association (IEEE-SA).

Development on IEEE 1451 sensor network standards, IES portfolio of standards and some use case examples will be outlined.

Standards development by the IEEE Industrial Electronics Society (IES) is covered, followed by a detailed overview of actual IEEE Standards development practices and processes.

THE WORKSHOP: The IEEE 1451 family of standards ensures seamless integration and interoperability of devices within the same ecosystem addressing IoT and CPS needs. The standard is the focus of the hands-on lab that includes theoretical and experimental sessions.

The development of new devices observing standards ensures their integration and interoperability with other devices in the same ecosystem. The IEEE1451 family of standards comprises a diversity of standards that contribute to transducer integration in the network. The standard defines two different elements of the network: the Network Capable Processor that connects to the users' network and the Transducers Interface Module (TIM) that implements the smart sensor. A set of Transducers

Electronic Data Sheets (TEDS) describes the transducer in the network, allowing an NCAP to discover and associate a transducer with the network automatically. These functionalities respond to today's needs imposed by the Internet of Things and Cyber-Physical Systems.