Indian Institute of Information Technology Allahabad
Department of Electronics and Communication Engineering

Course Name: **Digital Communication**
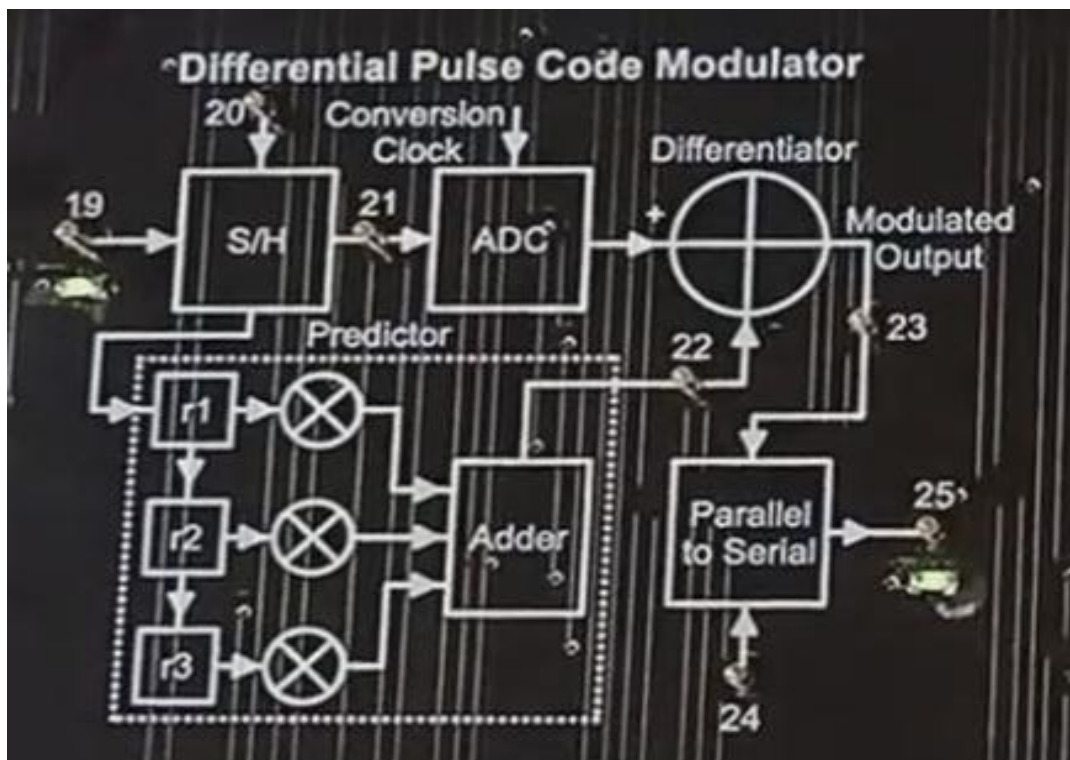
EXPERIMENT NO: 5

Objective/Aim – Study and analysis of the Difference between sampled output and predictor output names as Differential Pulse Code Modulator (DPCM) and Demodulator output.
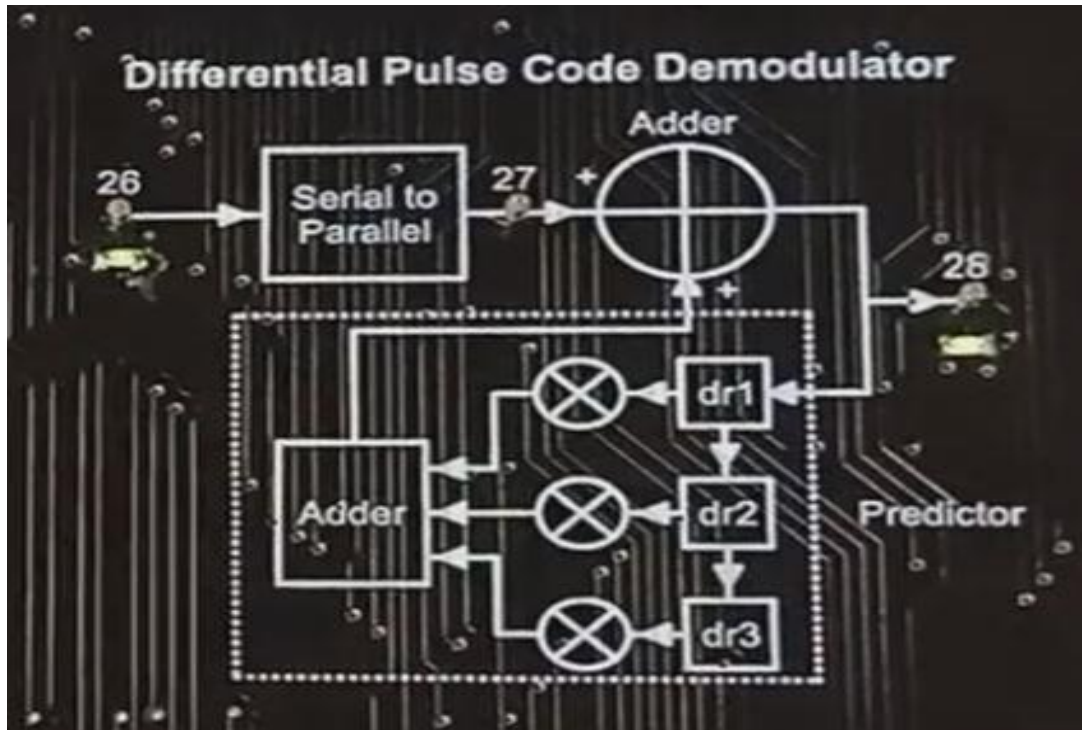
Setup requirement -

- ➢ TechBook Scientech 2802
- ➢ Power Supply
- ➢ DSO
- ➢ Test Probe

Theory – In this experiment, the sampled and hold circuit periodically samples the analog input signal and converts those samples to a multilevel PAM signal. The ADC converts the samples to parallel PCM codes. Predictor predicts current sample value based upon previous samples and we have to encode the difference between actual value of sample and predicted value called modulated output. Then modulated output is converted to serial binary data in the parallel to serial digital pulses.

Block Diagram/ Circuit Diagram -

Differential Pulse Code Demodulator

Observation tables -

Input signal frequency	Sampling frequency /line speed	Modulated Output	De-modulated Output
Sine/500 Hz	8KHz /64KHz		
Sine/500 Hz	16KHz/128 KHz		

Results - Thus the DPCM modulation and demodulation were performed and graphs were plotted. These graphs are given in observation table.

Precautions- Connections should be verified before clicking the run button.