Government Polytechnic Education Society, Manesar (Gurugram)

**LESSON PLAN**

**Name of the Faculty** : Smt Sharmila (Theory & practical)

**Discipline** : Electronics & Communication Engineering

**Semester** : 5th

**Subject** : Digital Communication

**Lesson Plan Duration**: Approx.15 weeks (From 07 Sept. to 24 Dec. 2020)

**Work Load (Lecture / Practical) per week (in hours):** Lecture-03, Practical-03 Hrs per Group

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| **Week** | **Theory (Online Mode)** | | **Practical (Virtual Lab)** | |
| **Lecture Day** | **Topic (Including assignment / test)** | **Practical day** | **Topic** |
| 1st | 1st | Introduction about the subject/course and its syllabus | 1st | **Group 1:** Introduction about the course laboratory and its syllabus. |
| 2nd | **Unit-1-**Introduction  Basic block diagram of digital and data communication systems | 2nd | **Group 2:** Introduction about the course laboratory and its syllabus. |
| 3rd | Comparison of Analog Communication system with Digital and data Communication systems |
| 2nd | 4th | **Unit-2-** Sampling theorem and its basic concept | 3rd | **Group 1:** **Exp. 1-** Observe waveforms at input and output of pulse code modulator with CRO. |
| 5th | Use of Sampling Theorem | 4th | **Group 2:** **Exp. 1-** Observe waveforms at input and output of pulse code modulator with CRO. |
| 6th | Introduction to PAM, PPM, PWM |
| 3rd | 7th | Quantization and error of Quantization | 5th | **Group 1:** **Exp. 1-** Observe waveforms at input and output of pulse code modulator with CRO contd.... |
| 8th | PCM, its advantages and disadvantages | 6th | **Group 2:** **Exp. 1-** Observe waveforms at input and output of pulse code modulator with CRO contd... |
| 9th | DPCM, its advantage and disadvantage |
| 4th | 10th | DELTA Modulation & Revision | 7th | **Group 1: Exp. 2-** Transmission of data using MODEM. |
| 11th | ADAPTIVE DELTA Modulation. | 8th | **Group 2: Exp. 2-** Transmission of data using MODEM. |
| 12th | Concept of COMPANDING |
| 5th | 13th | Frequency hopping spread spectrum technique  **Home Assignment** | 9th | **Group 1: Exp. 2-** Transmission of data using MODEM contd... |
| 14th | **Class test/Quiz** | 10th | **Group 2: Exp. 2-** Transmission of data using MODEM contd... |
| 15th | **Unit-3-**Digital Modulation Techniques |
| 6th | 16th | Basic block diagram and principle of working of Amplitude shift keying (ASK) | 11th | **Group 1:** Revision & Viva |
| 17th | Interrupted continuous wave (ICW) | 12th | **Group 2:** Revision & Viva |
| 18th | Two tone modulation |
| 7th | 19th | Frequency Shift keying (FSK) | 13th | **Group 1: Exp. 3-**  Observe wave forms at input and output of PSK modulator. |
| 20th | Phase shift keying (PSK) | 14th | **Group 2: Exp. 3-**  Observe wave forms at input and output of PSK modulator. |
| 21st | Quadrature Phase Shift Keying (QPSK) & Revision |
| 8th | 22nd | **Unit-4**  Characteristics/working of data transmission circuits | 15th | **Group 1: Exp. 3-**  Observe wave forms at input and output of PSK modulator contd.... |
| 23rd | Data transmission circuits contd... | 16th | **Group 2: Exp. 3-**  Observe wave forms at input and output of PSK modulator contd... |
| 24th | Data transmission circuits contd... |
| 9th | 25th | Bandwidth requirements | 17th | **Group 1:** Revision & Viva |
| 26th | Data transmission speeds | 18th | **Group 2:** Revision & Viva |
| 27th | Noise, cross talk |
| 10th | 28th | Echo suppressors  **Home Assignment** | 19th | **Group 1: Exp. 4-** Observe wave forms at input and output of QPSK modulator. |
| 29th | Distortion | 20th | **Group 2: Exp. 4-** Observe wave forms at input and output of QPSK modulator. |
| 30th | Equalizers & Revision |
| 11th | 31st | **Class test/Quiz** | 21st | **Group 1: Exp. 4-** Observe wave forms at input and output of QPSK modulator contd.. |
| 32nd | **Unit 5**  Need and function of modems | 22nd | **Group 2: Exp. 4-** Observe wave forms at input and output of Q  PSK modulator contd... |
| 33rd | Mode of modems operation, low speed |
| 12th | 34th | Medium speed and high speed modems | 23rd | **Group 1:** Revision & Viva |
| 35th | Modem interconnection | 24th | **Group 2:** Revision & Viva |
| 36th | Modem data transmission speed |
| 13th | 37th | Modem modulation methods | 25th | **Group 1: Exp. 5-** Observe the working of space and time switching circuit. |
| 38th | **Unit 6**  Switching | 26th | **Group 2: Exp. 5-** Observe the working of space and time switching circuit contd... |
| 39th | Space switching |
| 14th | 40th | Time switching | 27th | **Group 1: Exp. 5-** Observe the working of space and time switching circuit contd... |
| 41st | Working principle of STS switches | 28th | **Group 2: Exp. 5-** Observe the working of space and time switching circuit. |
| 42nd | Working principle of TST switches |
| 15th | 43rd | **Revision & Home Assignment** | 29th | **Group 1**: Internal Viva |
| 44th | **Class Test/Quiz** | 30th | **Group 2**: Internal Viva |
| 45th | **Revision** |