Diploma, Anna Univ UG & PG Courses

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RO8009 TOTALLY INTEGRATED AUTOMATION

DETAILED SYLLABUS

OBJECTIVES:

- To gain knowledge in automation in industries.
- To gain knowledge in various electrical and electronic programmable automations and their applications.
- To know about the basic in SCADA and DCS systems.
- To gain knowledge in communication protocols in an integrated system
- To know about the advanced in automation industries

UNIT I TOTALLY INTEGRATED AUTOMATION

Need, components of TIA systems, advantages, Programmable Automation Controllers (PAC), Vertical Integration structure.

UNIT II HMI SYSTEMS

Necessity and Role in Industrial Automation, Need for HMI systems. Types of HMI- Text display - operator panels - Touch panels - Panel PCs - Integrated displays (PLC & HMI). Check with PLC 502 and remove

UNIT III SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA)

Overview – Developer and runtime packages – architecture – Tools – Tag – Internal &External graphics, Alarm logging – Tag logging – structured tags– Trends – history– Report generation, VB & C Scripts for SCADA application.

UNIT IV COMMUNICATION PROTOCOLS of SCADA

Proprietary and open Protocols – OLE/OPC – DDE – Server/Client Configuration – Messaging – Recipe – User administration – Interfacing of SCADA with PLC, drive, and other field device

UNIT V DISTRIBUTED CONTROL SYSTEMS (DCS)

DCS – architecture – local control unit- programming language – communication facilities – operator interface – engineering interfaces. APPLICATIONS OF PLC & DCS: Case studies of Machine automation, Process automation, Introduction to SCADA Comparison between SCADA and DCS.

TEXT BOOKS:

1. John. W. Webb & Ronald A. Reis, "Programmable logic controllers: Principles and Applications", Prentice Hall India, 2003.

2. Michael P. Lukas, "Distributed Control systems", "Van Nostrand Reinfold Company" 1995.

REFERENCES:

1. Win C C Software Manual, Siemens, 2003

2. RS VIEW 32 Software Manual, Allen Bradly, 2005