This document contains supplemental information referenced by the European Commission’s ‘Rolling Plan for ICT Standardisation’.

IEEE Standards Activities for Advanced Manufacturing

Overview

Advanced Manufacturing is gaining a lot of momentum with technology integration in systems and processes. The integration of more technology-based processes in a manufacturing or production environment helps in driving production automation while also improving the quality of the products and achieving conformance to industrial norms.

IEEE has standards activities relevant to the digitisation of vertical industries, in particular for advanced manufacturing. These standards activities include basic horizontal standards applicable to many industry domains, such as standards for networking and sensors, as well as specific standards addressing the needs of the manufacturing sector, like production process automation in a plant.

IEEE standardization groups are evolving legacy standards and new standardisation projects for smart manufacturing to enable:

- Industrial Services
- Intelligent Factories
- Intelligent Equipment
- Industrial Internet
- Industrial Software and Big Data

The first three represent different integration levels of functionality whereas the following two relate to engineering and implementation techniques.

Relevant Standards Activities

- **IEEE TSN (Time Sensitive Networking)** provides deterministic connectivity to time and mission critical industrial applications over Ethernet networks (IEEE 802.3). A joint effort with IEC is underway to standardise a profile for industrial automation (IEC/IEEE P60802)
- **IEEE 1451-1-4 and IEEE P1451-99** specify smart transducer Interfaces for sensors and actuators in particular for Industry 4.0
- **IEEE P2807**, Framework of Knowledge Graphs
- **IEEE P2807.1**, Standard for Technical Requirements and Evaluating Knowledge Graphs

[standards.ieee.org](http://standards.ieee.org)
P3333.1.3 - Standard for the Deep Learning-Based Assessment of Visual Experience Based on Human Factors
IEEE P2418.1, Standard for the Framework of Blockchain Use in Internet of Things (IoT)
IEEE P2418.2, Standard Data Format for Blockchain Systems

Approved Standards and New or Revision Projects*
IEEE/IEC 62659-2015, International Standard for Large Scale Manufacturing for Nanoelectronics
IEEE P1589, IEEE Draft Standard for an Augmented Reality Learning Experience Model
IEEE P1857.9, IEEE Draft Standard for Immersive Visual Content Coding
IEEE P2413.1, IEEE Draft Standard for a Reference Architecture for Smart City (RASC)
IEEE P2668, IEEE Draft Standard for Maturity Index of Internet-of-Things: Robotics
IEEE P1872.1, IEEE Draft Standard for Robot Task Representation
IEEE P2751, IEEE Draft Standard for 3D Map Data Representation for Robotics and Automation

Intelligent Process Automation and Manufacturing

Testing
IEEE 1232-2010 (Revision of IEEE 1232-2002), IEEE Standard for Artificial Intelligence Exchange and Service Tie to All Test Environments (AI-ESTATE)

IEEE Industry Connections program
IC17-003, India Robotics Roadmap
IC17-007, Neuro Tech for Brain-Machine Interfacing
IC17-017, Blockchain Asset Management

More information is available at https://standards.ieee.org/

*NOTE: Draft standards projects, once approved, are often revised and/or used as the base for new projects. The status of these projects is updated periodically. For the most up-to-date status, please see the following link: <https://standards.ieee.org/project/index.html>
For further information please contact Hermann Brand at h.brand@ieee.org