Department of Technical Education
DIPLOMA COURSE IN ELECTRONICS AND COMMUNICATION ENGINEERING
Fourth Semester
SUBJECT: DIGITAL COMMUNICATION LAB

Contact Hrs/Week:6   **Contact Hrs/Sem: 96**

GENERAL EDUCATIONAL OBJECTIVES:
After the completion of this laboratory work, the student should be able to
1. Draw the circuit diagrams of ASK, FSK, modulators and demodulators.
2. Test and analyze the experiments on sampling theorem, PCM, DM,ADM and TDM.
3. Assemble the above circuits.
4. Test and analyze the above circuits for their performance.
5. Draw the circuit diagrams, test and analyze the experiments on optical fiber Communication system.

GRADED EXERCISES

A.   Digital communication experiments
Construct and Conduct the following experiments
1. Conduct an experiment to prove the Sampling Theorem for low pass signals.
2. Conduct an experiment to study the effect of aliasing.
3. Perform an experiment to study Pulse Code Modulation and Demodulation.
4. Conduct an experiment to generate delta modulated signal.
5. Conduct an experiment to study Adaptive delta modulation.
6. Perform an experiment to generate and detect BASK signal using discrete components.
7. Perform an experiment to generate and detect BFSK signal using discrete components.
8. Perform an experiment to generate and detect BPSK signal using discrete components..
9. Perform an experiment to generate and detect DPSK signal.
10. Conduct an experiment to demonstrate 2-channel TDM using ICs.

(Circuits for Expt no.6,7,8 and 10 refer reference texts.)

B.   Optical Fiber Communication:
Draw Block diagram & Conduct Following Optical Fiber Communication Experiments   using optical fiber trainer kit
1. DC Characteristics of LED.
2. DC Characteristics of Photodiode/Phototransistor.
3. Measurement of Numerical aperture.
4. Attenuation in the given fibber optic cable.
5. Intensity Modulation.
6. Pulse Width Modulation.
8. Establish Analog Link.
9. TDM with Fiber Communication System.
10. PC to PC communication using Fiber Optic Digital Link.

Scheme of Valuation

1	Record	05
2	Conducting any one Part A experiment	40
3	Conducting any one Part B experiment	35
4	Viva – Voice	20

Total **100**

2		40
3		35
4		20

TOTAL   **100**

REFERENCE Texts:

1. ELECTRONICS LABORATORY PRIMER by S.POORNA CHANDRA and B.SASIKALA S.CHAND publications.
2. DIGITAL COMMUNICATIONS by Dr. K. N. HARI BHAT and DR.D.GANESH RAO.III edition, Sanguine Technical Publishers.

Subject: DIGITAL COMMUNICATIONS LAB

LIST OF EQUIPMENTS REQUIRED FOR A BATCH OF 20 STUDENTS.

SL NO	NAME OF THE EQUIPMENTS	SPECIFICATIONS	QUANTITY
01	Kit to demonstrate Sampling theorem and aliasing effect		10 NOS
02	Kit to demonstrate PCM.		10 NOS
03	Delta modulation and detection kit		10 NOS
04	Adaptive Delta modulation and detection kit		10 NOS
05	Optical fiber communications trainer kit to cover all the experiments in part-B		05 NOS
06	Dual Channel CRO	25 MHZ	10 NOS

07	**FUNCTION GENERATOR**	**0-1 MHZ**	**10 NOS**
08	**LINEAR IC TRAINER**		**10 NOS**
09	**POWER SUPPLY**	**+/-5V**	**05 NOS**