SGT UNIVERSITY
SHREE GURU GOBIND SINGH TRICENTENARY UNIVERSITY
(UGC Approved) Gurugram, Delhi-NCR
Budhera, Gurugram-Badli Road, Gurugram (Haryana) – 122505 Ph. : 0124-2278183, 2278184, 2278185

Faculty of Allied Health Sciences

Bachelor of Neuro-Physiology Technology(BNPT)

Syllabus

2017

PROPOSED SCHEME FOR CREDIT BASED GRADING SYSTEM IN B. Sc. NEURO-PHYSIOLOGY & TECHNOLOGY (SEMESTER SYSTEM)

Scheme of Examination

Ist Sem

S.NO		Paper Code	Theory Examination		Practical Examination		Total Marks	Credits
			Univ. Exam.	Internal Assessment	Univ. Exam.	Internal Assessment		.
1.	Neuro-Anatomy I		60	40			100	4
2.	Neuro- Physiology I		60	40			100	4
3.	Neuro-Pathology		60	40			100	4
4.	Neuro electrophysiology lab and DSA lab				120	80	200	4
5.	Communication Skills and Personality Development		40	60	-	-	100	2
	Total						600	18

IInd Sem

S.No		Paper Code	Theory Examination		Practical Examination		Total Marks	credit
			Univ. Exam.	Internal Assessment	Univ. Exam.	Internal Assessment		
1.	Neuro-anatomy –II		60	40			100	4
2	Neurophysiology II		60	40			100	4
3	Neuro-Biochemistry		60	40			100	4
4	Clinical practice in OPD				120	80	200	4
5	Fundamentals of Computer Science		60	40			100	2
	Total						600	18

IIIrd Sem

S.No		Paper Code	Theory Examination		Practical Examination		Total Marks	credit
			Univ. Exam.	Internal Assessment	Univ. Exam.	Internal Assessment		
1.	Neuro-anatomy –III		60	40			100	4
2	Neurophysiology III		60	40			100	4
3	Basics of EEG		60	40			100	4
4	Basics of EMG & NCV		60	40			100	4
5	Neuro electrophysiology lab and DSA lab				120	80	200	4
6.	Environmental Science		60	40	-	-	100	4
	Total						700	24

IVth Sem

S.NO		Paper Code	Theory Examination		Practical Examination		Total Marks	Credit
			Univ. Exam.	Internal Assessment	Univ. Exam.	Internal Assessment		
1.	Instrumentation of EEG - I		60	40			100	4
2.	Instrumentation of EMG & NCV - I		60	40			100	4
3.	Clinical practice in OPD				120	80	200	4
4	Pharmacology related to neurophysiology and clinical practice		60	40			100	4
5	Patient management and clinical practice		60	40			100	4
	Total						600	20

Vth Sem

S.NO		Paper Code	Theory Examination		Practical Examination		Total Marks	Credit
			Univ. Exam.	Internal Assessment	Univ. Exam.	Internal Assessment		
1.	EEG and EMG Machines and clinical practice - I		60	40			100	4
2.	Instrumentation & technique and clinical practice on EEG & EMG- I				60	60	100	2
3.	EEG, EMG in different disease states – I		60	40			100	4
4.	Clinical posting in OPD				120	80	200	4
5.	Research Methodology & Biostatistics		60	40			100	4
	Total						600	18

VIth Sem

S.NO		Paper Code	Theory Examination		Practical Examination		Total Marks	Credit
			Univ. Exam.	Internal Assessment	Univ. Exam.	Internal Assessment		
1.	EEG & EMG in different disease states - II		60	40			100	4
2.	EEG and EMG Machines and clinical practice - II		40	60			100	4
3.	Instrumentation & technique and clinical practice on EEG–II				60	40	100	2
4.	Neuro electrophysiology lab and DSA lab				60	40	100	2
6.	Instrumentation and technique and clinical practice on EMG & NCV				60	40	100	2
	Total		80	120	160	240	600	14

	CORE COURSES (18)	ABILITY ENHANCEMET ELECTIVE COURSE (AEEC) (3)	ABILITY SKILL ENHANCEMENT COURSES (ASEC) (2)	ELECTIVE DISCIPLINE SPECIFIC (DSE) (1)	ELECTIVE GENERIC Interdisciplinary/ Open Elective (GE)
Semester-I					
1	C-NPT-01 Neuro-Anatomy I (Theory)	AEEC- NPT-01 Communication Skills & Personality Development (Theory)			
2	C-NPT-02 Neuro-Physiology I (Theory)				
3	C-NPT-03 Neuro-Pathology (Theory)				
4	C-NPT-04 Neuro electrophysiology lab and DSA lab (Practical)				
Semester-II					
1	C-NPT-05 Neuro-anatomy –II (Theory)		ASEC-NPT-01 Fundamentals of Computer Science (Theory)		
2	C-NPT-06 Neuro-physiology II (Theory)				
3	C-NPT-07 Neuro-Biochemistry (Theory)				
4	C-NPT-08 Clinical practice in OPD (Practical)				
Semester-III					
1	C-NPT-09 Neuro-anatomy –III (Theory)	AEEC-NPT-02 Environmental Science(Theory)			

2	C-NPT-10 Neuro-physiology III (Theory)				
3	C-NPT-11 Basics of EEG (Theory)				
4	C-NPT-12 Basics of EMG & NCV (Theory)				
5	C-NPT-13 Neuro electrophysiology lab and DSA lab (Practical)				
Semester-IV					
1	C-NPT-14 Instrumentation of EEG – I (Theory)	AEEC-NPT-03 Pharmacology related to neurophysiology and clinical practice (Theory)		DSE-NPT-01 Patient management and clinical practice (Theory)	
2	C-NPT-15 Instrumentation of EMG & NCV – I (Theory)				
4	C-NPT-16 Clinical practice in OPD (Practical)				
Semester-V					
1	C-NPT-17 EEG and EMG Machines and clinical practice – I (Theory)		ASEC-NPT-02 Research & Biostatistics (Theory+Tutorials)		
2	C-NPT-18 Instrumentation & technique and clinical practice on EEG & EMG- I (Theory)				

3	C-NPT-19 EEG, EMG in different disease states – I (Theory)				
4	C-NPT-20 Clinical posting in OPD (Practical)				
Semester-VI					
1	C-NPT-21 EEG & EMG in different disease states - II (Theory)				
2	C-NPT-22 EEG and EMG Machines and clinical practice – II (Theory)				
3	C-NPT-23 Instrumentation & technique and clinical practice on EEG–II (Practical)				
4	C-NPT-24 Neuro electrophysiology lab and DSA lab (Practical)				
5	C-NPT-25 Instrumentation and technique and clinical practice on EMG & NCV (Practical)				

Summary of Courses				
I	Core Courses(3)	Theory	12	12
	(1)	Practical	4	4
	AEEC (1)	Theory	4	2
		Total	**20**	**18**
II	Core Courses (3)	Theory	12	12
	(1)	Practical	4	4
	ASEC(1)	Theory	4	2
		Total	**20**	**18**

III	Core Courses (4)	Theory	16	16
	(1)	Practical	4	4
	AEEC (1)	Theory	4	4
		Total	**24**	**24**
IV	Core Courses (3)	Theory	12	12
	(1)	Practical	4	4
	DSE (1)	Theory	4	4
	ASEC(1)	Practical	4	2
		Total	**24**	**22**
V	Core Courses (3)	Theory	12	12
	(1)	Practical	4	4
	ASEC(1)	Theory	4	2
		Total	**20**	**18**
VI	Core Courses (2)	Theory	8	8
	(3)	Practical	12	12
		Total	**20**	**20**
		Grand Total	**128**	**120**

Course Codes

CORE COURSES

1. C-NPT-01 : Neuro-Anatomy I (Theory)
2. C-NPT-02 : Neuro- Physiology I (Theory)
3. C-NPT-03: Neuro-Pathology (Theory)
4. C-NPT-04: Neuro electrophysiology lab and DSA lab (Practical)
5. C-NPT-05: Neuro-anatomy –II (Theory)
6. C-NPT-06: Neuro-physiology II (Theory)
7. C-NPT-07: Neuro-Biochemistry (Theory)
8. C-NPT-08: Clinical practice in OPD (Practical)
9. C-NPT-09:Neuro-anatomy –III (Theory)
10. C-NPT-10: Neuro-physiology III (Theory)
11. C-NPT-11: Basics of EEG (Theory)
12. C-NPT-12: Basics of EMG & NCV (Theory)
13. C-NPT-13 : Neuro electrophysiology lab and DSA lab (Practical)
14. C-NPT-14 : Instrumentation of EEG – I (Theory)
15. C-NPT-15 : Instrumentation of EMG & NCV – I (Theory)
16. C-NPT-16 : Clinical practice in OPD (Practical)
17. C-NPT-17: EEG and EMG Machines and clinical practice – I (Theory)
18. C-NPT-18 : Instrumentation & technique and clinical practice on EEG & EMG- I (Theory)
19. C-NPT-19 : EEG, EMG in different disease states – I (Theory)
20. C-NPT-20 : Clinical posting in OPD (Practical)
21. C-NPT-21 : EEG & EMG in different disease states - II (Theory)
22. C-NPT-22 : EEG and EMG Machines and clinical practice – II (Theory)
23. C-NPT-23 : Instrumentation & technique and clinical practice on EEG–II (Practical)
24. C-NPT-24 : Neuro electrophysiology lab and DSA lab (Practical)
25. C-NPT-25 : Instrumentation and technique and clinical practice on EMG & NCV (Practical)

ABILITYENHANCEMETELECTIVECOURSE (AEEC) : Ist & IIIrd Semester

1 AEEC- NPT-01 : Communication Skills & Personality Development (Theory)

2 AEEC-NPT-02 : Environmental Science(Theory)

ABILITY SKILL ENHANCEMENT COURSES (ASEC): II^{nd,} &Vth Semester

1 ASEC-NPT-01 : Fundamentals of Computer Science (Theory)

2 ASEC-NPT-02 : Research & Biostatistics (Theory+Tutorials)

ELECTIVEDISCIPLINESPECIFIC (DSE) IVth Semester

1 DSE-NPT-01 : Patient management and clinical practice (Theory)

ELECTIVE :GENERIC (GE) Interdisciplinary/Open Elective:

Marks Scheme

Semester-I (Total marks= 600)					
S. No.	**Corse Code**	**Course Title**	**Hrs/week**	**Total Marks**	**Credit**
1.	C-NPT-01	Neuro-Anatomy I (Theory)	4	100	4
2.	C-NPT-02	Neuro- Physiology I (Theory)	4	100	4
3.	C-NPT-03	Neuro-Pathology (Theory)	4	100	4
4.	C-NPT-04	Neuro electrophysiology lab and DSA lab (Practical)	4	200	4
5.	AEEC- NPT-01	Communication Skills & Personality Development (Theory)	2	100	2
		Total	18	600	18

Semester-II (Total marks=600)					
S. No.	**Corse Code**	**Course Title**	**Hrs/week**	**Total Marks**	**Credit**
1.	C-NPT-05	Neuro-anatomy –II (Theory)	4	100	4
2.	C-NPT-06	Neuro-physiology II (Theory)	4	100	4
3.	C-NPT-07	Neuro-Biochemistry (Theory)	4	100	4
4.	C-NPT-08	Clinical practice in OPD (Practical)	4	200	4
5.	ASEC-NPT-01	Fundamentals of Computer Science (Theory)	2	100	2
		Total	18	600	18

Semester-III (Total marks= 700)					
S. No.	**Corse Code**	**Course Title**	**Hrs/week**	**Total Marks**	**Credit**
1.	C-NPT-09	Neuro-anatomy –III (Theory)	4	100	4
2.	C-NPT-10	Neuro-physiology III (Theory)	4	100	4
3.	C-NPT-11	Basics of EEG (Theory)	4	100	4

4.	C-NPT-12	Basics of EMG & NCV (Theory)	4	100	4
5.	C-NPT-13	Neuro electrophysiology lab and DSA lab (Practical)	4	200	4
6.	AEEC-NPT-02	Environmental Science(Theory)	4	100	4
		Total	24	700	24

Semester-IV (Total marks=700)					
S. No.	**Corse Code**	**Course Title**	**Hrs/week**	**Total Marks**	**Credit**
1.	C-NPT-14	Instrumentation of EEG – I (Theory)	4	100	4
2.	C-NPT-15	Instrumentation of EMG & NCV – I (Theory)	4	100	2
4.	C-NPT-16	Clinical practice in OPD (Practical)	4	200	4
5.	AEEC-NPT-03	Pharmacology related to neurophysiology and clinical practice (Theory)	4	100	4
6.	DSE-NPT-01	Patient management and clinical practice (Theory)	4	100	4
		Total	24	700	22

Semester-V (Total marks=600)					
S. No.	**Corse Code**	**Course Title**	**Hrs/week**	**Total Marks**	**Credit**
1.	C-NPT-17	EEG and EMG Machines and clinical practice – I (Theory)	4	100	4
2.	C-NPT-18	Instrumentation & technique and clinical practice on EEG & EMG-I (Theory)	4	100	4
3.	C-NPT-19	EEG, EMG in different disease states – I (Theory)	4	100	4

4.	C-NPT-20	Clinical posting in OPD (Practical)	4	200	4
5.	ASEC-NPT-02	Research & Biostatistics (Theory+Tutorials)	4	100	4
		Total	20	600	20

Semester-VI (Total marks=800s)					
S. No.	**Corse Code**	**Course Title**	**Hrs/week**	**Total Marks**	**Credit**
1.	C-NPT-21	EEG & EMG in different disease states - II (Theory)	4	100	4
2.	C-NPT-22	EEG and EMG Machines and clinical practice – II (Theory)	4	100	4
3.	C-NPT-23	Instrumentation & technique and clinical practice on EEG–II (Practical)	4	200	4
4.	C-NPT-24	Neuro electrophysiology lab and DSA lab (Practical)	4	200	4
5.	C-NPT-25	Instrumentation and technique and clinical practice on EMG & NCV (Practical)	4	200	4
		Total	20	800	20

(Ist Semester)
Paper -1

Neuro Anatomy-I

S. No.	Topic	Teaching Guidelines
1.	Basic anatomy	Basic anatomy of nervous system
2.	Thalamus	Anatomical structure, functions
3.	Hypothalamus	Anatomical structure, functioning
4.	Ventricular system	Anatomical structure, parts of ventricular system, functions
5.	Cerebrospinal fluid	Anatomical structure, functions, supply

Paper -2

Neurophysiology-I

S. No.	Topic	Teaching Guidelines
1.	Nerve muscle physiology	a. Functional anatomy, biological activities, electrical and physiological properties of nerve fibre, types of nerve fibre, degeneration and regeneration of neuronsStructure and function of neuromuscular junction, neuromuscular transmission, b. Introduction of skeletal muscle, functional anatomy and organization, process and characteristics of muscle excitability and contractility, characteristics of skeletal muscles in intact body, EMG, and common muscle disorders, source of energy and metabolic phenomenon during muscle contraction - drugs affecting and disorders of neuromuscular junction -factors promoting neuronal growth,
2.	Cranial nerve	- Introduction, function of cranial nerve, clinical significance.
3.	Membrane potential	Introduction, genesis of membrane potential, recording of membrane potential -Evolution of patients receiving oxygen therapy -Hazards of oxygen therapy.
4.	Synapses	- Definition and its types, chemical synapse, neurotransmitters
5.	Pathways	- Salutatory propagation, plexus and roots, afferent and efferent pathways, peripheral nerves of limbs

Paper -3

Neuro-pathology

S. No.	Topic	Teaching Guidelines
1.	Bone- gross and micro	Normal structure of bone and cartilages Osteomyelitis – pyogenic, acute, chronic and tuberculous Osteoporosis, osteomalacia , rickets, scurvy Bone Tumor- classification, benign malignant and Giant cell (tumor of bone) Rheumatoid arthritis Gout & Gouty arthritis osteomyelitis osteosarcoma (briefly)
2.	Muscle- gross and micro	Normal structure of muscle Myasthenia gravis Myopathies – muscular distrophies
3.	Nerve- gross and micro	Normal structure of nerve Hydrocephalus Infections – meningitis, acute, chronic, pyogenic, tuberculosis meningitis HIV encephalopathy (AIDS - dementia complex) Brain hemorrhage Trauma to the CNS(head injury) Peripheral nervous system (Normal structure) Peripheral neuropathy Wallerian degeneration

Paper -4

(COMMUNICATION SKILLS AND PERSONALITY DEVELOPMENT)

Introduction:

- Communication
- Types of Communication
- Importance & Principles of Communication
- Barriers in Communication

Review of Grammar:

- Types of Sentence
- Parts of Speech in brief
- Transformation and Synthesis of Sentences,
- Verb and Tense Forms
- Voice
- Direct & Indirect speech
- Phonetics

Vocabulary:

- Medical Terminology
- Idioms and Phrases
- Common Errors
- Use of Dictionary for Learning to Pronounce
- Word Formation by adding Prefixes & Suffixes

Spoken English:

- Audience Psychology & Presentation Skills
- Using Non-verbal Communication
- Interview techniques
- Discussion
- Debate
- Telephonic Conversation

Writing Skills:

- Précis Writing
- Letter Writing
- Curriculum Vitae Writing
- Listening, Reading, Comprehension (Exercise of prescribed short answers)
- Preparation of Report
- Note Taking and Note Making

BNPT

(IInd Semester)

Paper -1

Neuro Anatomy-II

S. No.	Topic	Teaching Guidelines
1.	Spinal cord	Anatomical structure , parts, functioning
2.	Cranial nerves	Classification , structure, functioning
3.	Autonomic nervous system	Classification, anatomical structure, functioning
4.	Brain vascular supply	Anatomical structure, blood supply, function

Paper - 2

Neurophysiology-II

S. No.	Topic	Teaching Guidelines
1.	Reflexes	Introduction, types, reflexes involving cranial nerves.
2.	Motor system	Introduction , types of motor system
3.	Sensory system	Introduction, stimulus, sensors and receptors and its types, sensory cortex and its types
4.	Basic neurological examination	Introduction, absence and presence of disease in nervous system, aspects of neurological examination
5	Basics of NCV and EMG	Introduction, Basic instrumentation of NCV & EMG equipments

Paper - 3

Neurobiochemistry

S. No.	Topic	Teaching Guidelines
1.	CELL & SUB CELLULAR ORGANELLES:	Structure & function of Cell & Sub-cellular organelles Biochemical characteristics of living matter
2.	PROTEINS:	Definition. Sources, Functions, Classification, Simple protein, Conjugated proteins and derived proteins, Properties and reactions of proteins.
3.	PROTEIN METABOLISM: .	Transamination, Transmethylation, Deamination, Fate of ammonia, Urea synthesis and synthesis of creatinine, Inborn errors of metabolism
4.	NERVE TISSUE:	Composition, Metabolism, Chemical mediators of nerve activities

Paper - 4

(FUNDAMENTALS OF COMPUTER SCIENCE)

Introduction:
What are computers, Application areas, Characteristics & limitations, Evolution of computers, Classification & generations of computers, Data representation in computer memory (numbering systems).

Computers Architecture /Organization:
Basic architecture, Functional Block diagram, Types of computers, Performance parameters

Hardware:
CPU their generations and performance parameters, Input & output devices. External Interfaces (Ports) & Concept of Device Drivers, Memory Devices.
Primary (Main) Memories (RAM, ROM, Types of RAM and ROM, Cache Memory, Register, Storage Evaluation Criteria, Memory Capacity),
Secondary Storage Devices: (Magnetic Disk, Floppy and Hard Disk, USBs, Optical Disks CD-ROMs)

Software:
Types: System Software (Machine Level Languages, Operating Systems, Device Specific Drivers), Higher Level Languages, and Applications.
Languages: Machine Language, Assembly Languages, Programming Languages, Special Application Languages.
Operating System: Booting/Start up Procedure of machines, Introduction to Operating System, Functions and Classification of Operating Systems, Basic introduction to DOS, UNIX/LINUX OS, Windows.

Basic Introduction to Computer Networks:
Data Communication, Network devices (Hub, Switches, Modems, Routers etc.), LAN, LAN topologies, WAN, MAN, Internet: Introduction, Basics of E-mail, Web browsers (IE, Google Chrome, Mozilla), Structure of Universal Resource Locator, Domains (.com, .in, .country specific, .org and rationale behind them), IP address, Backbone network, Network connecting devices, HTTP, DNS, Network Security and Search Engine.

(IIIrd Semester)
Paper – 1

Neuro Anatomy-III

S.No.	Topic	Teaching Guidelines
1	Skull	Basic anatomical structure, division, properties, function
2	Meninges	Anatomical structure and functions
3	Cerebrum	Structure, function
4	Cerebellum	Detailed structure , parts, functioning
5	Brain stem	Anatomical structure, function
6	Medulla	Anatomical structure, function

Paper - 2

Neurophysiology-III

S.No.	Topic	Teaching Guidelines
1	Nervous system	Physiological structure of human brain, properties and function
2	Cerebrum	Introduction, physiological anatomy, cerebral cortex, cerebral hemisphere, functions
3	Mid brain	Introduction , physiological structure, functions
4	Cerebellum	Introduction, stimulus, sensors and receptors and its types, sensory cortex and its types, neural circuits and neuronal activity, functions.
5	Brain stem	Introduction, physiological structure, development, blood supply, clinical significance, functions.
6	Medulla	Introduction, physiological structure, blood supply, clinical significance, function

Paper - 3

Basics of EEG

S.No.	Topic
1	Anatomical and physiological structure of human brain.
2	Electroencephalography : brain waves, frequency , amplitude, source of EEG
3	Review of EEG machine: basic components (designing and working), block diagram of EEG machine
4	Amplifiers, preamplifiers, noise and its types, basic of filters.

Paper – 4

Basics of EMG and NCV

S.No.	Topic
1	• Anatomical and physiological structure of human nervous system • Lymphatic system • Upper and lower limbs • Sensory and motor nerves .
2	• Electromyography (working principle) • Nerve conduction velocity • Nerve muscle stimulator
3	• Review of EMG machine: basic components (designing and working), block diagram of EMG machine
4	• Amplifiers • Preamplifiers • , noise and its types, • basic of filters.

Paper – 5

ENVIRONMENTAL STUDIES

Unit 1:

The Multidisciplinary nature of environmental studies

- Definition, scope and importance.
- Need for public awareness.

Natural Resources

Renewable and non-renewable resources: Natural resources and associated problems.

- Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
- Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems.
- Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
- Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
- Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.
- Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

Unit 2:

Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.

Biodiversity and its conservation

- Hot-spots of biodiversity.
- Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts
- Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.

Unit 3:

Environmental Pollution

Definition, causes, effects and control measures of:-

a. Air pollution
b. Water pollution
c. Soil pollution
d. Marine pollution
e. Noise pollution
f. Thermal pollution

g. Nuclear hazards

- Solid waste Management : Causes, effects and control measures of urban and industrial wastes.
- Fireworks, their impacts and hazards
- Pollution case studies.
- Disaster management : floods, earthquake, cyclone and landslides.

Unit 4 :

Social Issues and the Environment

- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions.
- Consumerism and waste products.
- Environmental Legislation (Acts and Laws)
- Issues involved in enforcement of environmental legislation

Human Population and the Environment

- Population growth, variation among nations with case studies
- Population explosion – Family Welfare Programmes and Family Planning Programmes
- Human Rights.
- Value Education.
- Women and Child Welfare.

(IVth Semester)
Paper -1

Instrumentation of EEG –I

S.No.	Topic
1	Anatomical and physiological structure of human brain.
2	Electroencephalography : brain waves, frequency , amplitude, source of EEG
3	Review of EEG machine: basic components (designing and working), block diagram of EEG machine
4	Amplifiers, preamplifiers, noise and its types, basic of filters.

Paper -2

(Patient management and clinical practice)

COURSE CONTENTS:
1. Maintain patient, ward record. 2. Proper labelling of patient investigation. 3. History taking. 4. Investigations. 5. Patient preparation for procedure. 6. Pre procedure medication 7. Neurology procedure. 8. Post procedure care

Paper -3

(Pharmacology related to neurophysiology and clinical practice)

COURSE CONTENT:

1. Introduction to Pharmacology
2. Pharmacokinetics
3. Pharmacodynamics
4. Adverse effects of drugs
5. Classification of drugs
6. Antibiotics
7. Neuro tonic
8. Anti inflammatory
9. Analgesic and antipyretic
10. Muscle relaxcent etc.
11. Classification, effects, mechanism of action, indication and contra indication

(Vth Semester)

Paper-1

EEG and EMG machines and clinical practice-1

COURSE CONTENT:

Electronics:

Ac & de voltage, current, Frequency
Resistance, Capacitance, Inductance
Impedance, Ohm's law.

Instrumentation:

Electrodes: Electrode material, Electrode potential
Electrode double layer, Electrode impedance
Effect of unbalance electrode resistance on CMRR

Paper-2

(Instrumentation and technique and clinical practice on EEG & EMG -1)

Filters:
Resister/ capacitor circuits
Notch filters, Low filers
High filters, Frequency response curve
Matlab
Software handling,
EEG machine
EMG & NCV test

Paper-3

(EEG & EMG in different disease states -1)

Epilepsy
Meningitis
Encephalitis
Brain abscess
Intracranial tumors
Metabolic & toxic disorders

(VIth Semester)
Paper-1

(EEG & EMG in different disease states –II)

Head injury
Cerebrovascular disease
Dementia
Coma of various causes
Preparation for admission
History taking, Investigations, Preparation for procedures, Observation Examination, Physical Examination, Nursing care, Ward management, Maintenance of patient and ward record, Preparation for discharge, Receiving patient in OPD, History taking and investigation, provisional diagnosis and differential diagnosis, Decision for treatment/ admission

Paper-2

(EEG & EMG machines and clinical practice –II)

Recording practice of Evoke Potential: Standard electrode placement
Recording technique & parameters
Recognition & climination of artefacts
Nation & measurements
Saving of recording
Factual report writing
Recording practive of sleep studies: Standard electrode placement ,Recording technique & parameters ,Recognition & climination of artefacts ,Nation & measurements ,Saving of recording ,Factual report writing ,
Technical consideration: Calibration ,Sufficient paper ,Paper speed, Pen centering ,Pen alignment
Measurement for the placement of electrode (10-20 international system)
Montages (bipolar, referential montage)
Source of derivation
Mechanical control during recording
Methods of notation & labelling the recording
Source of artefacts & methods of elimination
Activation procedure; Hyperventilation
Photic stimulation