

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Instrumentation)
Semester: III
Syllabus with Effect from: June - 2010

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| Paper Code: PS03CINS02 | Total Credit: 4 |
| Title Of Paper: Industrial Communication Techniques | |

| Unit | Description in detail | Weightage (%) |
|------|--|---------------|
| I | Data Communication, Data Transmission & Modes, Digital Signal Encoding, Unipolar & Polar Line Codes, Bipolar Line Codes, Transmission Channel, Data Compression Techniques, Error Control: Transmission Errors, Coding for Error Detection & Correction, Error Detection Methods, Transmission Media: Line Characteristics, Linear Distortions, Radio Media, Base band Transmission of Data Signals, Equalization. | 25% |
| II | Digital Modulation Methods, Differential PSK, Modem, Data Multiplexers: Time Division & its Types, Frequency Division & its Types, Comparison. | 25% |
| III | Open System Interconnection: Layered Architecture, Functionality, Data Transfer Modes, The Physical Layer: Interface Standards, RS 232, RS 422, RS 423, RS 485, IEE 488 (GPIB), HART, Local Area Network: Needs, Topologies. | 25% |
| IV | IEEE Standards, Ethernet: Carrier Sense Multiple Access / Collision Detection, Repeaters, Types of Ethernet, Fast Ethernet, Flow Control, Auto-Negotiation, Token Ring, Token Bus LAN, Field bus: The CIM Pyramid, Definition, Requirements & Types, Foundation Field Bus: Architecture, Physical Layer, Data Link Layer, Application Layer & Advantages of FF. | 25% |

Basic Text & Reference Books:-

- Data Communications and Computer Networks, Prakash C. Gupta, Prentice Hall of India Private Limited.
- Advanced Electronic Communication System, Wayne Tomasi, Prentice Hall of India Private Limited.
- Electronic Instruments and Instrumentation Technology, M. M. S. Anand, Prentice Hall of India Private Limited.
- Computer Networks, Andrew S. Tanenbaum, Prentice Hall of India Private Limited.
- Computer Aided Process Control, S. K. Singh, Prentice Hall of India Private Limited.

