

**COURSE TITLE: INSTRUMENT, TECHNIQUES & AMPLIFIER
FILTERS & CLINICAL PRACTICE**

STUDY HOURS:	60+160	MARKS	
PAPER:	01	THEORY	120
Term :	4th	PRACTICAL:	30
		TIME :	03HRS

**COURSE CONTENTS STUDY HOURS
(Theory +Practical)**

A1.Electronics: (Brief Introduction Only) 20+20

- A1.1 Ac & dc voltage
- A1.2 Current
- A1.3 Frequency
- A1.4 Resistance
- A1.5 Capacitance
- A1.6 Inductance
- A1.7 Impedance
- A1.8 Ohm's law

A2.Instrumentation: 10+10

- A2.1 Electrodes:
- A2.2 Electrode material
- A2.3 Electrode impedance

B. Amplifiers: (Brief Introduction Only) 20+20

- B1 Inverting & non-inverting amplifiers
- B2 Differential amplifier
- B3 Gain
- B4 Sensitivity
- B5 Linearity
- B6 Dynamic rang
- B7 Input & output impedance
- B8 Common mode rejection ratio
- B9 Polarity

C. Filters: (Brief Introduction Only) 10+10

- C1 Notch filters
- C2 Low filters
- C3 High filters
- C4 Digital filters
- C5 Effect of analogue & digital filters on biologic signals

D1. Recording practice of EEG/NCV:

- D1.1 Standard electrode placement
- D1.2 Recording technique & parameters
- D1.3 Recognition & elimination of artifacts
- D1.4 Trouble shooting
- D1.5 Assistance in EMG Procedure

D2. Recording practice of Evoke potential:

- D2.1 Standard
- D2.2 Electrode placement
- D2.3 Recording technique & parameters
- D2.4 Recognition & elimination of artifacts
- D2.5 Notions & measurements
- D2.6 Saving of recordings
- D2.7 Recording practice of sleep studies:
- D2.8 Standard electrode placement
- D2.9 Recording technique & parameters
- D2.10 Recognition & elimination of artifacts
- D2.11 Notions & measurements
- D2.12 Saving of recordings

RECOMMENDED BOOKS:

- 1 Current Diagnosis in Neurology by Feldman
- 2 Neuro Anatomy by Snall
- 3 Pharmacology by Shamim
- 4 EEG Technology by J.C Shaw, printed by Butter Warth Group London.
- 5 Clinical Approach to Nervous System Methods and Common Disorders

REFERENCE BOOKS:

1. Principles of Neurology by Maurice Victor and Allan II. Ropper
2. Nerve Injuries; Operative Results for Major Nerve Injuries Entrapments and Tumors by Kline Hudson

C1. Conceptual understanding of recording system recording practice of EEG:

- C1.1 Measurement for the placement of electrode (10-20 international system)
- C1.2 Montages (bipolar, referential montage)
- C1.3 Methods of notation & labeling the recording
- C1.4 Source of artifacts & methods of elimination

C2. Activation procedure;

- C2.1 Hyperventilation
- C2.2 Photic stimulation
- C2.3 Sleep deprivation
- C2.4 Drug induce sleep
- C2.5 Saving of recording

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