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

An ISO9001:2000 Certified Company

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Our Ref: PLC & HMI training content 2011

TRAINING PROGRAMME:

Duration: 3 Days
Cost: R3960.00 per candidate

1.1 Prerequisites:

- Be familiar with Microsoft Windows XP;
- basic electrical and electronic background and,
- an understanding of Boolean algebra, bit and word manipulation.

1.2 Includes:

- Software bundle (PLC and HMI);
- manuals and,
- certificate on completion of course.

Checked:.....
(if applicable)

Distributors for:



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

Reg No. CK1988/028503/23



1.3 Day 1: Programmable logic controller (PLC)

8:00 - 8:30 Arrival

8:30 – 9:00 Introduction and history to PLCs

9:00 - 9:30 Hardware theory session:

- PLC external structure and building blocks (PSU, CPU, special modules etc);
- special module ranges (I/O, analogues, communications, temp. etc);
- PLC internal architecture (address bus, control bus, data bus and system bus etc);
- Communication typologies (RS485, RS232, RS422, Ethernet etc) and,
- PLC installation and hardwiring.

Break for 15min:

9:30 -12:30 Software theory session:

- Simple program design (pseudo codes and algorithms);
- IEC1131 standard discussion;
- SFC, Ladder and IL overview;
- I/O assignment syntax (%I, %Q and %M);
- data types (X, B, W, D and L);
- Ladder components (arrow, block, NO, NC, COIL, set COIL, reset COIL, etc);
- vertical linking (set/reset with NO and NC);
- functions (add, subtract, multiply, divide and modulus);
- function blocks (GT, GE, EQ, LE, LT, type conversions) ;
- creating own function blocks;
- timers (TON, TOF and TP);
- counters (CTU, CTU and CTUD);
- analogue to digital conversions (ADCs);
- digital to analogue conversions (DACs) and,
- communication protocols (Field-bus, Mod-bus, Profi-bus, Device-Net, etc).

12:30 - 13:00 Lunch

13:00 -13:30 Hardware practical session:

- Inspecting different PLC modules from inside and,
- hardwiring PLC rack.

Break for 15min:

13:30 -16:30 Software practical session:

- Dedicated software and programmes to get candidates familiar with PLC programming software and its functionality.

16:30 Closing

Checked:.....
(if applicable)

Distributors for:



1.4 Day 2: Human machine interface (HMI)

- 8:00 - 8:30 Arrival
- 8:30 – 9:00 Introduction and history of HMIs
- 9:00 - 9:30 Hardware theory:
- Construction of HMI
 - Communication topologies (RS232/RS485/Ethernet ports etc)
- 9:30 -12:30 Software theory:
- Protocols interface with PLCs (Modbus, LS bus etc);
 - base and window screens;
 - touch cells and screen editing (text, messages, numeric, clock etc);
 - tag/function keys (%MX, %MB, %MW, %MD);
 - alarm control (flow, history and system alarms);
 - logging functions;
 - trending and,
 - recipes.
- 12:30 - 13:00 Lunch
- 13:00 -13:30 Hardware practical:
- Hardwiring and communication topologies.
- 13:30 -16:30 Software practical:
- Dedicated software and programmes to get candidates familiar with HMI programming software.
- 16:30 Closing

Checked:.....
(if applicable)

Distributors for:



1.5 Day 3: PLC and HMI integrated

8:00 - 8:30 Arrival

8:30 -12:30 Practical programming:

- Sessions for candidates to develop their own programmes and practical applications using the equipment and theory learnt.

12:30 - 13:00 Lunch

13:00 -16:30 Problem solving:

- Session for candidates to come up with general practical programming problems and finding solutions to them.

16:30 Closing

Checked:.....
(if applicable)

Distributors for:



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