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IR 4.0 Machine Connectivity & Automation using SEMI SECS/GEMS standards

REGISTERED HRD CORP TRAINING PROVIDER

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Overview

Ind 4.0 Data Driven Approach requires Machine to be connected to the Host system in order to achieve Real time data acquisition and Control of the machine. The use of SEMI SECS/GEM standard for machine connectivity provide a standardized method to accomplish Ind 4.0 Data Driven Approach for Manufacturing machines.

Course Outline

- An understanding of the SEMI SECS GEM Standards (E4, E5, E30, E37,etc)
- Benefits of using SECS GEM standard for machine connectivity.
- For machine maker, how can their machine be SECS GEM compliant
- For manufacturing, what can I do when SECS GEM is implemented?

Targeted Group

- Those who need to implement SECS GEM in the manufacturing machines.
- Those who need to understand what SECS GEM can do and how it can be used to improve the shop floor process, maintenance, planning, etc

Duration

- 3 days

Methodology

- Theory
- Hands-on
- Scenarios
- Discussions

Course Structure

Session 1 (Day 1)
SECS GEM connectivity Overview.

In this session, the participants have an overview of the SECS GEM implementation, usage and benefits

Session 2 (Day 1)
Message Transfer Protocol

In this session, participants are taught the two standards of Message Transfer Protocol available. It covers

- SEMI E4 Standards SECS-1 message Transfer
  - *SECS I – Protocol Layer*
  - *SECS I – Message Transfer*
  - *SECS I – Physical Layer*
  - *SECS I – Block Transfer Protocol*
  - *SECS I – Protocol Timeout*
  - *SECS I – Message Block*
  - *SECS I – Protocol Parameter*

- SEMI E5 Standards for High Speed Messaging Services (HSMS)
  - *HSMS-SS Message Format*
  - *HSMS-SS Message Header*
  - *HSMS-SS Data Message (SType=00)*
  - *HSMS-SS Control Message (SType Codes)*
  - *HSMS-SS Procedure*
  - *HSMS-SS State Diagram*
  - *HSMS Timeout*
  - *HSMS Host Equipment Configuration*

Course Structure

Session 3 (Day 2)
Message Content

In this session, participants will learn about Message Content. It covers

- SEMI E5 Standards
  - *SECS-II Message Content*
  - *SECS-II Streams & Functions*
  - *SECS-II Message Details*
  - *SECS-II Data Item Dictionary*
  - *SECS Message Language (SML)*

- The use of SScript Test Tool and Mint machine-connect software (starter)
  - *Test Tool Setup*
  - *Message setup*
  - *Practical – SECS Message Setup and Testing*

Session 4 (Day 3)
GEM Implementation

In this session, participants will learn about SEMI E5 GEM Business Rules and compliance. It covers

- *Introduction*
- *State Model methodology*
- *Requirement and Capabilities*
- *Fundamental Requirements*
- *Additional Capabilities*
- *Documentation (SECS/GEM manual)*
- *Compliance Statement*
- *Practical – Capabilities Testing*
- *Practical – Machine (Mint) to Host (SScript) implementation testing*

About Elite Indigo

Elite Indigo Consulting provides corporate training to the semiconductor and manufacturing industries. With a humble beginning of one founding member with passion and desire to share his 20 years of experiences in Smart Manufacturing for global manufacturing facilities, now, we have a strong and competent team of 20 members, all aligned with company mission, vision and core values.

Our Mission

"Transform Data into Insights - Leap Forward"

Our Vision

Be a Global Trusted Advisor in the Areas of Skills Development, Consultancy & Software Solutions specialising in Semiconductor & Manufacturing industries.

Our Core Values