Industrial Automation and Control - Video course

1. Lecture 1: Introduction to Industrial Automation and Control
3. Lecture 3: Introduction to sensors and measurement systems
4. Lecture 4: Temperature measurement
5. Lecture 5: Pressure and Force measurements
6. Lecture 6: Displacement and speed measurement
7. Lecture 7: Flow measurement techniques
8. Lecture 7: Measurement of level, humidity, pH etc.
9. Lecture 8: Signal Conditioning and Processing
10. Lecture 10: Estimation of errors and Calibration
12. Lecture 4: P-- I -- D Control
13. Lecture 5: Controller Tuning.
14. Lecture 6: Implementation of PID Controllers
15. Lecture 7: Special Control Structures : Feedforward and Ratio Control.
16. Lecture 8: Special Control Structures : Predictive Control, Control of Systems with Inverse Response
17. Lecture 9: Special Control Structures : Cascade Control, Overriding Control, Selective Control, Split Range Control
18. Lecture 10: Introduction to Sequence Control, PLCs and Relay Ladder Logic
19. Lecture 11: Sequence Control : Scan Cycle, RLL Syntax
20. Lecture 12: Sequence Control : Structured Design Approach
21. Lecture 13: Sequence Control : Advanced RLL Programming
22. Lecture 14: Sequence Control : The Hardware environment
23. Lecture 15: Control of Machine tools : Introduction to CNC Machines
24. Lecture 16: Control of Machine tools : Analysis of a control loop
25. Lecture 17: Introduction to Actuators : Flow Control Valves
27. Lecture 19: Hydraulic Actuator Systems : Pumps and Motors,
28. Lecture 20: Proportional and Servo Valves
32. Lecture 23: Step Motors: Principles, Construction and Drives
33. Lecture 24: DC Motor Drives: Introduction, DC--DC Converters, Adjustable Speed Drives
34. Lecture 25: Induction Motor Drives: Introduction, Characteristics, Adjustable Speed Drives
35. Lecture 26: Synchronous Motor Drives: Motor Principles, Adjustable Speed and Servo Drives
37. Lecture 28: The Fieldbus Communication Protocol
38. Lecture 29: Introduction to Production Control Systems
39. Lecture 30: Concluding Lecture