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| **GBN Govt. Polytechnic Nilokheri** | | |
| **Name of Faculty: Archana Panwar** | | |
| **Discipline: Computer Engg.** | | |
| **Semester: 3rd** | | |
| **Subject: Data Communication** | | |
| **Teaching Load per week: Lecture :03 Practical: 00** | | |
| **Lesson Plan Duration: 15 Weeks** | | |
| **Week** | **Theory** | |
|  | **Lecture Day** | **Topic** |
| **Week 1** | Day 1 | **Unit 1: Introduction**  Data Communication- Components |
| Day 2 | Data representation, Data flow  Networks- Distributed processing, |
| Day 3 | Network criteria |
| **Week 2** | Day 4 | Physical structures |
| Day 5 | Network Category- LAN, WAN, MAN |
| Day 6 | **Test -Unit 1** |
| **Week 3** | Day 7 | **UNIT2: Data and Signals**  Analog and Digital data, Analog and digital signals, |
| Day 8 | Periodic and Non Periodic signals, |
| Day 9 | Periodic and Non Periodic signals, |
| **Week 4** | Day10 | periodic analog signals |
| Day 11 | periodic analog signals |
| Day 12 | Digital Signals- Bit rate, Bit length |
| **Week 5** | Day 13 | Digital signal as a composite analog signal, |
| Day 14 | transmission of digital signals |
| Day15 | Transmission Impairment- Attenuation, Distortion and noise |
| **Week6** | Day 16 | Performance- bandwidth, throughput, latency, jitter |
| Day17 | Performance- bandwidth, throughput, latency, jitter |
| Day 18 | **1st Sessional test** |
| **Week 7** | Day 19 | **Unit 3: Digital and Analog Transmission**  Analog transmission |
| Day 20 | Analog transmission- Digital to Analog Conversion- ASK, PSK, FSK |
| Day 21 | Analog to Analog Conversion- AM, PM,FM( No mathematical treatment) |
| **Week 8** | Day 22 | Digital transmission- Digital to digital conversion- coding and schemes |
| Day 23 | Analog to digital conversion- PCM |
| Day 24 | Delta Modulation (DM) |
| **Week 9** | Day25 | Transmission modes- Serial and parallel transmission |
| Day 26 | **Unit 4: Multiplexing**  FDM |
| Day 27 | WDM |
| **Week10** | Day 28 | TDM |
| Day 29 | **Unit 5:**  **Transmission media** |
| Day 30 | Guided media-Twisted pair cable |
| **Week11** | Day 31 | Co-axial cable, |
| Day 32 | fibre optics cable |
|  |  | **2nd sessional test** |
|  |  | Unguided Media- radio wave |

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| **Week11** | Day 33 | Microwave |
| **Week 12** | Day 34 | Infrared |
|  | Day 35 | **Unit 6: Error Detection and Correction** |
|  | Day 36 | Types of Errors, |
| **Week 13** | Day 37 | redundancy, |
|  | Day38 | detection v/s correction, |
|  | Day 39 | Forward error correction v/s  retransmission. |
| **Week 14** | Day 40 | Error detection through Parity bit, |
| Day 41 | block parity to detect double errors |
| Day 42 | correct single  errors. |
| **Week 15** | Day 43 | General principles of error detection and |
| Day 44 | correction using cyclic redundancy check |
| Day 45 | **3rd Sessional Test** |