The American Society of Mechanical Engineers

ASME Manufacturing Standards Overview

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Overview

- Mission
- Standards and ASME
- New Activities Related to Manufacturing
- Monitoring, Diagnostics, and Prognostics
- Next Steps

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ASME Mission Statement:

To serve diverse global communities by advancing, disseminating and applying engineering knowledge for improving the quality of life; and communicating the excitement of engineering.

Standards and Certification (S&C) Mission Statement:

To develop the best, most applicable codes, standards, conformity assessment programs, and related products and services in the world for the benefit of humanity

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Standards and ASME

- Engineering standards have been developed to improve public safety. Standards also allow for uniform consistency of products, and help ensure fair and free commerce and trade
- Standards have a wide impact on both engineers and the public, often in unseen and unappreciated ways
- ASME S&C has over one hundred years of experience developing standards, beginning in 1880 with the Boiler and Pressure Vessel Code
  - ~600 Standards
  - Accepted for use in more than 100 countries

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Standards and ASME

- ASME Standards and Certification relies on industry, academia, and government agency supporting participation by knowledgeable experts
- Not funded by industry or government
- Standards are considered voluntary unless adopted into law by a regulatory authority
- While historically a reactive process, involvement in new technology areas is much earlier in recent years

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New Activities Related to Manufacturing

- **Monitoring, Prognostics, and Diagnostics (Process PHM)**
- Model Based Enterprise (MBE)
- V&V 50 – Verification and Validation in Computational Modeling for Advanced Manufacturing
- Y14.46 – Product Definition for Additive Manufacturing
- Y14.47 – Model Organization Schema Practices
- B89.4.23 – X-ray Computed Tomography (CT) Performance Evaluation Standard

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Monitoring, Diagnostics, and Prognostics

- Held first workshop in June 2017 in conjunction with the Manufacturing Science and Engineering Conference (MSEC)
- Held second workshop in October 2017 at PHM Society Conference
- Proposed Charter
  - To establish standards and guidelines which provide information on terminology, design, and implementation of advanced monitoring, diagnostic, and prognostic technologies, along with ways of verifying and validating the performance of these technologies, across a range of factory-floor level processes and systems to enhance maintenance and control strategies to minimize equipment and process downtime.

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Monitoring, Diagnostics, and Prognostics

- 6 Priority Areas:
  - Standardized Terminology for PHM Guideline on Data and Collection Strategies
  - Guideline to Determine what Health Data to Capture and Collection Strategies to Employ
  - Guideline to Determine what Sensors and Where they should be deployed to inform on process/equipment health
  - Guideline for implementing sensor data fusion/multi-modal data fusion
  - Guideline to determine when and where PHM should be added/integrated
  - Expand MTConnect/Data Communications

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Next Steps

- Overall goal for this week is to form a new Committee and identify a work breakdown structure to address this area
- Holding ASME Standards Meeting, Friday 5/11, 8:00 AM
- Any interested individuals, please contact me at alonzod@asme.org

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