**Lesson Plan**

**Name of faculty: SHIV KUMAR , VISITING FACULTY**

**Discipline: CSE**

**Semester: IV**

**Subject: Digital and Data Communication(CSE-206N)**

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

Work Load(Lecture/Practical) per week (in hours): Lectures: 03 hours, Practicals-04 hours, Tutorials:02hours

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| --- | --- | --- |
| **Week** | **Theory** | |
|  | **Lecture day** | **Topic(Including assignment/ test)** |
| 1st |  | **UNIT-1: MODULATION TECHNIQUES**  Basic constituents of Communication Systems, need of modulation |
|  | ----------do------------------------ |
|  | Amplitude modulation, spectrum of AM wave, modulation index |
| 2nd |  | -------------------do----------------- |
|  | DSBSC modulation |
|  | SSB Modulation |
| 3rd |  | Vestigial side band modulation |
|  | ANGLE MODULATION: Frequency and Phase Modulation |
|  | Spectrum of FM Wave, modulation index and Bandwidth of FM Signal |
| 4th |  | NBFM and WBFM |
|  | ----------------do-------------- |
|  | **UNIT-II: DATA ENCODING**Digital data, Digital signals: Encoding schemes: NRZ-L, NRZ-I, Manchester-Diff-Manchester- encoding,Pseudo ternary-Bipolar-AMI,B8ZS- HDB3 – Evaluation factors. |
| 5th |  | ---------------do-------------- |
|  | Digital data and analog signals: Encoding Techniques –ASK-FSK-PSK |
|  | ----------------do-------------- |
| 6th |  | QPSK and Performance comparison |
|  | ----------------do-------------- |
|  | Analog data and digital signals: Quantization- Sampling theorem-PCM |
| 7th |  | ----------------do-------------- |
|  | Delta modulation-Errors- comparison |
|  | ----------------do-------------- |
| 8th |  | Analog Data, analog signals: Need for modulation -Modulation methods – Amplitude modulation- Angle modulation- Comparison |
|  | **UNIT-III : DIGITAL DATA COMMUNICATION TECHNIQUES**Asynchronous and synchronous transmission |
|  | Error Detection techniques: Parity checks |
| 9th |  | Cycle redundancy checks-Checksum |
|  | Error Correcting codes: Forwards and backward error corrections |
|  | ----------------do-------------- |
| 10th |  | Transmission media. Communication Topologies |
|  | --------------do-------------- |
|  | DTE & DCE interface: Characteristics of DTE-DCE interface |
| 11th |  | Interfaces: Rs-232-C |
|  | Rs-449/422 |
|  | A/423-A |
| 12th |  | **UNIT-IV: SATELITE COMMUNICATION**  **Multiplexing:** Advantages – Types of Multiplexing – FDM |
|  | Synchronous TDM – Statistical TDM or Asynchronous TDM, Study of their characteristics |
|  | ---------------do-------------- |
| 13th |  | **Satellite Communication Systems:** Satellite parameters and configurations |
|  | ----------------do-------------- |
|  | Capacity allocation, Frequency Division FDMA |
| 14th |  | Time Division TDMA- Fixed assigned multiple access (FAMA), Demand assign multiple access (DAMA) |
|  | ---------------do-------------- |
|  | The concept of spread spectrum: DSSS – Transmission and reception |
| 15th |  | ----------------do-------------- |
|  | FHSS – Transmission and reception |
|  | CDMA – Transmission and reception |