

TRAINING KITS ON COMMUNICATION/ ADVANCE COMMUNICATION LAB

CEE 2901 Study of Amplitude Modulation & Demodulation.

OBJECTIVE: Measurement of Amplitude Modulation Index (Depth of Modulation). Side band frequencies (Upper side band & lower side band) and frequency of demodulated Signal.

SPECIFICATION: Instrument comprises of DC Regulated Power Supply 12V DC/150mA. Sine wave oscillator with 100Hz -1KHz Frequency output.

OPTIONAL ACC: RF Signal Generator and CRO 10 MHZ.

CEE 2904 Study of Frequency/FSK Modulation & Demodulation.

OBJECTIVE: Measurement of Amplitude Modulation Index (Depth of Modulation). Side band frequencies (Upper side band & lower side band) and frequency of demodulated Signal.

SPECIFICATION: Instrument comprises of DC Regulated Power Supply 12V DC/150mA. Square wave oscillator with 100Hz -1KHz Frequency output.

OPTIONAL ACC: 10 MHz CRO.

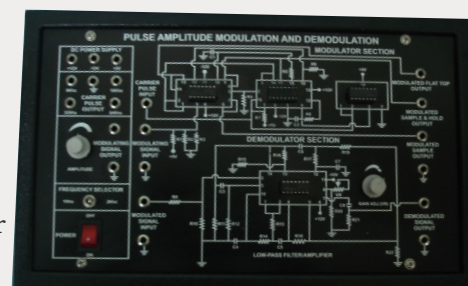


CEE 2906 Study of Pulse Amplitude Modulation & Demodulation.

OBJECTIVE: Measurement of Pulse Amplitude Modulation index (Depth of modulation) and frequency of demodulated Signal.

SPECIFICATION: Instrument comprises of DC Regulated Power Supply 12V DC/150mA. Sine wave oscillator with 100Hz -10 KHz Frequency output. Carrier Wave Oscillator using IC 555.

OPTIONAL ACC: 10 MHz CRO.



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CEE 2909 Study of Pulse Width Modulation & Demodulation.

OBJECTIVE: Modulation of Carrier Signal in Pulse Width Mode and Frequency Demodulated signal.

SPECIFICATION: Instrument comprises of DC Regulated Power Supply 5V DC/150mA. AF Sine wave oscillator using with 100Hz - 1KHz frequency output, AF Square Wave Oscillator, Carrier Wave Oscillator using IC 555.

OPTIONAL ACC: 10 MHz CRO.

CEE 2910 Study of Pulse Position Modulation & Demodulation.

OBJECTIVE: Modulation of Carrier Signal in Pulse Position Mode and Frequency Demodulated signal.

SPECIFICATION: Instrument comprises of DC Regulated Power Supply 5V DC/150mA. AF Sine wave oscillator with 100Hz -10KHz frequency output, RF Oscillator, using IC 555.

OPTIONAL ACC: 10 MHz CRO.

CEE 2911 Study of Pulse Amplitude , Pulse Position & Pulse Width Modulation and Demodulation

OBJECTIVE: Modulation of Modulating Signal in Pulse Amplitude, Pulse Position & Pulse Width Mode using Carrier Pulse Signal and Demodulation of Modulated Signal

SPECIFICATION: Instrument comprises of DC Regulated Power Supply +5V, $\pm 12V$ DC Carrier Pulse Oscillator (8KHz , 16 KHz, 32 KHz & 64KHz) Modulating Signal Generator (1KHz , 10 V_{p-p}) Modulator & Demodulator Circuits.

OPTIONAL ACC: Dual Trace CRO 20 MHz.



CEE 2912 Study of Amplitude Shift Keying (ASK) Modulation & Demodulation.

OBJECTIVE: Amplitude Shift Keying (ASK) is a form of modulation that represents digital data as variations in the amplitude of a carrier wave .

SPECIFICATION: Instrument comprises of Fixed Output DC Regulated Power Supply $\pm 12V$. Built in Clock Oscillator using IC 555, Built in AF Oscillator using IC 8038.

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CEE 2913 Study of Phase Locked Loop (PLL) Circuit

OBJECTIVE: To study the phase locked loop circuit and calculate, The lock range frequency and capture range Frequency using IC 565.

SPECIFICATION: Instrument comprises of Two DC Regulated Power Supply, IC 565, Combination of Resistance, Capacitors & one potentiometer.

OPTIONAL ACC: Audio Freq. Function Generator and CRO 10 MHZ.

CEE 2914 Study of Frequency/FSK Modulation & Demodulation.

OBJECTIVE: Measurement of Amplitude Modulation Index (Depth of Modulation). Side band frequencies (Upper side band & lower side band) and frequency of demodulated Signal.

SPECIFICATION: Instrument comprises of DC Regulated Power Supply 12V DC/150mA. Square wave oscillator with 100Hz -1KHz Frequency output.

OPTIONAL ACC: 10 MHz CRO.

CEE 2915 PSK MODULATION/DEMODULATION TRAINER

OBJECTIVE: PSK is a digital modulation scheme that conveys data by changing or modulating the phase of a reference signal (the carrier wave) . Any digital modulation scheme uses a finite number of distinct signals to represent digital data .

SPECIFICATION: Bit Clock Generator:Onboard, Word Clock Generator:Onboard of frequency 8 KHz to 12 KHz, Word Length:8 bit, Binary Input:Through DIP switches, Carrier Signal Generator:Onboard, Data Format:NRZ & Bi-polar NRZ, Modulator:Balance Modulator as Phase modulator, Demodulator:Balance as Phase detector, Clock Recovery:Bit clock recovery section onboard Power Supply:In-built, Operating Frequency:230V AC 50Hz

CEE 2916 STUDY OF TDM AMPLITUDE MODULATION/DEMODULATION

- SPECIFICATION :**
- * Crystal Control clock
 - * On board sine generator (Sync)
 - * On board pulse generator
 - * 4 Analog I/P channels sampled & Time Division Multiplexing
 - * 5 Selectable sampling frequencies
 - * Selectable pulse duty cycle
 - * Selectable external/internal sampling
 - * 4 channels de-multiplexer
 - * Generation of clock at Receiver by PLL system
 - * 4th order butter worth low pass filters
 - Technical Specifications:.
 - * Crystal Frequency : 6.4 MHz
 - * Analog Input Channel: 4
 - * Multiplexing: Time Division Multiplexing
 - * Modulation: Pulse Amplitude Modulation
 - * On board Analog Signal: 250Hz 500Hz 1 KHz & 2 KHz
 - * Sampling Rate: 16 KHz/ channel
 - * Sampling Pulse : With Duty Cycle variable from 0 – 19% in steps
 - * Clock Re-generation at Receiver: Using PLL
 - * Low Pass filter cut-off frequency : 3.4 KHz

CEE 2918 STUDY OF PHASE MODULATION/DEMIDULATION (PM)

- SPECIFICATION :**
- * Phase modulation & demodulation
 - * Modulating signal generator.
 - * Carrier/PM generator (8038)
 - * Demodulator (565)
 - * $\pm 12V/500mA$ Fixed DC Power Supply.
 - * Assembled in ABS Plastic Box with cover
 - * 220V mains operated.
 - * Set of patch chords & user manual.

CEE 2922 DPSK MODULATION/DEMIDULATIN TRAINER

- SPECIFICATION :**
- * Built in Carrier Generator: 10 KHz
 - * Built in Modulating Signal Generator 1 KHz
 - * DPSK Modulator
 - * DPSK Demodulator
 - * Assembled in plastic Box with circuit printed on PCB with 2mm socket for test points & to see the waveforms
 - * Set of Patch Chords & Experimental Manual.
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CEE 2923 QPSK(QUADRATURE PHASE SHIFT KEYING)TRAINER MODULATION/DEMODULATION TRAINER

- * Built in $\pm 5V/350$ mA DC Power Supply
- * Built in Carrier Generator
- * Built in Modulating Signal Generator
- * QPSK Modulator
- * QPSK Demodulator
- * Assembled in ABS plastic with circuit screen printed on Glass Epoxy PCB with 2mm socket for test points & to see the waveforms
- * Set of Patch Chords & Experimental Manual.