

## 2<sup>nd</sup> Semester

### INDUSTRIAL TELEMATICS

#### MODULE – I

(11 hours)

Ethernet and Wireless Network Technologies: Approaches to Enforce Real-Time Behavior in Ethernet, Switched Ethernet in Automation Networking, Wireless LAN Technology for the Factory Floor: Challenges and Approaches, Wireless Local and Wireless Personal Area Network Technologies for Industrial Development.

#### MODULE – II

(11 hours)

Linking Factory Floor with the Internet and Wireless Fieldbuses: Linking Factory Floor and the Internet, Extending EIA-709 Control Networks across IP Channels, Interconnection of Wireline and Wireless Fieldbuses. Network Security and Safety Technologies in Industrial Networks: Security Topics and Solutions for Automation Networks, PROFIsafe: Safety Technology with PROFIBUS.

#### MODULE – III

(6 hours)

Applications of Networks and Other Technologies: Automotive Communication Technologies, Design of Automotive X-by-Wire Systems, FlexRay Communication Technology, The LIN Standard, Volcano: Enabling Correctness by Design, Networks In Building Automation, The Use of Network Hierarchies in Building Telemetry and Control Applications, EIB: European Installation Bus.

#### MODULE – IV

(10 hours)

Fundamentals of LonWorks/EIA-709 Networks: ANSI/EIA-709 Protocol Standard (LonTalk), Manufacturing Message Specification In Industrial Automation, The Standard Message Specification for Industrial Automation Systems: ISO 9506 (MMS), Virtual Factory Communication System Using ISO 9506 and Its Application to Networked Factory Machine, Motion Control, The SERCOS interface™, Train Communication Network, The IEC/IEEE Train Communication Network, Smart Transducer Interface, A Smart Transducer Interface Standard for Sensors and Actuators, Energy Systems, Applying IEC 61375 (Train Communication Network) to Data Communication in Electrical Substations, SEMI, SEMI Interface and Communication Standards: An Overview and Case Study.

## 2<sup>nd</sup> Semester

### **Textbooks:**

1. Richard Zurawski, The Industrial Communication Technology Handbook (Industrial Information Technology), Taylor and Francis, (CRC Press), ISA – The Instrumentation, Systems, and Automation Society, 2005, ISBN-10: 0849330777, ISBN-13: 978-0849330773.

### **Recommended Reading:**

1. Richard Zurawski, Integration Technologies for Industrial Automated Systems (Industrial Information Technology), Taylor and Francis, (CRC Press), ISA – The Instrumentation, Systems, and Automation Society, 2006, ISBN-10: 0849392624, ISBN-13: 978-0849392627.
2. Richard Zurawski, The Industrial Information Technology Handbook (Industrial Electronics), Taylor and Francis, (CRC Press), ISA – The Instrumentation, Systems, and Automation Society, 2004, ISBN-10: 0849319854, ISBN-13: 978- 0849319853

TENTATIVE  
Likely to be Modified