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 **ANA-DIGI SYSTEMS** CC  
Industrial Electronics and Automation

*An ISO9001:2000 Certified Company*

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Our Ref: VSD training content 2011

**TRAINING PROGRAMME:**

Duration: 1 Day  
Cost: R1320.00 per candidate

**1.1 Prerequisites:**

- Basic electrical and electronic background and,
- understanding of basic principles of AC/DC systems.

**1.2 Includes:**

- Electronic manuals and,
- certificate on completion of course.

Checked:.....  
(if applicable)

Distributors for:

 **LS Industrial Systems**

 **IMO**

 **POWER ELECTRONICS**

Members: K.A.Gross, B.C. Gross, E.M. Gross

Reg No. CK1988/028503/23



### 1.3 Day 1: Variable speed drive (VSD)

8:00 - 8:30 Arrival

8:30 – 9:00 Introduction and history of VSDs

9:00 - 10:30 Hardware theory:

- VSD assembling and disassembling;
- complete structure and layout of VSD (Bridge rectifier, DC bus, control PCB etc);
- inspect different components on VSD (DC Capacitors, IGBT's, PSU etc);
- installation and wiring (RST/UVW-terminal and digital-control I/O);
- LT-spice simulations (waveforms of 3phase, DC bus, PWM etc);
- exact operation of VSD and,
- communication topologies (RS485).

Break 15min

10:30 -12:30 Software theory:

- IGBT switching and harmonics (band-, low-, high-pass filtering etc);
- curve discussions (V/F, torque etc);
- basic motor calculations (torque, power, PF, current etc);
- VSD programming (keypad and PC software);
- parameter categories (drive and function groups);
- parameters functionality (basic and advanced functions) and,
- communication protocols (Mod-bus, LS-bus).

12:30 - 13:00 Lunch

13:00 -14:00 Hardware practical:

- Investigation into the hardwiring and connection of AC-motors (Star/Delta).

Break 15min

14:00 -16:30 Software practical:

- Dedicated software and programmes to get candidates familiar with VSD functionality and,
- displays drive input/output on oscilloscope.

16:30 Closing



Checked:.....  
(if applicable)

Distributors for: