



Ref.: MD/3662/16

20 March, 2016

**Dear Sir / Madam,**

**Golden Star Consulting (GSC) & House of Management (HOM)** with cooperation of **Schneider Company** in Turkey, are pleased to invite you to participate in its upcoming training course addressing one of the key leadership competencies that can help Engineers & Technical managers, team leaders, and technicians, to perform efficiently while managing their day-to-day operations, titled as :

## **Variable Speed Drives (VSD)**

Which will be held in Istanbul- Turkey, during the period from April? 24, 2016 until April. 28, 2016 (5 days - 30 hours).

### **The Overview:**

This course provides a basic and essential overview of how VSD function, major Variable Speed Drive (VSD) benefits, VSD Drives components & components groups, common VSD topologies and characteristics, VSD control types and drive system issues and aspects, programming ,trouble shooting and maintenance

### **Participants:**

This course is designed for Engineers & Technical managers, team leaders, and technicians, independent of work discipline (e.g. maintenance ,operation , engineering,..).

### **Prerequisites:**

- No special requirements.
- Knowledge in electrical engineering is beneficial but not mandatory.

### **Objectives:**

After the successful completion of this course the participants will be able to understand and explain to others:

- The principle working functionality and reasons for using VSDs.
- Electrical motor working principles, interactions with VSDs and design principles of motors.
- Semiconductors, component groups, rectifier and inverter working principle.
- Available MV VSD topologies and VSD control schemes.
- VSD and VSD system issues,touble shooting and maintenance.

## Contents :

### 1. Overview of Drives

- Principle working functionality of electrical VSDs and VSD systems.
- Basic advantages of using drives.
- How VSDs can help to save energy in square torque applications.
- How to quantify energy savings & energy cost savings by using VSDs versus traditional mechanical control methods.
- Application, programming ,interfacing and communications .

### 2. Electrical Machines

- Basic overview.
- Special considerations for VSD applications.

### 3. VSD Components

- Components and component groups inside a VSD.
- Different semiconductor types.
- Structure & functionality of 6-, 12-, etc. pulse-diode rectifiers and active-front-end rectifiers.
- Structure & functionality of 2-, 3-, etc. level inverter.

### 4. VSD Topologies & Control Types

- Major MV VSD topologies, features, advantages and drawbacks.
- Fundamentals of VSD control.
- Working principles of scalar control, vector control & DTC.

### 5. VSD System Issues

- VSD issues like harmonics, common mode voltages and RAMS (Reliability, Availability, and Maintainability & Safety).
- Basic application information or parameters:
  - a) to select or design a motor for VSD applications.
  - b) to select a suitable VSD.
  - c) to specify a VSD transformer.
- Basic requirements for cables in VSD applications.

### 6. Applications

## Participation Certificate:

Will be Issued by Schneider Turkey and GSC & HOM Jordan.

### **Services provided to the participants:**

- Reception at the airport in Istanbul, and shuttle to hotel with help during check-in process.
- CD ROM with all papers discussed, recommendations, and pictures of event.
- Hot and cold beverages (Coffee Break) and lunch throughout the day Training course.
- Dinner after the conclusion of the event (last day) in honor of participants and (GSC) team.
- In collaboration with the Municipality of Istanbul, the participants will enjoy an amazing tour outside the activities of the training course times
- Shuttle from hotels to the airport.

### **Registration fees and payment methods:**

The registration fee (4,200) U.S. dollars for each participant.

Looking forward to hearing from you.

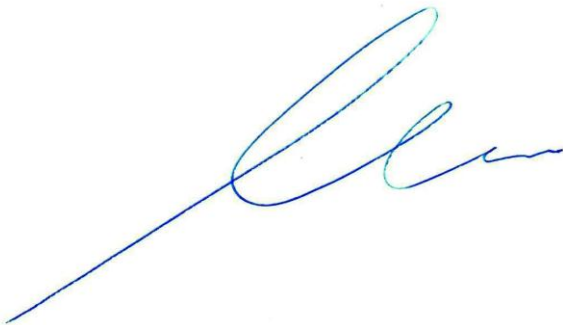
Best regards,

### **Special offer:**

**If you register (3) participants, the 4<sup>th</sup> participate fees will be for free**

**CEO**

**M. Haddad**



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