

**KL University**  
**Department of Electronics & Computer Engineering**  
**M.Tech (wcsn) 2015-2017**

**Course Code** : 15-EM5214  
**Course Title** : **Communication Protocols and Standards**  
**Course Structure** : 3-0-2  
**Credits** : 4

**SYLLABUS:**

**UNIT-I**

**Networks in process automation**

Networks in process automation: Information flow requirements, Hierarchical communication model, Data Communication basics, OSI reference model, Industry Network, Network Topologies.

**UNIT-II**

**Communication Protocols:**

Communication Protocols: Communication Basics, Basics, Network Classification, Device Networks, Control Networks, Enterprise Networking, Network selection. Proprietary and open networks: Network Architectures, Building blocks

**UNIT-III**

**Wired Communication:**

Wired: Wired Communication: Industry open protocols (RS-232C, RS- 422, RS-485), CAN bus, I2C, SPI, Ethernet,USB ,OFC, Modbus, Modbus Plus, Data Highway Plus, Advantages and Limitations of Open networks.

**UNIT-IV**

**Fieldbus Trends**

Fieldbus: Fieldbus Trends, Hardware selection, Fieldbus design, Installation, Documentation, Fieldbus advantages and limitations, Automotive Most bus, Hot standby router protocol(HSRP) and Hot 255 modem, Dial up modem, Physical media -Cabling types and noise level conditions, leased line modems.

**UNIT-V**

**WPAN**

Wireless: WPAN, Wi-Fi, Bluetooth, Zig-Bee, Z-wave, GPRS, GSM. Infrared communication: Routers, Hubs, Bridges, Ethernet switches, Different type of converters - Serial to Ethernet, Ethernet to OFC, Serial to OFC, RS232 to RS485

**Outcomes:** After completion of these course students should able to, Build sensor networks and Communicate through various media

**Text Books:**

1. TCIP/IP protocol suite , Behrouz A. Forouzen, III Edition
2. Data communications, computer networks, open systems, Prakash C. Gupta, V Edition