

**MAHARASHTRA UNIVERSITY OF HEALTH SCIENCES  
FACULTY OF ALLIED HEALTH SCIENCES  
SYLLABUS OF  
I - B.P.Th**

[Applicable to the batches admitted from the year 2001-2002]

---

Subjects—	Transcript hrs-1287
<b>1]-Introduction to Physio-therapy-----</b>	<b>010 hrs</b>
<b>2]-Anatomy-----</b>	<b>9 hrs/week-----180 hrs</b>
<b>3]-Physiology-----</b>	<b>9 hrs/week-----165 hrs</b>
<b>4]-Biochemistry- -----</b>	<b>1 hrs/week-----065 hrs</b>
<b>5]-Fundamentals Exercise Therapy-----</b>	<b>9 hrs/week-----210 hrs</b>
<b>6]-Fundamentals of Electro Therapy-----</b>	<b>9 hrs/week-----150 hrs</b>
<b>7]-Physical Fitness &amp; Yoga-----</b>	<b>4 hrs /week----- 100 hrs</b>
<b>8]-Seminar -----</b>	<b>2 hrs /2 weeks----- 034 hrs</b>
<b>9]-supervised clinical practice-----</b>	<b>2 hrs/day +5 days/ week---373 hrs</b>

---

[Clinical assignments should include Observation, Clinical History taking, & technical assistance to the senior clinical staff of the Therapeutic Gymnasium [Fundamentals of Exercise therapy] & Electro Therapy sections at the O.P.D set up. The student should maintain a Journal/File in which the “ATTITUDE” assessment chart & documentation of minimum 15 case histories to be included per assignment. The student should get all the documents duly signed by the section In-Charge with his/her assessment remarks at the end of each respective assignment.

**INTRODUCTION TO PHYSIO THERAPY ----- [10 hrs]**

**Objective-** By the end of the 10 hours of introduction, the candidate will-

- 1]- acquire the geographical orientation of the various concerned sections of the college & the clinical training areas
- 2]- get the overall idea about the graduate program & its scope in the professional practice
- 3]- learn the Bed-side manners, General Ethical code & discipline of the Department
- 4]- Acquire the skill of History taking in general

**HUMAN ANATOMY--- [180 HRS]**

[Didactic - 80 hrs; Practical / Laboratory - 100 hrs]

**Goal-**To provide the student with the necessary Anatomical knowledge & skills to practice as a qualified Physio Therapist

**Objectives-**

1]-MUSCULO- SKELETAL-

- i]-The student should be able to identify & Describe Anatomical aspects of muscle, bones & joints, & to understand and Analyse movements
- ii]- To understand the Anatomical basis of various clinical conditions e.g. trauma, deformities, pertaining to limbs & spine.
- iii]-To be able to localize various surface land-marks;
- iv]-To understand & describe the mechanism of posture & gait & the Anatomical basis of abnormal gait.

- 2]-In NEURO-Anatomy-
- i]-to identify & describe various parts of C.N.S.-fore- brain, Midbrain, Hind-brain, Brain stem, courses of cranial nerves; functional components,-course distribution- Anatomical bases of clinical lesions;
  - ii]-to describe the source & course of spinal tracts;
  - iii]-to describe blood circulation of C.N.S. & spine;
  - iv]-be able to identify the components of various Trans-sections.
- 3]-THORAX- to identify & describe various components of the contents of the Thorax- with special emphasis to tracheo-bronchial tree, & cardio- pulmonary system
- 4]-CIRCULATORY-
- i]-be able to identify & describe the source & course of major arterial, venous & lymphatic system, with special emphasis to extremities, Spine & Thorax
- 5]-PSYCHO-MOTOR-
- i]- to be able to demonstrate the movements of various joints-
  - ii] - distinguish cranial & peripheral nerves
  - iii] - distinguish major arteries, veins & Lymphatics with special emphases to extremities, & spine

### Syllabus-

1]-GENERAL Anatomy-----	10 hrs
2]-MUSCULO SKELETAL Anatomy-[dissection optional]	
i]-superior extremity-----	20 hrs
ii]-Inferior extremity-----	20 hrs
iii]-spine-----	15 hrs
iv]-facial muscle & T. M. joint -----	05 hrs
3]-NEURO-Anatomy-----	60 hrs
i]-General organization of C.N.S. –	
ii]-Cranial nerves	
iii]-peripheral nervous system	
iv]-C.N.S.	
4]-SYSTEMIC ANATOMY-	
i]-Elementary system-----	06 hrs
ii]- Uro-genital system[special emphasis to Female organs-----	10 hrs
iii]-Micro-Anatomy-----	02 hrs
iv]-Cardio-vascular[including Lymphatic]-----	10 hrs
v]-Respiratory system-----	06 hrs
vi]-Integrated neuro-muscular-----	02 hrs
vii]-Axial skeletal-----	02 hrs
viii]-Sensory organs-----	08 hrs
ix]-Endocrine-----	02 hrs
x]-Radiological-----	02 hrs

### Text Books-

- 1]- Human Anatomy-by Snell
- 2]-Anatomy & Physiology by Smout and Mcdowell
- 3] Anatomy by Chaurasia-all 3 volumes
- 4]-Kinesiology by Katherine Wells [soundersco.]
- 5]-Neuro-anatomy by Inderbir Singh

### Reference Books-

- 1]-Gray`s Anatomy
- 2]-Extremities by Quining Wasb

## SCHEME OF EXAMINATION

### **Model question paper-**

**THEORY**- University Exam-80 marks + Int.Assessment-20 marks Total - 100 Marks

Section A) M.C.Q.-based on Single best response – [20 x 1] -- [20 minutes] ----- 20 marks  
This question should include all the MUST KNOW questions

Section B) S.A.Q. - Q.1) - Answer any Five out of Six [3 X 5] ----- 15 marks

Q.2) - Answer any 3 out of 4 [5 X 3] ----- 15 marks

Section C) L.A.Q - a] - based Musculo Skeletal system [including Kinesiology] -- 15 marks

b] - should be based on Neuro-Anatomy [including cranial nerves with emphasis to V,VII,VIII,IX & XII nerves] ----- 15 marks

**PRACTICAL** – University Exam-80 marks + Int.Assessment-20 marks Total - 100 Marks

1. 20 Spots (3 Minutes per spot and 3 marks per spot) ----- (20 X 3 = 60 marks)

i) 5 Spots based on Urogenital / Reproductive / special senses / circulatory system

ii) 5 Spots based on Soft part of spine / neck / upper limb / lower limb

iii) 5 Spots based on Musculoskeletal system

iv) 5 Spots based on Neuro

2. Viva ----- 15 marks

3. Journal ----- 05 marks

**INTERNAL ASSESSMENT** - i.e.

TWO mid term exams [Theory M.C.Q only.]-of 20 marks each, + one Terminal & one Prelim having 80 marks each

---

# HUMAN PHYSIOLOGY --- [165 HRS]

[Didactic - 125 hrs; Practical / Laboratory - 40 hrs]

**Objectives-**At the end of the course, the candidate will-

- 1]-acquire the knowledge of the relative contribution of each organ system in maintenance of the milieu interior [Homeostasis]
- 2]-be able to describe physiological functions of various systems, with special reference to Musculo-skeletal, Neuro-motor, Cardio-respiratory, Female uro-genital function, & alterations in function with aging
- 3]-Analyse physiological responses & adaptation to environmental stresses-with special emphasis on physical activity, temperature
- 4]-acquire the skill of basic clinical examination, with special emphasis to Peripheral & Central Nervous system, Cardiovascular & Respiratory system, & Exercise tolerance / Ergography.

## **Syllabus-**

- 1] - GENERAL Physiology---- [only short notes] ----- 02 hrs
- 2] - BLOOD – Rh – A B O system - & mismatch-transfusion [composition & function]-- 02 hrs
- 3] - NERVE -----07 hrs
  - i] - Structure, classification & properties;
  - ii] - R.M.P.
  - iii] - action potential;
  - iv] - Propagation of nerve impulse
  - v] - degeneration & regeneration
  - vi] - reaction of degeneration [retrograde]
- 4] - MUSCLE-----09 hrs
  - i] - Structure - properties – classification – excitation / contraction coupling
  - ii] - Motor unit - E.M.G. - factors affecting muscle transmission –
  - iii] - Neuro-muscular transmission
- 5] - C.N.S.----- 30 hrs
  - i]-Receptor physiology-classification & properties;
  - ii]-Synapse-structure, properties, & transmission;
  - iii]-Reflexes –classification & properties;
  - iv]-Sensory & Motor Tracts-effect of transection [-complete & incomplete] at various levels;
  - v]- physiology of Touch, Pain, Temperature & Proprioception;
  - vi]-Physiology of Muscle Tone [muscle spindle];
  - vii]-Labyrinth;
  - viii]-Function of Basal Ganglia, Thalamus, Hypo-Thalamus, Pre-frontal lobe, P.A.S.,
  - ix] Sensory /motor cortex;
  - x]-Limbic system;
  - xi]-Learning, memory & condition reflex,
  - xii]-Physiology of Voluntary movement
- 6] - EXCRETARY system -----07 hrs
  - i] - Kidneys-[short note]-structure & function;
  - ii] - Urine formation;
  - iii] - Micturition –neural control-neurogenic bladder
- 7] - TEMPERATURE REGULATION----- 03 hrs
  - i]-circulation of the skin –body fluid –electrolyte balance
- 8] - ENDOCRINE-----07 hrs
  - i]-secretion- regulation & function of Pituitary-thyroid-adrenal-parathyroid-pancreas
- 9] - REPRODUCTIVE system-----03 hrs
  - i]-Functions of Estrogen, Progesterone & Testosterone-
  - ii]-Puberty & Menopause
- 10] - SPECIAL senses-
- 11] - RESPIRATORY system----- 20 hrs
  - i]-Eye-Errors of refraction-accommodation-reflexes-dark & light adaptation- photosensitivity

i]-Introduction, general organization;	
ii]-Mechanics of respiration;	
iii]-Pulmonary Volumes & capacities;	
iv]-Anatomical & physiological Dead space- ventilation/perfusion ratio, alveolar ventilation	
v]-Transport of respiratory gases	
vi]-Nervous & Chemical control of respiration	
vii]-Pulmonary function tests-Direct & indirect method of measurement;	
viii]-Physiological changes with altitude & acclimatization	
12] - CARDIO_VASCULAR-----	20 hrs
i]-structure & properties of cardiac muscle;	
ii]-Cardiac cycle;	
iii]-Heart rate regulation- factors affecting;	
iv]-Blood pressure –definition-regulation-factors affecting;	
v]- cardiac output- regulation & function affecting;	
vi]-Peripheral resistance, venous return	
vii]-Regional circulation-coronary- muscular, cerebral-	
viii]-normal ECG.	
13] - EXERCISE physiology-----	10 hrs
i]-Effects of acute & chronic exercises-;	
ii]-oxygen /CO2 transport-O2 debt-	
iii]-effects of exercise on muscle strength, power, endurance, B.M.R., R.Q., - hormonal & metabolic effects-respiratory & cardiac conditioning-	
iv]-Aging	
v]-Training-fatigue-& recovery;	
vi]-Fitness-related to age, gender, & body type	
14] - A.N.S-----	05 hrs
Sympathetic /parasympathetic system-adrenal medulla- functions- Neuro Transmitters- role in the function of pelvic floor-[micturation, defecation labour	

### Text Books

- 1]-Course in Medical Physiology—Vol-I & II-by Dr Chaudhary
- 2]-Medical Physiology by Dr. Bijlani
- 3]-Text book on Medical Physiology-By Gyton

### Reference Books

- 1]-Review of medical physiology-Gavton
- 2]-Samson & Writes Applied physiology

### Practical

1]-Haematology-[demonstration only]-----	06 hrs
2]-Graphs-----	04 hrs
i]-skeletal muscle-properties-pre /after load-fatigue-Starling's law	
ii]-Cardiac muscle- properties-effect of Ach & Adrenaline.	
3]-Physical fitness-----	02hrs
i]-breath holding	
ii]-mercury column test;	
iii]-cardiac efficiency test-Harvard step test- Master step test	
4]-Blood Pressure – effects of change in posture & exercise-----	03 hrs
5]-Stethography- -----	01 hrs
i]-effect of deglutination;	
ii]-voluntary hyperventilation	
6]-Spirometry-----	02 hrs
i]-Lung volumes	
ii]-timed vital capacity	
7]- Mosso`s finger ergography-----	01 hrs
8]-perimetry-----	01 hrs

9]-Clinical examination-----15 hrs  
respi/cvs/higher functions /memory/time/orientation/reflexes/motor & sensory system

## SCHEME OF EXAMINATION

### Model question paper

**THEORY**- University Exam-80 marks + Int.Assessment-20 marks Total - 100 Marks

Section-A-MCQ-Q-1] based on single Best answer ---- [20 x 1] ----- 20 marks

It must include MUST KNOW questions

Section-B- SAQ-Q-2] Answer any Five out of Six --- [5 X 3] ----- 15 marks

Q-3] Answer any Three out of four --- [3 X 5] ----- 15 marks

Section-C-LAQ--Q-4] based on Musculo-skeletal system ----- 15 marks

Q-5] based on C.N.S./ spinal cord / Electro-Neuro-physiology--- 15 marks

**OR**

Q-6] -----do----- 15 marks

[LAQ should give break up of 15 marks]

**PRACTICAL** - University Exam-80 marks + Int.Assessment-20 marks Total - 100 Marks

1. Total Four Spots: - 5 Minute per spot and five marks per spot - (5 X 4 = 20 Marks)

(Spot based on Nervous System, Respiratory System, Cardiovascular System,  
Exercise physiology)

2. Demonstration on clinical Physiology -----35 Marks

(Clinical Physiology on Resp/CVS/ Higher functions/Memory time/Orientation/  
Reflexes/Motor & Sensory system.)

3. Viva: ----- 20 Marks

(based on Haematology/Graphs/Physical fitness/BP/Stethograph/Spirometry/  
Ergography/ Perimetry)

4. Journal ----- 05 Marks

---

## **BIOCHEMISTRY --- [65 hrs-Didactic only]**

**Objectives-** at the end of the course, the candidate will –

- 1]-be able to describe structures & functions of cell in brief.
- 2]-be able to describe normal functions of different components of food, Enzymes,
- 3]-define Basal metabolic rate & factors affecting the same [in brief], with special reference to obesity
- 4]-be able to discuss nutritional aspects of carbohydrates, lipids, proteins & vitamins & their metabolism with special reference to obesity
- 5]-define enzymes; discuss in brief, factors affecting enzyme activity
- 6]-Describe in details biochemical aspects of muscle contraction
- 7]-acquire knowledge in brief about the Clinical biochemistry, with special reference to Liver & renal function test, Blood study for Lipid profile, metabolism of fat, Carbo-Hydrates, proteins, bone minerals, & electrolyte balance

### **Syllabus-**

- 1]-Cell biology----- 01 hr
  - i]-Membrane, structure & function;
  - ii]-Junction of intracellular organelle in brief- [no structural details needed]
- 2]-Carbohydrates-----  
10 hrs
  - i]-Chemistry-definition, classification with examples;
  - ii]-functions of carbohydrates with mucopolysaccharides [in details];
  - iii]-Reducing properties of sugars of clinical & diagnostic importance  
e.g. Benedict's test, Banfood's test etc
  - iv]-Metabolism-Digestion & absorption of carbohydrates -Glycolysis-  
aerobic, anaerobic, Energetics & regulation;
  - v]-Kreb's cycle-its energetics & regulation- role of T.C.A. cycle;
  - vi]- Glycogenesis, glycogenolysis & their regulation-role of liver in muscle glycogen
  - vii]-glyconeogenesis-significance of H.M.P. shunt
  - viii]-hormonal regulation of blood sugar levels-Important metabolic disorders of glycogen, lactose intolerance, Diabetes mellitus.
- 3] Proteins-----07 hrs
  - i]-Chemistry-definition-function-classification of Amino acids-protein structure-effect of temperature on proteins- denaturation-coagulation; isoelectric pH & its importance;
  - ii]- Metabolism-Digestion & absorption- Decarboxylation- De-amination- Transmethylation-transamination & their importance-Detoxification of ammonia including urea cycle ;
  - iii]-special products of amino acid-e.g. phenylalanine glycine ,methionine[no biosynthesis] ;
  - iv]-Neuro-transmitters no bio-synthesis]
- 4]-Lipids-----07 hrs
  - i]-Chemistry-definition-classification-[including fatty acids with examples]-function -
  - ii]-Metabolism-Digestion & absorption of lipids-B-oxidation-of saturated fatty acids & its energetics & regulation of fat metabolism in adipose tissue-Ketone bodies formation & utilization—cholesterol & its importance[no biosynthesis needed]-classification, sources & function of lipoproteins-lipoproteinemia atherosclerosis
  - iii]-fate of acetyl-CoA in-[no details of reaction & pathways]-
    - a]-cholesterol biosynthesis-
    - b]- Ketogenesis ,
    - c]-fatty acids biosynthesis,
    - d]- Neuro -transmitters ,
    - e]-T.C.A.;
  - iv]-Fate of Glycerol in-[pathways & reaction not required]-
    - a]-Gluconeogenesis,
    - b] Energy [glycolysis],

- c]-Tri-glycerides,
- d]-phospholipid synthesis,

5]-Nuclie Acids-----	03 hrs
i]-D.N.A./R.N.A.-definition-structure & function-types-Genetic code-catabolism of purine – gout	
6]-Enzymes-----	04 hrs
i]-definition-Co-Enzymes-classification-factors affecting;	
ii]-general metabolism of enzymes [in brief];	
iii]-Inhibition & types of inhibitors;	
iv]-Iso-enzymes;	
v]-clinical & therapeutic use of enzymes	
7]-Vitamins-----	07 hrs
i]-water & Fat soluble-definition-classification;	
ii]-individual vitamins-sources-Co-enzyme forms- function-reaction related to metabolism covered;	
iii]-RDA, absorption-& transport-deficiency & toxicity	
8]-Biological Oxidation-----	01 hr
i]-Oxidative phosphorylation & ETC in brief	
9]-Minerals-----	04 hrs
i]-Phosphate, calcium, & iron [in details];	
ii]-magnesium, fluoride, Zinc, Copper, Selenium Molybdenum, Iodine-sources, RDA, absorption,-transport-excretion function & disorder	
10]-Acid- Base Balance,Water & Electrolyte-----	03 hrs
i]-Body water, pH-osmolarity Extra & Intra cellular fluid-;	
ii]-Buffers-pH, buffer system in blood-	
iii]-Role of kidneys & lungs in acid-base balance;	
iv]-water- electrolyte balance im-balance-dehydration	
11]-Hormones-----	04 hrs
i]-Definition-classification-mechanism & action-	
ii]-second messenger [Ca, cAMP, inositol phosphate,	
iii]-metabolic effects of a]-Insulin, b]-Glucagon, c]-Catecholamines, d]-Thyroxine	
iv]-Mineralo-corticoids,f]-gluco corticoids	
12]-Muscle Contraction-----	03 hrs
i]-Contractile elements;	
ii]-Biochemical events during contraction;	
iii]-energy metabolism in skeletal & cardiac muscle	
13]-Connective Tissue-----	02 hrs
Biochemistry of connective tissue-collagen –Glyco-protein –proteoglycans	
14]-Nutrition-----	05 hrs
i]-Importance of nutrition-Calorimetry-energy value-calorimeter-respiratory quotient & its significance;	
ii]-Basal metabolic rate-definition-normal values-factors affecting BMR;	
iii]-energy requirement-with-age/sex/ thermogenesis/-specific dynamic action of food,- energy expenditure for various activities	
iv]-Composition of food, balanced Diet dietary recommendations nutritional supplementation- nutritional value of carbohydrates/proteins/fats & Fibers,	
v]-Nitrogen balance & its significance-Protein energy malnutrition-Kwashiorkor & Marasmus	
15]-Clinical Biochemistry-----	04 hrs

- i]-Liver function test & Renal function test ;
- ii]-Relevance of blood levels of glucose, urea, Ca-Phosphate-& uric acid;
- iii]-Enzymes-Amylase, CPK, LDH,iroenzymes
- iv]-Lipid profile-Tri -glyceride, cholesterol/HDL/LDL/ALDL etc;
- v]-Protein & Aggression i]-Glycosuria

**Text Books-**

- 1]-Biochemistry-by Dr. Deb Jyoti Das,
- 2] Biochemistry-by-Dr Satyanarayan
- 3]-Text book of Biochemistry for Medical students by-Dr Vasudevan/ Shri kumar

**Reference Books-**

- 1]-Review of Biochemistry [24th edition] by Harpar

**SCHEME OF EXAMINATION-[THEORY ONLY]**

THEORY- University Exam-80 marks + Internal Assessment-20 marks Total = 100 Marks

Section-A- MCQ - Q-1] Single best answer of MUST KNOW area-[20 x 1]----- 20 marks

Section-B- SAQ - Q-2] To attempt any FIVE out of Six answers- [5 x 3]----- 15 marks

Q-3] To attempt any THREE out of Four answers-[3 x 5]----- 15 marks

Section-C-LAQ - Q-4] [compulsory]-----15 marks  
 [should be based on Musculo-skeletal/ Neural Biochemistry]

Q-5]-----15marks

**OR**

Q-6]-----15 marks

[LAQ should give break up of 15 marks]

## **FUNDAMENTALS OF EXERCISE THERAPY --- [310 hrs]**

BIOMECHANICS-----didactic - 40 hrs  
BIO-PHYSICS APPLIED TO MOBILISATION /  
EXERCISE & HYDRATHERAPY-----didactic - 30 hrs + Practical/laboratory - 60 hrs  
MASSAGE-----didactic - 05 hrs + Practical/laboratory - 25 hrs  
BASIC EVALUATION-----didactic - 10 hrs + Practical/laboratory - 40 hrs  
BASICS IN YOGA -----didactic - 10 hrs + Practical/laboratory - 90hrs

**Objective-**At the end of the course, the candidate will be able –

- 1]-To define the various terms used in mechanics, Biomechanics & Kinesiology
- 2]-Recall the basic principles of Physics related to mechanics of movement /motion & will be able to understand the application of such principles to the simple equipment designs, & their efficacy in therapeutic gymnasium, & various starting positions used in therapeutics
- 3]-to describe & also acquire the skill of use of various tools of the Therapeutic gymnasium
- 4]-to demonstrate passive movements in terms of various Anatomical planes
- 5]-to demonstrate various starting & derived positions
- 6]-Acquire the skill of application of various massage manipulations & describe the Physiological effects, therapeutic use, merits /demerits of the same.
- 7]-acquire a skill of assessment of sensations, superficial & deep reflexes, pulse rate/ Blood pressure, Chest expansion/respiratory rate, & limb length/girth measurement on Models
- 8]-to demonstrate & also acquire the skill of relaxation
- 9]-to describe the physiological & therapeutic effects [including merits/demerits] of
- 10]-to describe the skill & usefulness of group & recreational activities-& will be able to demonstrate general fitness exercises used in Physical Training.
- 11]-be able to define Yoga & its types, its physiological & Psycho-somatic effects & will be able to demonstrate standard yoga postures used by the beginners
- 12]-be able to demonstrate, General Fitness exercises & shall gain fitness for self.

### **Syllabus-**

- 1]-Biomechanics- i]-Axes /planes, laws of inertia, & motion, mechanics of Forces, levers, pendulum, equilibrium ,Torque ii]-Types of muscle work-angle of pull- Mechanical advantage- applied mechanics in the Therapeutic Gymnasium
- 2]-Starting & derived positions, stability, base of support
- 3]-Classification of movements ,(active, passive, assisted, resisted )/ Goniometry- techniques, uses, types
- 4]-Limb length ( only lower limb - apparent, true, supratrochantric)& girth measurements
- 5]-Assessment of Sensations / Reflex testing
- 6]-Assessment of Blood pressure / pulse rate /chest expansion & Respiratory rate
- 7]-Relaxation- all methods,
- 8]-Massage manipulations-principles effects/merits/demerits -skills on extremities / scalp / spine/ abdomen / face
- 9]- Therapeutic Gymnasium-suspension therapy,-use of accessories such as pulleys springs, shoulder wheel, axillary crutches ,finger ladder ,therapeutic balls parallel bars etc-applied Biomechanical principles
- 10]-Group & recreational activities-General fitness exercises-Warm up-stretching -mobility-strengthening –cool down
- 11]-Principles of Yoga & basic ten Yogic postures-& their physiological effects Yogic postures
  - A] 1) a]-Padahasthasana /Padangusthanasana b]-Trikonasana, c]-utkatasana
  - 2)- Padmasana /Siddhasana,/Sukhasana
  - 3)-Bhujangasana,
  - 4)-Ardha- Salabhasana ,
  - 5)-Paschimottanasana
  - B]- Savasana
  - C]- 1]-Dhanurasana,
  - 2]-Ardha Halasana,

- 3]-Yogamudrasana,
- 4]-Uttanasana
- 5]-Virasana,
- 6]-Vajrasana
- 7]-setu bandhasana,
- 8]-gomukhasana,
- 9]-Pavan-muktasana,
- 10]-Halasana,
- 11]-Sarvangasana,
- 12]- Naukasana,
- 12]-Basic principles of General fitness-warming up exercises, aerobics – cooling down exercises
- 13]-Hydrotherapy-physics-application-effects-merits /demerits

**Practical-**

Skills included in sr.no.2 to 13 above to be practiced on self & models

**Text Books-**

- 1]-Principles of Exercise Therapy–Dena Gardiner
- 2]-Massage, manipulation & traction---Sydney Litch
- 3]-Therapeutic Exercise-----do-----
- 4] Massage- Holley
- 5]-Suspension Therapy in Rehabilitation—Margaret Hollis
- 6]-Biomechanics--Cynthia Norkin
- 7]-Hydrotherapy - Duffield
- 8]-Measurement of physical function - Cynthia Norkins

**Reference Books-**

- 1] Therapeutic Exercise—Carolyn Kisner
- 2] Physiotherapy in Orthopaedic conditions-by Jayant Joshi [for the study of Basic Yogic postures]

## SCHEME OF EXAMINATION

**THEORY** - University Exam - 80 Marks + Int. Assessment - 20 Marks Total = 100 Marks

Section-A-MCQ-Q-1]-based on -Single best answer [20 x 1] ----- 20 marks (20 Min.)  
[to cover the MUST KNOW area of the subject ]

Section-B-SAQ- Q-2]-Answer any FIVE out of Six - [5 x 3] ----- 15 marks

Q-3]-Answer any THREE out of Four-[3 x 5] ----- 15 marks

Section-C-LAQ-Q-4]-[compulsory]—based on Biomechanics----- 15 marks

# Q-5]-based on any other topic----- 15 marks

**OR**

# Q-6]-based on any other topic----- 15 marks

# To avoid questions based on Psychomotor domain

**PRACTICAL** - University Exam - 80 Marks + Int. Assessment - 20 Marks Total = 100 Marks

1. Long Case:-Massage/Goniometry/Suspension therapy-----35 marks

2. a) Short Case:- any one of the following.-----20 marks

Short case Based on passive movts / Relaxation / Limb / Ength –girth / Sensation /  
Reflex testing / Yoga posture / Aerobics / group exercise / warm ups / BP & Pulse  
/ Chest Expansion / Respireate / Starting / Derived position etc.

b) Spots - Four spots based on therapeutics gymnasium etc.(4X5 = 20 marks)

5 minute per spots

3. Journal -----05 marks

---

# **FUNDAMENTALS OF ELECTRO THERAPY --- [150 hrs]**

[Theory-3 hrs + Practical-6 hrs= 9 hrs per week]

- 1]-MEDICAL ELECTRONICS-----didactic-80 hrs + Practical/laboratory - 40 hrs
- 2]-SUPERFICIAL THERMAL AGENTS-didactic-05 hrs + Practical/laboratory - 25 hrs

**Objectives-**At the end of the course the candidate will be able to-

- 1]-Recall the physics principles & Laws of Electricity, Electro-magnetic spectrum, & ultra sound
- 2]-Describe effects of environmental & man made electro- magnetic field at the cellular level & risk factors on prolonged exposure
- 3]-Describe the main electrical supply, Electric shock-precautions-;
- 4]-Enumerate types & production of various Therapeutic electrical currents Describe the panel diagrams of the machines
- 5]-Describe in brief, certain common electrical components such as transistors, valves, capacitors, transformers etc & the simple instruments used to test /calibrate these components [such as potentiometer, oscilloscope etc] of the circuitry, ;& will be able to identify such components.
- 6]-Describe & identify various types of electrodes used in therapeutics, describe electrical skin resistance & significance of various media used to reduce skin resistance
- 7]-Acquire knowledge of various superficial thermal agents such as Paraffin wax bath, Cryotherapy, home made remedies, etc; their physiological & therapeutic effects, Merits/ demerits; & also acquire the skill of application.

**Syllabus-**

- 1]-Fundamentals of Low frequency currents-
  - i]- production of electricity ,mains supply,
  - ii]-A.C.currents & Faradic type current
  - iii]-D.C. currents – Types-fundamentals of electrical charges,- static electricity- physics of direct currents - Ohm`s law - Conductors – Capacitors – Rheostats – Potentiometers –ammeters - oscilloscopes,
  - iv]-types of electrodes-galvanic skin resistance -electrode gels-types-significance-
- 2]-Fundamentals of High frequency currents—
  - i]-Magnetism, E.M.F.-Conduction- Lenz`s Law- transformers-types,
  - ii]-Thermonic valves,
  - iii]-Semi-conductors-types- Transistors-
  - v]-Electronic circuits-oscillators,-pulse generators
- 3]-E.M.spectrum-Laws of transmission-reflection-refraction-absorption-attenuation
- 4]-Cellular Bio-physics-reception & emission of E.M.F. signals
- 5]-Environmental currents & Fields-risk factors on prolonged exposure to E.M. field
- 6]-Production ,Physical principles ,Panel diagram ,Testing of apparatus – S.W.D.-Ultra sound, U.V.R., I.F.T./Beat frequency currents, I.R, LASER -( no panel diagram )
- 7] Therapeutic continuous/ interrupted Direct currents & their various wave forms, A.C. current
- 8]-Bio-physics of Superficial heat & cold-Physiological effects-Therapeutic effects-/uses- Merits/demerits, Indications/contra-indications-skills of application-
  - i]-Home remedies,
  - ii]-Paraffin wax bath,
  - iii]-whirl pool,
  - iv]-contrast bath,
  - v]-Hydro-collator hot packs/cold packs,
  - vi]-Cryotherapy

**Practical-**

- 1]-Panel diagrams-Identification of components -Testing the mains supply & Machines
- 2]-skills of application of thermal agents

**Text Books-**

- 1]-Clayton1s Electro therapy -3<sup>rd</sup> & 10<sup>th</sup> ed,

- 2]-Electro therapy explained – by Low & Read  
 3]-Electro Therapy – by Kahn

**Reference Books-**

Clinical Electro Therapy - by Nelson & Currier.

**SCHEME OF EXAMINATION**

THEORY- University Exam - 80 Marks + Int. Assessment - 20 Marks Total = 100 Marks

Section-A-MCQ-Q-1]- based on Single best answer - [20x 1]-----	20 marks
Section-B-SAQ -Q-2]- to answer any FIVE out of six - [5 x3]-----	15 marks
Q-3]- to answer any THREE out of Four - [3 x 5]-----	15 marks
Section-C-LAQ- Q-4]- based on superficial Thermal agents-----	15 marks
* Q-5]-----	15 marks

**OR**

- \* Q-6]----- 15 marks  
 \* To avoid any question based on Psychomotor area

PRACTICAL- University Exam - 80 Marks + Int. Assessment - 20 Marks Total = 100 Marks

1. Long Case:-Superficial thermal agents/IR, Hot pack, wax bath .----- 35 Marks
2. Short Case:-
  - a) Six Spots-----6 X 5= 30 Marks  
 (5 Minutes per Spot and five marks per spots)  
 UVR, spots based on Identification of electronic equipments & panel diagram of equipment etc.
  - b) Testing of Equipment ----- 10 Marks  
 (SWD, US, IFT, TEN, IFT & Electrical Stimulator etc.)
3. Journal -----05 Marks

**SCHEME OF EXAMINATION-OF B. P .Th - I**

<b>Subject</b>	<b>Theory</b>	<b>I.A.</b>	<b>Total</b>	<b>Practical</b>	<b>IA</b>	<b>Total</b>
ANATOMY-----	80-----		20-----	100----	80-----	20-----
100						
PHYSIOLOGY-----	80-----		20-----	100----	80-----	20-----
BIOCHEMISTRY-----	80-----		20-----	100----		
FUNDAMENTALS OF EXERCISE THERAPY-----	80-----		20-----	100----	80-----	20-----
FUNDAMENTALS OF ELECTRO THERAPY-----	80-----	20-----	100----	80-----	20-----	100

**MAHARASHTRA UNIVERSITY OF HEALTH SCIENCES  
FACULTY OF ALLIED HEALTH SCIENCES  
SYLLABUS OF  
II B.P.Th**

[This syllabus is applicable from 2002-2003 i.e.-from the batch who gets admitted to the I B.P.Th course in the year - 2001-2002]

Subjects—	Transcript Hours-1287
1]-Pathology-----	2 hrs/week-----050 hrs
2]-Microbiology -----	1 hr/week-----030 hrs
3]-Pharmacology-----	1 hr/week-----045 hrs
4]-Kinesio Therapeutics -----	9hrs/week----- 240 hrs
5]-Electrical agents-----	9 hrs/week-----200 hrs
6]-Psychology -----	030 hrs
#7]-Psychiatry -----	4hrs/day-5 days/week----- 060 hrs
# 8]-Dermatology -----	4hrs/day-5 days/week----- 040 hrs
# 9]-General Medicine[including Rheumatology & Gerontology]-----	-----
	4hrs/day-5 days/week----- 040 hrs
[continued for III B.P.Th]	
[# Includes Ward rounds, bed-side clinics/ O.P.D & observation of surgeries etc]	
10]-Seminars - alternate Saturday-----	034 hrs
11]-Supervised Clinical practice--	3 hrs/day -6 days/week----518 hrs
[To practice clinical skills under the supervision of Senior clinical staff at the O.P.D. set up & to maintain a Register/Log book in which the prescribed Case Histories, & written assignments are to be documented & to obtain the signature from the respective section In-charge at the end of the assignment.]	

**PATHOLOGY --- [Didactic - 50 hrs]**

**Objectives-**At the end of the course, the candidates will be able to-

- 1]-Acquire the knowledge of concepts of cell injury & changes produced thereby in different tissues & organs; capacity of the body in healing process
- 2]-Recall the Etio-pathogenesis, the pathological effects & the clinico-pathological correlation of common infections & non-infectious diseases
- 3]-Acquire the knowledge of concepts of neoplasia with reference to the Etiology, gross & microscopic features, diagnosis, & prognosis in different tissues, & organs of the body
- 4]-Correlate normal & altered morphology of different organ systems in different diseases needed for understanding disease process & their clinical significance [with special emphasis to neuro- musculo-skeletal & cardio-respiratory systems]
- 5]-Acquire knowledge of common immunological disorders & their resultant effects on the human body.
- 6]-Understand in brief, about the Haematological diseases & investigations necessary to diagnose them & determine their prognosis

**Syllabus-**

- 1]- a]-General Pathology-Cell injury-causes, mechanism & toxic injuries with special reference to Physical, Chemical, & ionizing radiation
- b]-Reversible injury [degeneration ]-types-morphology,- swelling, hyaline, fatty changes,
- c]-Intra- cellular accumulation-hyaline mucin,

- d]-Irreversible cell injury-types of necrosis- apoptosis –calcification -dystrophic & metastasis,
- e]-Extra-cellular accumulation- amyloidosis, calcification-Pathogenesis-morphology

2]-Inflammation & Repair:-

- a]-Acute inflammation-features, causes, vascular & cellular events,
- b]-Morphologic variations,
- c]-Inflammatory cells & mediators,
- d]-Chronic inflammation:-causes, types, non-specific & granulomatous - with examples
- e]-wound healing by primary & secondary union factors promoting & delaying healing process.
- f]-Healing at various sites-including-bones, nerve, & muscle
- g]-Regeneration & repair

3]-Immuno-pathology-[basic concepts]-

- a]-Immune system:- organisation-cells- antibodies- regulation of immune responses,
- b]-Hyper-sensitivity,
- c]-Secondary immuno-deficiency including HIV,
- d]-Organ transplantation

4]-Circulatory disturbances-

- a]-Edema-pathogenesis-types-translates/exudate,
- b]-Chronic venous congestion-lung, liver, spleen,
- c]-Thrombosis-formation-fate- effects,
- d]-Embolism-types-clinical effects,
- e]-Infarction-types-common sites
- f]-Gangrenes-types-actiopathogenesis
- g]-Shock-pathogenesis, types, morphologic changes

5]-Deficiency disorders-Vitamin A, B, C, D,

6]-Growth Disturbance-

- a]-Atrophy-malformation, agenesis, dysplasia,
- b]-Neoplasia calcification,histogenesis, biologic behaviour, difference between benign & malignant tumour
- c]-Malignant neoplasms -grades-stages-local & distal spread,
- d]-Carcinogenesis-environmental carcinogens
- e]Chemical, Occupational, heredity, vira ,
- f]-precancerous lesions & Ca in situ
- g]-Tumor & host interactions-systemic effects-metastatic or direct spread of tumors affecting bones, spinal cord,leading to paraplegia, etc.

7]-Medical Genetics-[In Brief]

8]-Specific Pathology:-

A]-CVS-

- a]-Atherosclerosis- Ischismic heart diseases-myocardial infarction-Pathogenesis /Pathology
- b]-Hypertension
- c]-C.C.F.
- d]-Rh H.D.
- e]-Peripheralvascular diseases

B]-Respiratory-

- a]-COPD,
- b]-Pneumonia[lobar, broncho ,viral],
- c]-T.B.-primary, secondary-morphologic types,
- d]- pleuritis, complications,
- e]-Lung collapse- atelectasis

C]-Neuropathology

- a]-Reaction of nervous tissue to injury-infection & ischaemia
- b]-Pyogenic meningitis, TBM, Viral,
- c]-Cerebro-vascular diseases-atherosclerosis-Thrombosis, embolism, aneurysm, hypoxia, infarction & hemorrhage

- d]-effects of Hypotension on CNS.
- e]-Coma
- f]-Polio myelitis- Leprosy-Demyelinating diseases -Parkinsonism-Cerebral palsy-  
metachromatic eucodystrophy-Dementia-Hemiplegia /paraplegia-Pathogenesis &  
pathology of Wilson's disease
- g]-SOL-[in brief]
- h]-peripheral nerve injury
- 9]-Muscle diseases-Muscular dystrophy-hypertrophy-Psuedo-hypertrophy-atrophy-Polio-  
myelitis Myositis ossificance, necrosis, regeneration-Myotonia
- 10]-Neuro –muscular junction-Myasthenia gravis-Myasthenic syndrome
- 11]-Bone & Joints-
  - a]-fracture healing –Osteomyelitis -rickets-Osteomalacia-Bone tumors-Osteoporosis
  - b]-Spondylosis, P.I.D.-Scoliosis –Haemarthrosis -Gout-T.B.
  - c]-Arthritis- degenerative-inflammatory-RA-Ankylosing spondylitis-Tenosynovitis
- 12]-Urinary –commonly encountered in paralytic bladder, Common urinary tract infections  
[brief]-urinary calculi
- 13]-G.I. system-[1hr]-Gastric/duodenal ulcer, enteric fever, TB, enteritis, Gastritis [related to  
consumption of NSAID
- 14]-Endocrine-Hyperthyroidism-Diabetes
- 15]-Hepatic diseases[1 hr]-Cirrhosis-emphasis to systemic effects of portal hypertension
- 16]-Skin-Melanin pigment disorders- Vitiligo- Tenia versicolor-Psoriasis-Bacterial/fungal  
infections- cutaneous TB,-Scleroderma, SLE, Leprosy Alopecia
- 17]-Clinical pathology-[including Demonstrations]
  - a]-Anaemia-[deficiency]-T.C./D.C. / Eosinophilia, E.S.R., C.P.K,
  - b]-Muscle/skin/nerve biopsy
  - c]-Microscopic appearance of muscle necrosis-fatty infiltration
  - d]-Lab investigation in liver & renal failure

### **Text Books**

- 1]-Text book of Pathology-by Harsh Mohan
- 2]-Pathologic basis of disease by Cotran, Kumar,Robbins
- 3]-General Pathology –by Bhende

## **MICROBIOLOGY --- [Didactic - 30 hrs]**

**Objectives-**At the end of the course, the candidates will have sound knowledge of the agents responsible for causing human infections, pertaining to C.N.S., C.V.S., musculo-skeletal, & Respiratory system

### **Syllabus-**

1]-General Microbiology-I]-Introduction & scope -----	1 hrs
2]-Classification of Micro-organisms & morphology of Bacteria -----	1 hrs
3]-Sterilization \& disinfection – [basic concepts] -----	2 hrs
- hospital acquired infection, universal safety precautions, waste disposal -----	2 hrs
4]-Immunology -----	5 hrs
i]-Antigen-antibody—reaction-& application for diagnosis;	
ii]-Immune response- normal/abnormal;	
iii]-Innate immunity, & acquired immunity [vaccination]	
iv]-Hyper-sensitivity & auto-immunity	
5]-Laboratory Diagnosis of Infection-----	3 hrs
6]-Bacteriology-----	7 hrs
i]-Infection caused by gram +ve cocci; Gas gangrene-clostridium-Diphtheria	
ii]-Infection caused by gram –ve cocci- Septicemia- cholera-Shock-Typhoid-diarrhoea;	
iii]-Mycobacterial infection- tuberculosis-Leprosy-Atypical Micobacterium;	
iv]-syphillis-morphology & pathogenesis[VDRL]	
7]-Viruses-----	3 hrs
i]-Introduction & general properties,	
ii]-HIV,	
iii]-Hepatitis,	
iv]-Polio, measles, congenital viral infections, Rubella, CMV, Herpes	
8]-Mycology-----	1 hrs
Mycetoma- Aspergilosis- candidiasis-	
9]-Parasites affecting C.N.S.-----	2 hrs
Malaria- Filaria- Toxoplasma -Cystisarcosis & echinococcus	
10]-Applied Microbiology-----	3 hrs
as relevant to diseases involving Bones,	
Joints-Nerves-Muscles-skin-brain-cardiopulmonary system, & burns	

### **Text Books-**

Text book of Microbiology-by R. Ananthnarayan & C.K.Jayram Panikar.

### **SCHEME OF EXAMINATION-[THEORY ONLY]**

# Pathology - 50 marks + Microbiology - 30 marks = 80 marks + IA.-20 marks =Total - 100 marks

There shall be NO L. A. Qs in this paper

# Emphasis to be given to topics related to Muskulo skeletal / Neurological / Cardio-vascular/ Respiratory conditions & Wound / Ulcers

Section-A-M.C.Q.-based on Single best answer in MUST KNOW area [time 30 minutes]

    Q-1-based on Pathology - [1 X 20] ----- 20 marks

    Q-2-Based on Microbiology - [1 X 10] ----- 10 marks

Section-B-S.A.Q.-based on Pathology

    Q-3- To answer Any FIVE out of Six [5 X 3] -----15 marks

    Q-4-To answer Any THREE out of Four [3 X 5] ----- 15 marks

Section-C-S.A.Q.-based on Microbiology

    Q-5-To answer Any FOUR out of Five [4 X 5] ----- 20 marks

**Internal Assessment** - Two papers in Pathology having 25 marks each &

    One paper in Microbiology having 50 marks; Total - 100 marks

    [20 % of the average of total marks obtained to be considered for IA]

## **PHARMACOLOGY --- [Didactic - 45 hrs]**

**Objectives** -At the end of the course the candidates will be able to –

- 1]-Describe Pharmacological effects of commonly used drugs by patients referred for Physio Therapy; list their adverse reactions, precautions to be taken & contra-indications, formulation & route of administration
- 2]-Identify whether the pharmacological effect of the drug interferes with the Therapeutic response of Physio therapy & vis-a-versa
- 3]-Indicate the use of analgesics & anti-inflammatory agents with movement disorders with consideration of cost, efficiency, & safety for individual needs.
- 4]-get the awareness of other essential & commonly used drugs by patients-The bases for their use, & common as well as serious adverse reactions.

### **Syllabus-**

#### **A]-MUST KNOW**

- i]-Drugs described in topics 2 to 9;
- ii]-Pharmacological effects & mechanism, Formulation, Route of administration, salient Pharmacokinetic feature,
- iii]-adverse Reactions;
- iv]- Precautions & contra-indications

#### **B]-DESIRABLE**

- i]-Major group of drugs described in topics 10, 11, & 12
- ii]-bases of use in indicated conditions;
- iii]-Common & serious Adverse Reactions

### **TOPICS-**

- |   |       |
|---|-------|
| 1]-General pharmacology -----   | 5 hrs |
| -Drug Pharmaco-kinetics-Pharmacology-adverse reaction-factors modifying drug effects  |       |
| 2]-Drug activity of CNS -----   | 9     |
| hrs   |       |
| i] Introduction - [1 hr], ii] Alcohols + Sedatives & hypnotics - [2 hrs], iii] Anti-convulsions -[1 hr], iv] Analgesics & antipyretics-specially Gout & R.A.- [3 hrs], v] Psycho Therapeutics -[1 hr], vi] General anaesthetic + local anaesthetic - [1 hr] |       |
| 3]-Drugs acting on peripheral nervous system -----  | 2 hrs |
| i] Adrenergic - [1 hr], ii] Cholinergic - [1 hr]  |       |
| 4]-Drug therapy in Parkinsonism-----  | 1 hr  |
| 5]-Skeletal muscle relaxants-----   | 1 hr  |
| 6]-Drugs acting on CVS-----   | 6 hrs |
| i] Hyper tension-B-blockers, Ca channel ACEI, blockers [prazosin] - [1 hr], ii] Diuretics ----[1 hr], iii] CCF - [1 hr], iv] Angina - [1 hr], v] Antiarrhythmia + shock - [1 hr], vi] Drug satisfying Homeostasis - [1 hr]                                  |       |
| 7]-Drugs acting on Respiratory system-----  | 4 hrs |
| i] for upper respiratory tract infections-sinusitis-cough, laryngitis, pharyngitis - [2 hrs], ii] For Bronchial asthma - [1 hr], iii] for COPD- effects of prolonged drug administration - [1 hr]   |       |
| 8]-Insulin [1hr] & oral anti-diabetic drugs [1hr] -----   | 2 hrs |
| 9]-Chemo-therapy -----  | 3 hrs |
| i]-general principles - [1 hr], ii]-anti Tuberculosis - [1 hr], iii]-anti-leprosy - [1 hr]  |       |
| 10]-Other Chemo Therapeutic drugs -----   | 2 hrs |
| i]-Sulfa drugs in urinary tract infection, ii]-tetra/chloro, iii] penicillin, iv] cephalosporin, v]- aminoglycides, vi]-Microlytic  |       |
| 11]-Endocrine: -----  | 4 hrs |
| i]-introduction, Thyroid & Antithyroid [1 hr]; ii]-Estrogen + Progesterone - [1 hr], iii]-steroids + anabolic steroids - [2 hrs]  |       |
| 12]-Drugs in G.I.tract -----  | 4 hrs |
| i]-Peptic ulcer +antiemetic [3hrs], ii]-Diarrhoea & constipation [1 hr]   |       |

13]-Haematinics, Vitamin B; Iron; -----	1hr
14]-Dermatological -- -Scabies-Psoriasis-Local antifungal-----	1 hr
15]-Vaccines & Sera -----	1 hr
16]-Vitamin –D, Calcium ;Phosphorus, Magnesium -----	1 hr

**Text Books-**

- 1]-Pharmacology-by Gaddum
- 2]-Medical Pharmacology by Drill
- 3]-Pharmacology principle of Medical practice-by Krantx, & Carr
- 4]-Pharmacological basis of Therapeutics-by Goodman, L. S. Gilman A

**SCHEME OF EXAMINATION**

[THEORY-University Exam 40 marks + Internal Assessment 10 marks, Total = 50 marks]

[There shall be NO L. A. Qs in this paper]

Section-A-Q-1-M.C.Q. - based on single best answer in MUST KNOW area ----- 10 marks

\*Section-B-Q-2-S.A.Q. - To answer Any FIVE out of Six - [5 X 3] ----- 15 marks

\*Section-C-Q-3-S.A.Q.—To answer Any THREE out of Four [3 X 5] ----- 15marks

\*Emphasis should be given to the drugs related to Musculo-skeletal/Psycho-Neurological/  
Cardio-vascular/Respiratory conditions/analgesics & anti-inflammatory conditions

INTERNAL ASSESSMENT - Two papers of 50 marks each ----- TOTAL – 100 marks

10% of the average of total marks obtained to be considered for IA

---

## **KINESIO-THERAPEUTICS --- [240 hrs]**

KINESIOLOGY – Didactic - 40 hrs, OTHER – Didactic - 40 hrs + Practical/laboratory - 160 hrs

**Objectives-** At the end of the course, the candidates will be able to -

- 1]-analyze Normal human posture [static & dynamic], & various Normal musculo skeletal movements during Gait, activities of daily living, & also the normal describe the movement of the Thorax during breathing ; in terms of Biomechanical & Physiological Principles
- 2]-Apply the biomechanical principles for the efficacy in the assessment methods for mobility, muscle strength
- 3]-Describe the Biophysical properties of connective tissue, & effect of mechanical loading, & factors which influence the Muscle strength, & mobility of articular & periarticular soft tissues
- 4]-Describe the physiological effects,-Therapeutic uses, merits/demerits of various exercise modes.
- 5]-Demonstrate various therapeutic exercises on self ,& also acquire the skill of application on Models
- 6]-Acquire the skill of assessment of isolated & group muscle strength, & Range of motion of the joints subjectively & objectively

### **Syllabus-**

- 1]-Biomechanics of joints of the skeletal system [spine, extremities, T. M. joint & Thoracic cage
- 2]-Kinetics & Kinematics of various activities of daily living-e.g.-supine to sitting, sitting to standing, squatting, climbing up & down, lifting, pulling, pushing, overhead activities, walking running, jogging
- 3]- a)-Assessment of muscle strength, [group/individual]-subjective & objective methods- 1/10 RM dynamometry  
b)-Factors that influence the strength of the normal muscle/ hypertrophy, recruitment of motor units, change after training/type of contraction Isometric /Isotonic/Isokinetic Eccentric  
c)-General principles of strength training:  
overload/intensity/Motivation/learning/duration/ frequency/reversibility/specificity
- 4]- a)-Bio-physical properties of connective tissue, [contractile & non-contractile] elasticity / Plasticity-response to sudden/slow/sustained loading-strain curve-Creep-Hysteresis  
b)-Mobilisation-Methods-stretching /traction[cervical & lumbar] /Hold –Relax method-rhythmic movements/oscillations  
c)-mobilisation of muscles & Fasciae-around the shoulder/elbow/wrist /Hip/knee/ankle/Spine [dorso-lumber fascia]
- 5]-Methods of Assessment of the Posture-Sitting /standing/ Lying/Physiological deviations of the posture
- 6]- Methods of assessment of Gait- measurements for walking aids-axillary /elbow crutches, walking sticks –Pre-crutch training, crutch gaits
- 7]-Co-ordination & Balance-neural control-Methods of co-ordination exercises -Frankel`s exercises
- 8]-Principles of P.N.F.[no practical]
- 9]-Breathing exercises-Goals-Inspiratory-Expiratory/Segmental-Forced expiratory -coughing-huffing/ Modified Inspiratory / Active cycle of breathing
- 10]-Bronchial Hygiene-postural drainage positions/humidification
- 11]-Principles of Home programme & Ergonomic advise
- 12]-Functional Re-education-  
a)-Functional motor skills, e-Motor skills to function independently in ADL  
b)-Mobility, Bed /Wheel chair mobility, ambulation,
- 13] Application of mat exercises [to practice on self & on models]
- 14] 6 Minute walk test - on models [only technique]

### **Text Books -**

- 1]-Progressive resisted exercises-by Margaret Hollis,
- 2]-Therapeutic Exercise by Carolyn Kisner
- 3]-Kinesiology by Cynthia Norkins
- 4] PNF - Knott and Voss

### **Reference Books -**

- 1]-Therapeutic exercise by Basmijjan & Wolf
- 2]-Muscle testing by Daniel Kendall
- 3] Clinical evaluation - Lacote [for Isolated assessment of abdominal muscles]
- 4] Muscle Stretching & Auto-stretching- Olaf Evjenth
- 5] Orthopaedic Evaluation – Magee [only for assessment of posture]

### **SCHEME OF EXMINATION**

[THEORY – University Exam 80 marks + Internal Assessment - 20 marks, Total = 100 marks]

[Practical/laboratory- University Exam 80 marks + IA -20 marks, ----- Total = 100 marks]

THEORY - Model question paper

Section-A-M.C.Q.-Q.1]-based on Single best answer - MUST KNOW area ----- 20 marks

Section-B-S.A.Q. -Q.2]-Answer any FIVE out of Six [5 X 3] ----- 15 marks

Q.3]-Answer ant THREE out of Four [3 X 5] ----- 15 marks

\*Section-C-L.A.Q.-Q.4]-[Compulsory]-Based on Kinesiology ----- 15 marks

Q.5]-Therapeutic application for Muscle training /Posture/Gait-15 marks

**OR**

Q-6]-Therapeutic application for Mobility/Pulmonary function-15 marks

\*[LAQ should give Break up of 15 marks - e.g. 3 + 5 + 7]

PRACTICAL

1. Long case - Muscle training/Mobility/Pulmonary Function training. - 35 marks
2. Two Short Case ----- 20 X 2 = 40 marks  
[Based on M.M.T/Coordination /Posture/Gait/Funct-reed etc.]
3. Journal -----05 marks

INTERNAL ASSESSMENT [for Practical]

Ward exam at the end of each clinical assignment having 20 marks each & 20% of the average of all Ward exams to be considered for IA.

---

## **ELECTRICAL AGENTS --- [200 hrs]**

[Didactic - 70 hrs + Practical/Laboratory - 130 hrs]

**Objectives** - At the end of the course, the candidates will be able to -

- 1]-Describe the Production & Physiological effects, Therapeutic uses, merits/demerits indications & contraindications of various low/medium & high frequency modes
- 2]-describe the Physiological effects & therapeutic uses of various therapeutic ions & topical pharmaco-therapeutic agents to be used for the application of iontophoresis & sono /phono phoresis
- 3]-Acquire the skill of Application of the Electro therapy modes on models, for the purpose of Assessment & Treatment
- 4]-acquire an ability to select the appropriate mode as per the tissue specific & area specific application

**Syllabus-**

- 1]-Low frequency currents - a]-Cathodal /Anodal Galvanism, Iontophoresis - with various ions & pharmaco - therapeutic drugs - b]-Electrical stimulation for re-education-short /long pulse-motor points, - c]-strong surged faradic current under pressure /elevation - c]-T.N.S.-types - d]-High voltage currents - e]-Micro-currents, - f]-Didynamic currents - g]-assessment of sensory & pain Threshold ,& pain tolerance
- 2]-Medium frequency currents-Beat frequency-types-Endovac attachment - advantage of I.F.T. over low frequency currents
- 3]-Bio-Feedback-methods-
- 4]-High frequency Thermal agents - S.W.D.- types-continuous /Pulsed –types of electrodes
- 5]-Therapeutic Ultra sound-pulsed/continuous
- 6]-Actino Therapy - a]-Radiant heat [I.R.] - b]-U.V.R.-a/b/c types-Test dose, local & general application - c]-Laser-He/Ne, & I.R.- combination
- 7]-Care of wound- application of Therapeutic currents, Ultrasound, U.V.R. & LASER

**PRACTICAL** - skills of application to be practiced on models in No - 1 to 7 above

**Text Books-**

- 1]-Claton`s Electro Therapy
- 2]-Electro therapy Explained- by Low & Read
- 3] Electro Therapy –by Kahn,
- 4]-Therapeutic Electricity-by Sydney Litch

**Reference Books –**

Clinical Electro Therapy - by Nelson & Currier

## **SCHEME OF EXAMINATION**

[THEORY-University Exam 80 marks + Internal Assessment 20 marks, Total = 100 marks]

[Practical/laboratory- University Exam 80 marks + IA -20 marks, ----- Total = 100 marks]

THEORY - Model question paper

Section-A-M.C.Q-Q-1]-based on Single best answer - [20 X 1] ----- 20 marks

[To include all MUST KNOW areas]

Section-B-S.A.Q- Q-2]-To answer Any FIVE out of Six - [5 X 3] ----- 15 marks

[Must Know Area]

Q-3]-To answer Any THREE out of Four - [3 X 5] ----- 15 marks

[based on Actino Therapy]

\*Section-C-LAQ- Q-4]-Should be based on High frequency modes ----- 15 marks

Q-5]-Should be based on Low /Medium frequency currents ---- 15 marks

**OR**

Q-6]-Should be based on Low /Medium frequency currents-----15 marks

\*[LAQ should give break up of 15 marks - e.g. 3 + 5 + 7]

### PRACTICAL/LABORATORY

1. Long Case ----- 35 marks

[On model Motor points/U.V.R Test Dose/Faradism under pressures]

2. Two Short Case -----20 X 2 = 40 marks

[One based on low or medium Freq current

Second based on high Freq. current/Actino therapeutict]

3. Journal ----- 05 marks

### INTERNAL ASSESSMENT – [for practical]

20 marks examination to be conducted at the end of each ward/OPD assignment, & average of Total marks to be considered

---

## **MEDICINE --- [40 hrs]**

GENERAL MEDICINE ----- Didactic - 5 hrs

RHEUMATOLOGY----- Didactic - 5 hrs

GERONTOLOGY----- Didactic – 5hrs & Clinical - 25 hrs

**Objectives** - At the end of the course, the candidates shall-

- 1]-Acquire the knowledge of etiology, patho physiology & signs & symptoms & management in brief, about the General Infectious conditions, diseases of metabolism, diseases of blood deficiency, diseases of the G.I.& urinary Tract, drug abuse/ intoxication
- 2]-describe the importance of balanced food, effect of Malnutrition & its related disorders;& the effect of Overeating –obesity, its other related etiological factors-& obesity related medical conditions, with special emphasis to diabetes.
- 3]-acquire the knowledge of Auto-immune conditions with special emphasis to those involving musculo skeletal system & skin; Etiology, Pathophysiology, signs & symptoms ,deferential diagnosis, & medical management

### **Syllabus-**

- 1]-Normal Human development –Growth & maturity –Aging process----- 10 hrs
- 2]-Common infectious diseases----- 02 hrs
- 3]-Diseases of the Metabolism & endocrine system[emphasis to be given to Diabetes, & Calcium metabolism ]& Problems related to Obesity, & Hyper Lipidimia----- 03 hrs
- 4]-Nutrition-Deficiency diseases ----- 01 hrs
- 5]-Common conditions of the G.I. Tract----- 02 hrs
- 6]-Drug abuse /intoxication /Rebis----- 01 hr
- 7]-Diseases of the urinary tract----- 01 hr
- 8]- Rheumatological conditions of the musculoskeletal system-classification & management  
R.A. S.L.E. ankylosing spondylitis, Dermatomyositis----- 20 hrs

### **CLINICAL -**

Introduction of clinical examination –Breath sounds / X ray chest / Blood gas analysis /P.F.T.

### **Text Books –**

- 1]-API-Text book of Medicine-5th edn
- 2]-Golwalla-Medicine for students
- 3]-Principles & practice of Medicine-16th edn-by Devidson

**INTERNAL ASSESSMENT** - One test in Gen. Medicine + Rheumatology

Theory 25 marks + Clinical 25 marks [Only Reumatology] = 50 marks

\*This subject is to be continued for the Next year

---

## **DERMATOLOGY --- [40 hrs]**

**Objectives-** At the end of the course, the candidates will-

- 1]-be able to describe the Pathophysiology, signs & symptoms, clinical features, examination, & management of common skin conditions with special emphasis to Leprosy, Psoriasis, Vitiligo, acne, Bacterial , Fungal, infections of the skin, Auto-immune disorders, H.I.V. & sexually transmitted diseases,
- 2]-Acquire the skill of clinical examination with reference to conditions mentioned at no1

**Syllabus-**

- 1]-Types of skin irruption- classification-weeping & Dry skin lesions
- 2]-Leprosy-Types- Identification-management of neuropathic Hand & foot
- 3]-Disorders of skin pigmentation-causes-Types [special emphasis to vitiligo]-management
- 4]-skin ulcers of Vaso-motor origin-management
- 5]-Skin lesions related to Allergies & Psychosomatic reaction
- 6]-Cutaneous Tuberculosis
- 7]-Viral, bacterial, Fungal, tropical, & Parasitic skin lesions [in brief]
- 8]-H.I.V. & Sexually transmitted skin lesions
- 9]-Auto-immune disorders-Psoriasis, Dermatitis, Dermatomyositis, S.L.E.
- 10]-Diseases of the scalp-Dandruff, Hair loss, Alopecia, -management
- 11]-Acne-types-management

### **INTERNAL ASSESSMENT**

One Theory examination of 25 marks to be conducted at the end of the term.  
Passing in the I.A. is mandatory.

---

## **PSYCHOLOGY --- [Didactic - 30 hrs]**

**Objectives** - At the end of the course, the candidates will:-

- 1]-be able to define the term Psychology, & its importance in the Health delivery system & will gain knowledge of Psychological maturation during human development & growth & alterations during aging process
- 2]-be able to understand the importance of psychological status of the person in health & disease; environmental & emotional influence on the mind & personality
- 3]-acquire the knowledge as to how to deal with the patient,

**Syllabus-**

- 1]-Developmental Psychology & its Theories [in brief] Physio-psychological changes during Infancy, early & middle childhood, adolescent stage, Puberty, adulthood, & old age
- 2]-definition of Psychology-its nature-Fields & Sub-fields of psychology
- 3]-Schools of thought –Psycho-analytical theory, Behaviourism, Gestalt, Structuralism, Functionalism [In Brief]
- 4]-Learning-Role of learning in human life-Conditioning
- 5]-Emotions-nature & relationship with autonomic nervous system-Theories of emotions-  
a]-James Lange theory, b]-Schachter Singer theory, c]-Cannon Bard theory
- 6]-Memory-types-Forgetting-causes
- 7]-Attention & perception-Nature of attention [in brief] -Nature of perception- Principles of grouping
- 8]-Conflict & Frustration-Types-Common Defense mechanism-stress-common reactions to frustrations
- 9]-Abnormal Psychology [in brief] - a]-Introduction, b]-difference between normal & abnormal psychology, c]-Causes, d]-Anxiety disorders - Phobias, Obsessive - compulsive, Hysterical convulsion disorder, e]-Affective disorders-Depression, mania, Bipolar disorders, f]-Psychotic disorders-Types of Schizophrenia

**Text Books-**

- 1]-Morgan C.T. & King R.A.-Introduction to Psychology-7th edn [Tata McGraw-Hill publication
- 2]-Munn N.L.-Introduction to Psychology[Premium Oxford, I.B.P. publishing co.]

### **SCHEME OF EXAMINATION**

[THEORY – University Exam 40 marks + Internal Assessment - 10 marks, Total = 50 marks]

[There shall be no LAQ in this paper]

Section-A-MCQ-Q.1-based on MUST KNOW area ----- 10 marks

Section-B-SAQ –Q.2-To answer Any FIVE out of Six --- [5 X 3] -----15 marks

Section-C-SAQ -Q.3-To answer Any THREE out of Four -- [5 X 3] -----15 marks

### **INTERNAL ASSESSMENT**

Two Theory examinations of 50 marks each to be conducted, Total = 100 marks  
10% of the total to be considered as I.A.

---

## **PSYCHIATRY --- [60 hrs]**

[Didactic - 25 hrs + Clinical - 35 hrs]

**Objective** - At the end of the course, the candidates will be able to-

- 1]-Enumerate various Psychiatric disorders with special emphasis to movement /Pain & ADL- describe the various causative factors & methods of assessment & management
- 2]-Acquire the knowledge in brief, about the pathological & etiological factors, signs /symptoms & management of various Psychiatric conditions
- 3]-Describe in brief the various treatment modalities commonly used

**Syllabus-**

- 1]-Psychiatric History, & examination of mental status
- 2]-Classification of Mental disorders
- 3]-Scizophrenia & its types-brief Psychotic disorder, delusional disorder, schizo-affective disorders, post-partum psychosis, mood disorders, organic mental disorders, Anxiety disorder, phobia, obsessive compulsive, dissociative conversion disorder, hypochondriasis, post-traumatic disorder, personality disorder, substance related disorders-adjustment & impulse control disorder, psycho-sexual disorders, psycho-somatic disorder, psychiatric emergencies-suicide-stress management-disorders of infancy-childhood & adolescence-disruptive behavior, conduct disorder, attention deficit, & hyper-reactivity-eating disorder, tic disorder, elimination disorder, child abuse, enuresis
- 4]-Management-ECT, Chemotherapy, group therapy,, psycho therapy, cognitive behavioral therapy behavioral therapy

**Text Books-**

- 1]-A short book of Psychiatry-3rd edn-by Ahuja- Jaypee bros-medical publishers
- 2]-Shah L.P.-Handbook of Psychiatry

### **SCHEME OF EXAMINATION - [Theory Only]**

[THEORY – University Exam 40 marks + Internal Assessment - 10 marks, Total = 50 marks]

[There shall be NO LAQ in this paper]

Section-A-M.C.Q-Q-1]-based on single best answer ----- 10 marks  
[to include all MUST KNOW areas]

Section-B-S.A.Q.-Q-2]-To answer Any FIVE out of Six [5 X 3 ] ----- 15 marks

Section-C-S.A.Q- Q-3]-To answer Any THREE out of Four [3 X 5] ----- 15 marks

**INTERNAL ASSESSMENT**

One test in Theory - 50 marks + Clinical - 50 marks ---- Total - 100 marks  
10 % of the Average of total 100 marks to be considered for IA.

### **SCHEME OF EXAMINATION OF B.P.Th – II**

Name	Theory	I.A.	Total	Practical	IA	Total
1] PATHOLOGY & ----- MICROBIOLOGY -----	50 30	-----	80	-----	20	100
2] PHARMACOLOGY -----	40	-----	10	-----	50	-----
3] KINESIO THERAPEUTICS-80----- 100--	80	-----	20	-----	100	80
4] ELECTRICAL AGENTS—80----- 100--	80	-----	20	-----	100	80
5] PSYCHOLOGY & -----	40	-----	10	-----	50	-----
6] PSYCHIATRY -----	40	-----	10	-----	50	-----

**MAHARASHTRA UNIVERSITY OF HEALTH SCIENCES**  
**FACULTY OF ALLIED HEALTH SCIENCES**  
**SYLLABUS OF**  
**III B.P.Th**

[This syllabus is applicable from 2003-2004, i.e.-from the batch who gets admitted to the I  
 B.P.Th course in the year - 2001-2002]

---

Subjects-	Transcript Hours-
# 1]-Surgery-	1287 hrs
Section-I-General Surgery -----	100 hrs
Section-II-Truamatology & Orthopaedics -----	120 hrs
# 2]-Medicine-	
Section-I- Cardio-vascular & pulmonary Medicine -----	060 hrs
Section-II- Neurology] -----	060 hrs
# 3]-Obstetrics and Gynaecology -----	060 hrs
# 4]-Paediatrics - [Examination MUST be completed in the FIRST TERM] ---	060 hrs
5]-Community Health/Sociology & Biostatistics [-----do-----] ---	070 hrs
# Section-I - Community health -----	20 hrs
Section-II-Biostatistics -----	30 hrs
Section-III-Sociology -----	20 hrs
[#-Term includes 4 hrs/day X 5 days [Mon-Fri] /week = 20 hrs/week --	
Didactic: Clinical = 1 : 2 -Includes Ward rounds, bed-side clinics,	
observation in the Out patient Dept., & observation of Surgeries if	
any & maintenance of Journal / a Register for clinical recording	
which should be duly signed by the H.O.D. of the concerned	
discipline at the end of the respective assignment]	
6]- Physical Diagnosis & manipulative skills-[D-3 : C1-6 =9 hrs/wk] --	200 hrs
7]-Seminar ----- 2 hrs alternate weeks -----	034 hrs
[including-1]-Case presentation-15 hrs, 2]-Literature review-15 hrs]	
8]-Supervised PhysioTherapy Practice -- 3 hrs/day, 5 days/week -----	523 hrs
[To evaluate/assess & to practice Physio Therapy skills at the Acute	
care/Indoor as well as O.P.D set ups ,under the supervision of	
Senior Physio therapist. A register/ Log book to be maintained & to	
document the Evaluation/Functional analysis & Functional diagnosis	
reports of minimum 5 cases per assignments & signature to be	
obtained from respective section In-charge at the end of each	
assignment]	

---

## **SURGERY --- [220 hrs]**

**GENERAL SURGERY** ----- [100 hrs ] ---- Didactic-35 hrs + \* Clinical-65 hrs

**Objective-** At the end of the course, the candidate will be able to-

- 1]-describe the effects of surgical trauma & Anaesthesia in general
- 2]-classify, clinically evaluate & describe the surgical management in brief in
  - a]-wounds-ulcers b]- Burns- c]- Head injuries
- 3]-Describe pre-operative evaluation ,surgical indications & various surgical approaches in various abdominal/ thoracic/peripheral vascular conditions
- 4]-recall the surgical approaches in the form of line diagram & will be able to describe the components of soft tissues cut to reach the target tissue, & the possible Post operative complication in movement
- 5]-clinically evaluate post-operative abdominal, thoracic & peripheral vascular conditions; with special reference to the cardio-vascular & pulmonary function, & scar/wound management describe post operative management in brief
- 6]-be able to read & interpret findings of the X ray-chest

**Syllabus-**

- 1]-Effect of Anesthesia & surgical trauma-Hemorrhage-shock Water & electrolyte imbalance
- 2]-Infection-acute / chronic-signs ,symptoms-complications-management
- 3]-wounds/ ulcers-classification/healing process /management
- 4]-Common abdominal surgeries-for G.I. tract/genito-urinary system-scar during surgical approach through abdominal wall-management in brief
- 5]-Head injury-management-surgery of head & neck in neurosurgical conditions
- 6]-Radical mastectomy-complications-management
- 7]-Amputation-sites-complication & management
- 8]-Burns-causes –complication-classification-management
- 9]-Cardio-thoracic surgery-
  - a] Surgeries of the Thorax b]-surgeries in the peripheral vascular diseases
- 10]-Common E.N.T. problems ----- [Didactic + clinical = 10 hrs]
  - a]-upper respiratory tract surgeries-
  - b]-Tracheostomy-indications-surgical approach
  - c]-Surgical procedures in VII & VIII nerve palsy
- 11]-Ophthalmology-[5 hrs] Surgeries for squint/III,IV & VI th cranial nerve palsy-diseases of conjunctiva-surgery of cataract/I.O.L. fixation-[brief]
- 12]-Plastic Surgery ----- [One week term-Didactic + Clinical=20 hrs]
  - a]-Skin grafts/flaps-Types-indications –with special emphasis to burns/ wounds, ulcers
  - b]-tendon transfers-with special emphasis to hand, foot & facial paralysis,
  - c]-Keloids-management
- 13]-Clinical Radiology-Xray-chest-normal/abnormal ----- [Didactic only-5 hrs]

**CLINICAL-**

- A]-Evaluation /presentation & recording of one case each in –1]-burns, 2]-wound & ulcer, 3]- Head Injury case, 4]-peripheral vascular condition, 5]-post Radical mastectomy, 6] post thoracic surgery, 7]-post abdominal surgery
- B]-Auscultation & its interpretation, with special emphasis to Pulmonary Function, Reading & interpretation of the X-ray chest, P.F.T., Blood-Gas analysis-

**OBSERVATION-** one abdominal & one thoracic surgery, one surgery of skin graft/flap

**Text Books-**

- 1]-Under-graduate Surgery by Nan
- 2]-Bailey & Love`s short practice of Surgery-21st edn.

## **ORTHOPAEDICS --- [120 hrs]**

Didactic –40 hrs + \* Clinical-60 hrs

**Objectives-** At the end of the course, the candidate will –

- 1]-be able to discuss the patho-physiology, clinical manifestations & conservative/Surgical management of various traumatic & cold cases of the musculo-skeletal conditions
- 2]-Gain the skill of clinical examination & interpretation of the preoperative cold cases & all the post- operative cases
- 3]-will be able to read & interpret a]- salient features of the X-ray of the spine & extremities  
b]- pathological/ biochemical studies pertaining to Orthopaedic conditions
- 4]-will be able to correlate the radiological findings with the clinical findings

### **Syllabus-**

- 1]-Pathology, clinical manifestations of trauma & diseases of the bones & soft tissues of the musculo skeletal tissue.
- 2]-Fractures of the spine & extremities-classification/management & complications
- 3]-Metabolic & hormonal disorders of the bone tissue-Osteoporosis
- 4]-peripheral nerve injuries.-management / complications—V.I.C.
- 5]-Deformities of the spine, extremities –congenital malformation-Spina Bifida, meningocele/ meningomyocele
- 6]- re-constructive surgeries in Polio & cerebral palsy.
- 7]-Inflammatory / Infectious diseases of the bone & joints T.B./ Osteomyelitis
- 8]-tumors of the bone.
- 9]-Degenerative /Rheumatoid arthritis-
- 10]- soft tissue injuries /common soft tissue injuries encountered during sports / Over-use
- 11]- Amputation-classification-prosthetic management
- 12]-hand injury- management
- 13]-clinical Radiology in Orthopaedics

### **CLINICAL-**

- 1]-Independent Clinical Orthopaedic evaluation , presentation & recording of
  - a]-one acute soft tissue lesion [including nerve injury],
  - b]-2 cases of degenerative arthritis of extremity joints,
  - c]-2 degenerative arthritis of spine
  - d]- one case of acute P.I.D.,
  - e]-2 chronic backaches,
  - f]-1 post operative cases of fractures of extremities g]-one traumatic paraplegia/quadriplegia

### **OBSERVATION-**

At least 2 surgeries of # internal fixation, one knee/hip replacement & Re-constructive surgery of the tendons

### **Text Books-**

- 1]-Adam`s outline of fractures-8th edn
- 2]-Adams outline of Orthopaedics-8th edn
- 3]-Apley`s textbook of Orthopaedics

**SCHEME OF EXAMINATION IN THE SUBJECT - "SURGERY"**

[THEORY-University Exam 80 marks + Internal Assessment 20 marks, Total = 100 marks]

# Section B shall be set & assessed by a General Surgeon only

\* Section C shall be assessed by an Orthopaedic surgeon only

Section-A-M.C.Q.- Q-1- [10 X 1] based on single best answer in Surgery ----- 10 marks

Q-2- [10 X 1] based on single best answer in Orthopaedics- 10 marks

# Section-B-S.A.Q.- Q-3-To attempt Any FIVE out of Six - [5 X 3] ----- 15 marks  
[based on any topic other than Thoracic surgery]

Q-4-To attend Any THREE out of Four - [5 X 3] -----15 Marks  
[based on Thoracic/Vascular surgery]

\* Section-C-S.A.Q- Q-5-To attempt any FIVE out of Six - [5 X 3 ] -----15 Marks  
[based on Traumatology aspect of Orthopaedics]

Q-6-To attempt any Three out of Four [3 X 5] -----15 Marks  
[based on Any Traumatic case OR Cold case]

INTERNAL ASSESSMENT-

-[One test to be conducted at the end of each clinical assignment

1]-Gen. Surgery- Thoery-50 marks +ward exam-25 marks----- 75marks

2]-Plastic surgery- Theory----- 25 marks

3]-Theory-in Orthopaedics- ----- 50 marks

4]- ward exam in Clinical Orthopaedics-----50 marks

Total--200 marks

20 % of the average of the total marks to be considered as Internal Assessment

---

## **MEDICINE --- [120 hrs]**

CADIO-VASCULAR & PULMONARY MEDICINE – Didactic - 20 hrs + \* Clinical - 40 hrs

NEUROLOGY ----- Didactic - 20 hrs + \* Clinical - 40 hrs

**Objectives-** At the end of the course, the candidate will

- 1]-be able to describe etiology, patho-physiology, signs & symptoms, clinical evaluation & Management of the various Rheumatological [emphasis to musculoskeletal conditions], cardiovascular & respiratory conditions,
- 2]-Acquire skill of –
  - a]-clinical examination of Musculo-skeletal, Pulmonary & cardio-vascular -& Neurological system;
  - b]- interpretation of auscultation findings, with special emphasis to pulmonary system, interpretation of Chest Xray, blood gas analysis, P.F.T. findings, blood studies done for Neurological & Rheumatological conditions, & E.M.G.findings
- 3]-be able to describe the principles of management at the Medical intensive care unit.

**Syllabus-**

### **CARDIO-VASCULAR/RESPIRATORY MEDICINE**

- 1]-Cardio-vascular diseases-Hypertension/I.H.D/Myocardial infarction/Arrhythmia/vascular diseases/pulmonary heart disease/rheumatic heart disease
- 2]-Diseases of the respiratory system- Infectious diseases of Upper airway & pulmonary system-  
Acute Restrictive & Obstructive conditions- COPD- Occupational lung diseases- /interstitial lung diseases/Asthma/T.B/Brucillosis-Occupational lung diseases
- 3]-Intensive Medical care- [Principles only]
- 4]-Geriatric medical conditions, with special emphasis to Osteoporosis, degenerative arthritis, Cardiovascular & respiratory problems.

### **NEUROLOGY**

- 1]-circulation of the brain & spinal cord-Cerebro-vascular accidents
- 2]-Pyramidal & Extra Pyramidal lesions
- 3]-Disorders of Nerve roots & peripheral nerves
- 4]- Disorders & Diseases of muscle
- 5]-Disorders of the spinal cord & cauda equina
- 6]- Demyelinating diseases
- 7]-Infections of the nervous system
- 8]-Epilepsy
- 9]-Tetanus-management
- 10]-Disorders of higher cortical function
- 11]-Hereditary & Degenerative disorders
- 12]-Disorders of cerebellar function

### **CLINICAL-**

Evaluation, interpretation, presentation & recording of Two cases Each, In-

- 1] U.M.N.lesion, 2]-L.M.N.lesion, 3]-Respiratory, 4]-Cardiological/peripheral vascular 5]-Degenerative/Rheumatological conditions

**Text Books / Reference Books - same as documented in II B.P.Th**

---

## **PAEDIATRICS --- [60 hrs]**

[Didactic - 20 hrs + \*Clinical - 40 hrs]

**Objective-** At the end of the course, the candidate will

- 1]-acquire knowledge in brief about intra-uterine development of the fetus
- 2]-be able to describe normal development & growth of a child, importance of immunization, & breast feeding, & psychological aspect of development
- 3]-be able to describe neuro muscular, musculo skeletal, & cardio- pulmonary conditions related to immunological conditions, nutritional deficiencies, infectious diseases, & genetically transmitted conditions.
- 4]-acquire skill of clinical examination of a neonate/child with respect to neurological, musculo skeletal, & respiratory function

**Syllabus-**

- 1]-normal intra-uterine development of foetus
- 2]-normal development & growth-common causes for Developmental disorders & brain damage, cerebral palsy, types - medical management
- 3]-Common infections of C.N.S. & peripheral nervous system,
- 4]-Epilepsy-
- 5]-mental retardation
- 6]-genetically transmitted neuro-muscular conditions-
- 7]-common diseases of the respiratory tract- Asthma, bronchitis, T.B. Pneumonia, bronchiactasis,
- 8]-Rheumatic heart disease
- 9]-Mal-nutrition-related conditions
- 10]-Juvenile R.A.-& other immunological conditions of musculo-skeletal system.

**CLINICAL-**

- 1]-normal reflexes of a neonate/abnormal reflexes in brain damage
- 2]-examination of the nervous system
- 3]-examination of respiratory system

**Text Books –**

- 1]-Essentials of Paediatrics - by O. P. Ghai - Inter Print publications
- 2]-D.K. series in Paediatrics

## SCHEME OF EXAMINATION IN “MEDICINE”

[THEORY-University Exam 80 marks + Internal Assessment 20 marks, Total = 100 marks]

Section-A M.C.Q.-Q-1]- 20 x 1]-based on single best answer-[includes MUST KNOW area

Of All the topics including areas not covered in Q-2 & 3]-----20 marks

Section-B S.A.Q.- Q-2]-to attempt any FIVE out of Six answers--[5 x 3 ]

Based on Cardiovascular or Respiratory conditions]-----15 marks

Q-3]-to attempt any THREE out of Four answers [5 x 3 ]

based on Neuro-sciences-----15 marks

# Section-C-L.A.Q.Q-4]-[compulsory]-based on Neuro –science-----15 marks

Q-5]-based on Cardio-vascular conditions-----15 marks

OR

Q-6]-based on Respiratory conditions-----15 marks

# L.A.Q. should specify the break up of marks-e.g.-[3 + 5 + 7 ]

INTRNAL ASSESSMENT- One test each in-

1]-Theory-Cardio-vascular & Respiratory Medicine ----- 50 marks

2]-Theory-Neurology -----50 marks

3]-Clinical in Cardio-resp + Neurology -----50 marks

\*4]-Paediatrics ----- 50 marks

\*5]-Dermatology ----- 50 marks

6]-General Medicine & Rheumatology ----- 50 marks

Total--300marks

20 % of the average of total marks [out of 300] obtained to be considered for I.A.

\*This subject needs individual passing in the exam to pass in the I.A. of the subject Medicine

---

## **PHYSICAL DIAGNOSIS & MANIPULATIVE SKILLS --- [200 hrs]**

### **HUMAN DEVELOPMENT, GROWTH &**

**AGING PROCESS** ----- Didactic - 10 hrs + laboratory - 05 hrs

**ELECTRODIAGNOSIS** ----- Didactic - 20 hrs + \*Clinical - 30 hrs

**FUNCTIONAL ANALYSIS** ----- Didactic - 10 hrs + \*Clinical - 60 hrs

**MANIPULATIVE SKILLS** ----- Didactic - 05 hrs + Practical/Lab-60 hrs

**Objectives-** This course is aimed at physical diagnosis based on I.C.I.I.D.-II definition-

At the end of the course, the candidate will-

- 1]-be able to describe the human development & maturation; with special emphasis to Psycho-motor development Maturation, & alteration during aging process,
- 2]-acquire the skill of detection & objective documentation of the Neuro- musculo-skeletal dysfunction such as Pain, altered muscle power, mobility, endurance, limb length, posture, gait, hand function & A.D.L.; as well as Exercise tolerance[with special emphasis to cardio-respiratory function] & will arrive at the Physical[Functional] diagnosis in terms of Impairment, activity [ Disability] Participation[handicaps] with the appropriate clinical reasoning
- 3]-be able to analyze & discuss the Physiological & Biomechanical bases of movement dysfunction & apply the same for functional diagnosis
- 4]-acquire the skills to use on patients, the therapeutic currents, for Electro-diagnosis of sensory, motor, & accommodation dysfunction & pain
- 5]-be able to describe the physiology of nerve impulse, motor unit, its electro-physiological character, bases for detection of abnormal EMG, late responses , reflexes & Nerve conduction
- 6]-Acquire the simple skills of mobilization of the extremities on models

### **Syllabus-**

- 1]- General principles of Human development & maturation-
  - a]-aspects-physical, motor, sensory, cognitive, emotional, cultural, & social;
  - b]-Factors influencing human development & growth-Biological, environmental inherited;
  - c]-Principles of maturation –
    - i]-in general,
    - ii]- in anatomical directional pattern-Cephelo-caudal –proximo-distal ,centero-lateral, Mass to specific pattern, gross to fine Motor Development of nervous system-development;
    - iii]- nuerodevelopment of Hand function
- 2]-Electrodiagnosis-Bioelectricity-Physiology Of generation & propagation of action potential,-Volume conduction –
  - a]-Therapeutic current-as a tool for electrodiagnosis-physiological principles -use of alternating & direct currents in electro-diagnosis such as sensory & Pain threshold, Pain tolerance,-Short & long pulse test, S.D. curves ,Integrated EMG, use of Biofeedback unit for assessment of muscle function
  - b]- Principles of Electro-myography-Motor unit –Normal Characteristics- activity at rest, recruitment/frequency pattern at minimal activity, Interference pattern-abnormal E.M.G. pattern
  - c]-Principles of nerve conduction- d]-Late responses-F-wave, H reflex, Blink reflex,
  - e]- electro- physiological principles of assessment of Myoneural junction-
  - f]-E.M.G. instrumentation, basic components, panel diagram, types of electrodes
- 3]-Basics in Manual Therapy, & application in Clinical reasoning
  - a]-examination of joint-stability-normal/abnormal,
  - b]-Mobility-assessment of accessory movement, & End feel
  - c]-assessment of articular & extra-articular soft tissue status-differentiation of spasm, acute & chronic muscle hold, tightness /pain--original & Referred;
  - d]-Basic principles of mobilization skills for joints & soft tissues-( Mainland, Kaltenborn, Mulligan Mec`kenzie Muscle energy technique, myofascial stretching, Cyriax, trigger points , Neural Tissue mobilisation i.e.-slump, butler, &ULTT )- Indications, -contra-

indications, Practise of Manipulative therapy basic skills of mobilization [Kaltenborn, Mulligan, Maitland, & Cyriax friction massage only] of extremities on Models.

- 4]-Assessment of movement dysfunction-higher functions/cranial nerves/alterd muscle strength/power/balance/endurance/tone, spasticity, incoordination, abnormal deep & superficial reflexes/limb-length discrepancy/Goniometry/Trick movements/Special Tests/Assesment Scales/alterd Posture & Gait-Functional analysis as per I.C.I.D.H-II norms-Functional diagnosis-
- 5]-Interpretation of various investigations like –Radiological [X-rays], routine Biochemical investigations, Electrodiagnostic findings
- 6]- Assessment of pain –Intensity/quality-Objective assessment/ documentation
- 7]-Assessment of cardio -pulmonary dysfunction-Chest expansion, Abnormal breath sounds, Quality of life questionnaires /Borg scale /Principles of exercise tolerance test-assessment of vital parameters in simple functional test.-6 minutes walk test /symptom limited test/Breath holding test/ Spirometry / Peak-flowmetry-Theoretical bases of Bruce’s protocol, Astrand Protocol, & step test
- 8) Assessment of Hand - pinches, grips, routine sensory motor evaluation, stereognosis

#### CLINICALS-

- 1]-Basic Skill development of manual therapy for Extremities [learning on models /laboratory learning] as per sr. no. 3 above
- 2]-Electro-diagnostic assessment using short/long pulse direct currents, alternating currents- & Biofeedback for-
  - a]- Motor function--gal/far type test/ accommodation test/ S.D. curves / Integrated EMG,
  - b]- Sensory-sensory & pain threshold, pain tolerance-
- 3]-Identification of abnormal breath sounds/chest expansion/pattern of breathing /Respiratory rate/Grades of Dyspnoea/Rate of Perceived exertion
- 4]-Exercise tolerance & fitness testing –6 minutes walk test, Symptom limited test

#### **Text Books –**

- 1] Maitlands book on Manual therapy,
- 2] Clinical Elecro Therapy –Nelson-Currier ---Appleton & Lange publication
- 3] Clinical Electromyography-by Mishra
- 4] Mobilisation - Kaltenborn

#### **Reference Books -**

- 1]- Orthopaedic Physical examination-by Magee-
- 2]-Mobilization methods-Kaltonborn
- 3]-Clinical Electromyography-Kimura
- 4]-Orthopaedic Physical therapy-Donnatelli
- 5]-Exercise & Heart-Wenger
- 6]-Exercise Physiology-M`Cardal
- 7] O’Sullivan

#### **SCHEME OF EXAMINATION-**

[THEORY- University Exam 80 marks + Internal Assessment 20 marks, Total = 100 marks]  
[CLINICAL-University Exam 80 marks + Internal Assessment 20 marks, Total = 100 marks]

#### THEORY - Model question paper

Section-A-M.C.Q-Q-1]-[20 X 1 ]-based on MUST KNOW area-of entire syllabus -----	20 marks
Section-B-S.A.Q -Q-2]-To answer Any FIVE out of Six - [5 X 3] -----	15 marks
Q-3]-To answer Any THREE out of Four - [3 X 5] -----	15 marks
#Section-C-L.A.Q-Q-4] -----	15 marks
Q-5] -----	15 marks
<b>OR</b>	
Q-6] -----	15 marks

#[Each LAQ should give break up of 15 marks - e.g. 3 + 5 + 7 etc]

CLINICAL-

[CLINICAL-University Exam 80 marks + Internal Assessment 20 marks, Total = 100 marks]

1. Long case ----- 25 marks  
[Based on ICIDH-2 for any medical or Surgical Case Assessment only, no Treatment Plan]
2. Two Short Case -----15 X 2 = 30 marks  
[One Based on Mobilizations/Manipulation on models and Second Based on Electro diagnosis S.D. curve, Faradic Galvanic Test sensory threshold & pain threshold & tolerance on model/patients. etc.]
3. Five Spots ----- 4 X 5 = 20 marks  
[Based on X-ray/ECG/EMG/PFT/ABG etc. 4 min per spots.]
4. Journal ----- 05 marks

INTERNAL ASSESSMENT-IN CLINICAL

Ward/OPD clinical examination to be conducted at the end of EACH clinical assignment having 20 marks each & average of Total marks obtained to be considered for I.A.

---

# **OBSTETRICS & GYNAECOLOGY--- [60 hrs]**

Didactic - 20 hrs + Clinical - 40 hrs

**Objective-**at the end of the course, the candidate will

- 1]-Be able to describe the normal & abnormal physiological events during the Puberty, pregnancy, labor, puerperium, post-natal stage, & menopause
- 2]-Be able to discuss various complications during pregnancy, labour, puerperium & postnatal stage, peri & post menopausal stage & various aspects of urogenital dysfunction & the management in brief
- 3]-acquire the skill of clinical examination of the pelvic floor
- 4]-acquire the skill of the clinical examination of a pregnant woman

**Syllabus-**

- 1]-Physiology of menstruation-abnormalities & common problems
- 2]-Pregnancy-Fertilization-Development of the fetus-normal /abnormal-multiple gestations-Complications during pregnancy
- 3]-Labor-normal-Events of I st II nd & III rd Stages of labor-complications-management-conservative/Caesarian section-
- 4]-Puerperium / postnatal recovery/ lactation/complications of repeated child bearing with small gaps
- 5]-sterility-management
- 6]-methods of family planing
- 7]-Uro-genital dysfunction- prolapse-classification-management
- 8]-Neoplasm of Female reproductive organs-surgical management
- 9]-Menopause- management-

**CLINICAL-**

- 1]-independent clinical examination, presentation & recording of
  - a]-5 pelvic floors,
  - b]-3 pregnant uteri
  - c]-2 mothers during puerparium

**OBSERVATION-** minimum one normal & one caesarian delivery, one case of tubectomy & one Hysterectomy/repair of the uro-genital prolapse

**Text Books -**

- 1]-Text book of Gynecology- by Dutta- New Central book agency
- 2]-Text book of Obstetrics by Dutta -----do-----

## **SCHEME OF EXAMINATION**

[\*THEORY-University Exam 40 marks + Internal Assessment 10 marks, Total = 50 marks]

Section-A-M.C.Q.-Q-1]-based on MUST KNOW area ----- 10 marks

Section-B-S.A.Q. -Q-2]-Answer Any FIVE out of Six-[5 X 3] ----- 15 marks

**OR**

Section-C-S.A.Q. -Q-3]-Answer Any THREE out of Four - [3 X 5] ----- 15 marks

\*[Emphasis to be given to the Urogenital dysfunction/Obstetrical conditions/age related Gynaecological problems]

**INTERNAL ASSESSMENT-**

One theory paper - 50 marks + Clinical - 50 marks – Total = 100 marks

20% of the average of total 100 marks to be considered for IA.

---

# COMMUNITY HEALTH / SOCIOLOGY & BIO-STATISTICS

## **Section-I - COMMUNITY HEALTH**

**Didactic - 15 hrs + Camp - 05 hrs**

**Objectives-** At the end of the course, the candidate shall be able to describe the contents given in the syllabus

### **Syllabus-**

- 1]-General concepts & Determinants of Health & Diseases–National & International definition of Health, Role of socio-economic & cultural environment in health & disease-
  - a]-Epidemiology-definition & scope
  - b]-Environmental hygiene including man & his surrounding, occupational & industrial hygiene, village & town sanitation, bacteriology of water, milk, & food hygiene [over-view]
- 2]-Overview of Public Health administration- at central & state levels-strategies of Health delivery system for “the health for All” National health programme-[brief Role of WHO]
- 3]-Socio-economical & Cultural issues related to Morbidity owing to the Physical Disability & Handicaps of structural/Neuro-motor & Psycho-somatic origin-
  - A]-Health problems of vulnerable groups-
    - i]-Pregnant & lactating women-pelvic floor dysfunction, urinary incontinence,
    - ii]-Pre-term babies with high risk/infants & pre-school children-brain damage during birth injury , congenital & acquired structural deformities, Spinal dysraphism, T.B. Meningitis, Polio, Cerebral palsy, Other hereditary neuro-motor conditions, such as Myopathies & Muscular Dystrophies, malnutrition-Rickets,
    - iii]-Occupational diseases/hazards-Definition-scope-accident prevention-Hand injuries, amputations, Disc lesions, head injuries, Backaches, Respiratory illnesses due to exposure to asbestoss, tobacco, fumes, C.O.P.D. ,Asthma, Sarcoidosis; Stress
  - B]-Traumatic/Paralytic morbidity-Head injury, Quadri/paraplegia, urinary/ bowel incontinence, amputation, skeletal deformities due to multiple fractures & prolonged bed rest & mental retardation,
  - C]-Nutritional Osteomalacia, Rickets, Neuropathies due to Vitamin-deficiency, skeletal deformities
  - D]-Auto-immune & Hereditary diseases-Rheumatoid arthritis, S.L.E.,sero- ve arthritis, Ankylosing spondylitis, Multiple sclerosis, Spinal muscular atrophies, & Myopathies, Dystrophies in adults,
  - E]-Aged-Osteoporosis, malnutrition, Alzymer`s disease, parkinsons, Ataxia, C.H.D., Hypertension,
  - F]-Addiction-Alcolic Neromotor & Psychosomatic disorders, Smoking-asthma, C.O.P.D.,
- 4]-Family planning-objectives of national family planning programmes & family methods-A general idea of advantage & dis-advantage of the methods
- 5]-Mental health- socio-economical & cultural aspect,
- 6]-Communicable diseases-an over-view[including prevention &control]-,TB., H.I.V. ,Leprosy, Brucillosis, & Other conditions leading to paralysis & arthritis,--Respiratory diseases causing Bronchiactesis, C.O.P.D.
- 7]-Immunization programmes-children & hospital staff

### **Text Books -**

Preventive social Medicine- by Park

## Section-II – BIOSTATISTICS

[Didactic - 10 hrs & project – 20 hrs]

**Objectives-** At the end of the course, the candidate shall

- 1]-gain knowledge of the basic concepts of Biostatistics & its need for professional practice & Research
- 2]-be able to describe an Over-view-
  - a]-Ethnography & anthropology
  - b]-Design & methodology of an experiment or survey
  - c]-Demography & vital statistics
  - d]-Sampling & interpretation of Data

**Syllabus-**

- 1]-Introduction-uses of statistical methods in Physio therapy –measurement scales, variables, & their measurements, Symbolic Data, operations
- 2]-Statistical data-Tabulation-calculation of central tendency, & dispersion-Linear regression, & correlation –presentation of data in diagrammatic & graphic form,
- 3]-Probability & sampling as a mathematical system-population & samples-sampling distribution- sampling methods

**Project-**

**Text Books –**

Biostatistics—by Mahajan

## Section-III – SOCIOLOGY ----- [20 hrs]

**Syllabus-**

- 1]-Introduction-Definition-relevance with Physio Therapy
- 2]-Sociology & health-social factors affecting health status, social consciousness, & perception of illness decision making in taking treatment
- 3]-Socialization-definition-influence of social factors on Personality, socialization in the hospital, & rehabilitation of the Patients
- 4]-Social groups-Concepts-influence of formal & informal groups on health & diseases-role of primary & secondary groups in the hospital & rehabilitation setting
- 5]-Family-influence on human personality,-individual health, family & nutrition, effects of sickness on family-Psychosomatic diseases & family
- 6]-Community-Role of rural & Urban communities in Public health, Role of community in determining beliefs, practices & home remedies in treatment.
- 7]-Culture-components-impact on human behavior,-cultural meaning of sickness- Response to sickness & choice of treatment [role of culture as social consciousness in molding the perception of reality]-Culture induced symptoms & Diseases, sub-culture of Medical workers
- 8]-Cast systems - features of modern cast systems & its trends
- 9]-Social change-factors-human adaptation to social change-  
-----do----- & stress  
-----do----- & deviance  
-----do----- & Health programme  
-role of social planning in the improvement of health & in Rehabilitation
- 10]-Social control-definition-Role of norms, folkways, customs, morals, religion, law & other means of social controls in the regulation of human behavior, social deviance & disease
- 11]-Social problems of the disabled-consequences of the following social problems in relation to sickness disability: remedies to prevent these problems
  - a]-population explosion,
  - b]-poverty & unemployment,
  - c]-beggary,
  - d]-juvenile delinquency,
  - e]-prostitution
  - f]-alcoholism,

- g]-problems of women in employment
- 12]-Social security-& social legislation in relation to the disabled
- 13]-Role of a social worker

**Text Books -**

- 1]-Sachdeva, & Bhushan-An introduction to sociology- Allahabad; kitab mahal ltd,1974
- 2]-Madan-Indian social problems, Vol-I-Madras-Allied publications-1973

**SCHEME OF EXAMINATION- [COLLEGE EXAMINATION - # THEORY - 100 MARKS]**

Examination to be conducted before the end of First tem of the academic year

Section-I-Community Health -----	30 marks
[15 marks - M.C.Q.-single best answer- on MUST KNOW area]	
Section-II-Biostatistics -----	40 marks
[20 marks - M.C.Q.-single best answer- on MUST KNOW area]	
Section III-Sociology -----	30 marks
[15 marks - M.C.Q.-single best answer- on MUST KNOW area]	

#Result to be given in the form of Grade by converting Total marks obtained as follows-

Grade - A+ : 75% or more , A : < 75 - 66%, B+ : < 66 -60%, B : <60 -50%, C : < 50% Fails

---

**SCHEME OF EXAMINATION-III B. P.Th**

---

Subject	Theory	IA	Total	Clinical	IA	Total	College
1] SURGERY -----	80 -----	20 ----	100 -----				
Section-I-Gen. Surgery ---	[40]						
Section-II-Orthopaedics --	[40]						
2] MEDICINE -----	80 -----	20 ----	100 -----				
Section-I-Medicine-----	[40] [including cardiovascular & Respiratory]						
Section-II-Neurosciences--	[40]						
3]-OBSTETRICS AND GYNAECOLOGY -----	40 -----	10 ----	50 -----				
4]-PHYSICAL DIAGNOSIS & MANIPULATIVE SKILLS -----	80 -----	20 ----	100 ---	80 -----	20 ----	100 -----	
5]-COMMUNITY HEALTH / BIostatistics / SOCIOLOGY -----							#Grade

#GRADE -A+ :75 % & above, A :66-< 75% B+ : 55-<66% , B :50%, C :<50% [FFF]

---

**MAHARASHTRA UNIVERSITY OF HEALTH SCIENCES  
FACULTY OF ALLIED HEALTH SCIENCES  
SYLLABUS OF**

**IV B.P.Th-[syllabus]**

**[This syllabus is applicable from 2001-2002 batches]**

---

<b>Subjects</b>	<b>Transcript hours –1308</b>
1] Physio therapy in Musculo-skeletal conditions -----	135 hrs
2] P.T. in Neuro-Sciences ----- [including Adult/ Paediatric/Psycho-somatic & Psychiatric conditions/Mental Health ]	135 hrs
3] P.T. in General Surgical & Medical conditions -----	135hrs
[including Cardio-vascular & Respiratory conditions]	
4 ] P.T. in Community Health [including Womens Health / Geriatrics / Industrial Health[Ergonomics]& Health promotion -----	145 hrs
5] Principles of Bio-engineering-----Theory-20 hrs + Practical-10 hrs--	030 hrs
6] Professional issues / Administration/Management-/Marketings-----	040 hrs
7] Seminar-----2 hrs/ 2weeks-----	034 hrs
[including Case presentation-15 hrs + Literature review-15 hrs]	
8] Supervised clinical practice + Project-----	654 hrs

EACH Clinical assignment ,shall be of 74 hours at Indoor & 74 hours at the Outdoor section [ including 20 hours of Project ] respectively in Each of the subjects mentioned at 1,2,& 3 above. Clinical assignments .Clinical assignment in Community P.T. shall be of 150 hours [Total 7 assignments]

A] During each clinical assignment, the student shall functionally diagnose, plan & practice Clinical skills on patients in consultation with the experienced senior staff .

B] Project-During each of the 7 assignments , the candidate, shall conduct retrospective case studies on Minimum 5 samples .He /she shall maintain a separate File /journal for each subject & keep all the records of the Clinical assignment & Ward exam,/Seminar etc in the respective file. However the records of the Project work carried out during the 7 assignments shall be maintained in the file titled as “PROJECT FILE ” The candidate shall get the clinical & project work duly verified with the signature from the section In-charge at the end of each respective assignment

---

# **PHYSIO THERAPY IN MUSCULOSKELETAL CONDITIONS --- [135 HRS]**

**Didactic-40 hrs + \* Clinical 95 hr**

**Objectives**-this course is formulated on the “Problem based learning” method

At the end of the course, the candidate will-

- 1] be able to identify ,discuss & Analyse , the Musculo skeletal Dysfunction in terms of Biomechanical, Kinesiological & Biophysical bases & Correlate the same with the provisional diagnosis, routine radiological & Electrophysiological investigations & arrive at appropriate Functional diagnosis with clinical reasoning
- 2] be able to plan & Prescribe as well as acquire the skill of executing short & long term Physio Therapy treatment by selecting appropriate modes of Mobilisation / manipulations, Electro Therapy ,Therapeutic exercises & appropriate ergonomic advise for the relief of pain, restoration /Maintenance of function , & /or rehabilitation for maximum functional independence in A.D.L at home & work place ;

## **Syllabus**

Following topics are applicable to All the Musculo-skeletal conditions included in the various clinical subjects of Medical Sciences taught in II & III B.P. Th courses.

- 1] Application of various NON\_THRUST mobilization methods to the extremities ,Lumbar spine & S.I joint of the patients having musculo-skeletal Dysfunction; for the purpose of Evaluation, assessment investigation, interpretation & functional diagnosis [ in terms of Impairment of local function ;activity limitations ,& handicaps in environmental & socio-economical participation,] with appropriate clinical reasoning
- 2] Planning , Prescription & Implementation of short term & long term[if any] goals with clinical reasoning.
- 3] Documentation & maintenance of records.
- 4] Application of appropriate Electro therapeutic modes for relief of acute & Chronic pain & swelling; wound healing, electrical re-education etc with clinical reasoning
- 5] Application of Simple therapeutic modes of mobility like massage, stretching , distraction, rhythmic mobilisation [ Non- Thrust methods] friction massage, myofascial stretching Muscle energy methods, Neural tissue mobilisation etc-
- 6] Application of various taping modes for support, & relief of pain
- 7] Prescription of appropriate orthotic & prosthetic devises & fabrication of simple temporary splints during urgent requirement
- 8] application & Advise [for home programme]of appropriate Therapeutic exercise, with the us of therapeutic gymnastic tools, or auto exercises for the relief of pain, structural stability, strength/ endurance; & functional restoration including Gait training,/maintenance of ‘function & /Or for the preventive measure
- 9] Ergonomic advise for preventive measures & functional efficiency at home & work place

## **CLINICAL**

Evaluation & treatment planning ; its presentation & documentation of Minimum two cases each in- 1]-# upper Limb[including hand injury],2]-# lower limb,3]-Soft tissue leasion [any], 4]-# spine with /without Neurological condition 5]-degenerative arthritis of skeletal joint 6]-musculo-skeletal condition of Hand & foot ,

## **TEXT BOOKS**

- 1]-Cash`s Text book of Orthopaedics & Rheumatology for Physio Therapists-Jaypee bros.
- 2]-Manual mobilisation of extremity joints-by Fredy Kaltenborn,Maitland
- 3]-Therapeutic exercise ----by-Kolby & Kisner
- 4]-Therapeutic exercises----by O`sullivan
- 5] Taping Techniques - Rose Mac Donald

## **REFERENCE BOOK-**

- 1]-Orthopaedic Physical therapy-by Donatelli 2]-Manual Therapy –by Maitland,
- 3]-Neural tissue mobilisation-Butler

## **Scheme of Examination (Practical Examination)**

Total 80 Marks

1. Long Case:- based on the History 10 marks ,  
Evaluation 10 marks, Treatment Plan on Patient 20 marks. (40 Marks)
  2. Short Case :- simulated (20 Marks)
  3. Five spots :- spots based on, X ray (limb, spine), orthosis, Prosthosis,  
Metal implants etc 3 minute each spot and 3 marks per spot (3x5 =15 Marks)
  4. Journal (5 Marks)
-

## **PHYSIO THERAPY IN NEURO-SCIENCES**

[ ADULT/ PAEDIATRIC/PSYCHO-SOMATIC & PSYCHIATRIC CONDITIONS]-[135 HRS]

Didactic –50 hrs + \* Clinical-95 hrs [including-Paediatric-didactic-10 hrs + \* Clinical 20 hrs]

**Objectives**-At the end of the course, the candidate will –

- 1] -acquire the knowledge of normal neurodevelopment, with specific reference to locomotion
- 2] -be able to assess, identify & analyze neuro-motor & psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements sensations/ perception etc, correlate the findings with provisional diagnosis, & investigations such as E.M.G./N.C. studies & arrive at functional diagnosis with clinical reasoning
- 3] -Acquire the skill of application of P.N.F. techniques on patients.
- 4] -be able to plan, prescribe & execute short term & long term treatment, with special reference to relief of neuropathic & psycho-somatic pain, mat exercises, functional re-education, gait training, postural & functional training for A.D.L., ergonomic advise, & parents' education in neuro- paediatric care
- 5] -be able to prescribe appropriate orthoses /splints & will be able to fabricate temporary protective, & functional splints

### **Syllabus**

- 1] -assessment of development, Tone, Co-ordination, Psycho-somatic & Locomotor function
- 2] -Functional Diagnosis of neuromuscular dysfunction & assessment of Neuropathic pain
- 3] -Understanding sensory system & organization of sensory strategies for efficient motor output.
- 4] -Skills of sensory –motor learning & neuro-muscular skeletal training
- 5] -Planning short term & Long term goals for all the topics given as follows-
  - a]-Cortico-spinal lesion-Hemiplegia,
  - b]-Cranial nerves-emphasis on 7th & 8th nerves,
  - c]-Hydrocephallus,
  - d]-disorders of cerebral circulation & space occupying lesions such as cortical, Thalamic, & Brain-stem lesions,
  - e]-subdural haematoma & birth injuris[intra-cranial],
  - f]-Diseases of meninges ,g]-Neuro-syphillis- Tabes dorsalis ,H.I. V. infection,,
    - h]-Viral infection of neuro-system-encephalitis Herpes, poliomyelitis, Viral meningitis,
    - i]- Demyelinating diseases of the nervous System-Multiple sclerosis,
    - j]-Lesions of Extra-pyramidal system & Basal ganglia, Parkinsonism, spasmodic torticollis
      - ,Athetosis ,Chorea, Dystonia,
      - k]-Congenital & Degenerative disorders-C.P., M.N.D., Hereditary Ataxia, Peroneal muscle atrophy S.M.A,
    - l]-Disorders of spinal cord-paraplegia, syringomyelia, Transverse myelitis spinal Dysraphism.
    - m]-Deficiency disorders-Sub-acute combined degeneration of spinal cord
    - n]-Disorders of peripheral nerves, tumours, traumatic, infective & metabolic lesions of nerves,
    - o]-disorders of voluntary muscles-Dystrophies, & Neuro-muscular junction disorders

p]-Disordres of Autonomic nervous system- disorders of functions of ANS of spinal cord.

q]-Psycho-somatic Pain & Paralysis

- 6] -Application of appropriate Electro-therapeutic modes for relief of pain & functional re-education with clinical reasoning
- 7] -Application of skills as P.N.F , Co-ordination & Balancing exercises by using techniques based on Neuro-physiological principles & tools of Therapeutic gymnasium such as Vestibular ball, tilt board, bolsters, etc.
- 8] -Application of transfer & functional re-education exercises-Postural exercises, & Gait training,
- 9] -Functional training in bladder dysfunction
- 10] -Prescription of appropriate orthotic devises, & fabrication of temporary splints during urgent equirement with clinical reasoning
- 11] -rgonomic advise, for prevention /Rehabilitation & Parent / care takers education about handling of a paralytic patient [paediatric & adult]

## CLINICAL

Evaluation & treatment planning; its presentation & documentation of minimum Two cases

Each in-1]-U.M.N.lesion,2]-L.M.N. lesion,3]--Paediatric neuro case

### **TEXT BOOKS**

- 1]- Cash`s Text book for Physio Therapists in Neurological disorders --Jaypee bros. Publication
- 2]-Proprioceptive Neuro muscular Facilitation- by Herman Kabat
- 3]-Practical Physical therapy-----Margaret Hollis
- 4]-Therapeutic exercise –by O` Sullivan
- 5]-“Right in the middle”-----by Patricia Devis
- 6]-Stroke rehabilitation---by Margaret Johnson

### **REFERENCE BOOK**

- 1]-Therapeutic exercise –by Basmajjian-5th edn.
- 2]-Physical Rehabilitation ---by Krusen
- 3]-Brain`s disorders of Nervous system

### **Scheme of Examination (Practical Examination) Total 80 Marks**

1. Long Case:- based on the History 10 marks ,  
Evaluation 10 marks, Treatment Plan on Patient 20 marks. (40 Marks)
  2. Short Case :- simulated case (20 Marks)
  3. Five spots :- Spots based on EMG/NC Studies/Orthosis &  
neuro assessment scale etc. 3 minute & 3 Marks each spot (3x5 =15 Marks)
  4. Journal (5 Marks)
-

## **PHYSIO THERAPY IN GENERAL MEDICAL & SURGICAL CONDITIONS**

[INCLUDING CARDIO-VASCULAR & RESPIRATORY CONDITIONS]--[135 HRS] -  
[Didactic-40 hrs & Clinical-95 hrs]

**Objectives** At the end of the course, the candidate will -

- 1] -Identify, discuss & analyze cardio-vascular & pulmonary dysfunction, based on pathophysiological principles, & arrive at the appropriate functional diagnosis,
- 2] -acquire knowledge of rationale of basic investigative approaches in the medical system, & surgical intervention regimes related to cardio-vascular & pulmonary impairment
- 3] -acquire the skill of evaluation & interpretation of functional capacity, using simple exercise tolerance tests, such as 6 minutes walk test, symptom limited test,
- 4] -be able to select strategies for cure, care & prevention; adopt restorative, & rehabilitative measures for maximum possible functional independence of a patient at home, work place & in community.
- 5] - be able to execute the effective Physio Therapeutic measures [with appropriate clinical reasoning] with special emphases to Breathing retraining, nebulization humidification, bronchial hygiene, General mobilisation, & Exercise conditioning
- 6] -acquire knowledge of the overview of patients' care at the Intensive care area, artificial ventilation suctioning, positioning for bronchial hygiene, & continuous monitoring of the patient at the Intensive care area.
- 7] -acquire the skill of basic Cardio-pulmonary & Cerebral resuscitation -

### **Syllabus**

The following topics are applicable to all the adult & paediatric conditions related to Cardio-respiratory conditions & Peripheral vascular diseases included in the Clinical subjects of III B.P.Th. programme.

- 1] -assessment of Respiratory & haemo-dynamics, by means of assessment of breath sounds, interpretation of dysfunction by, spirometry / Exercise tolerance test/ assessment of thoracic mobility, & breathing pattern
- 2] -Interpretation of radiological & Biochemical investigations & co-relate the same with clinical findings
- 3] -Functional diagnosis-of cardio-respiratory dysfunction & associated Movement dysfunction
- 4] - Planing short/ long term goals with clinical reasoning-documentation
- 5] -application of appropriate skills for breathing re-training, & bronchial hygiene, as preventive [used specifically in preoperative care], restorative & rehabilitative measures.
- 6] -Prescription of appropriate therapeutic exercise programme for conditioning
- 7] - prescription of home programme & ergonomic advice / parents education in case of Paediatric cases

## CLINICAL-

- 1]-skill to palpate all pulses, rhythm, rate, volume & Heart rate/pulse rate discrepancy
- 2]-Skill to assess B.P. at various sites, & its Physiological variation, & to assess Ankle-Brachial Index
- 3]-Skill of exercise testing- a]-6/12 min walk, b]-symptom limited ,
- 4]-Interpretation of
  - a]-tread mill & Ergo-cycle test findings
  - b]- ECG.-,I.H.D. & Blocks,
  - c]-Biochemical analysis-serum enzymes, C.P.K levels, L.D.H., S.G.O.T., S.G.P.T., Tropomin T, Lipid profile, electrolyte balance
  - d]-Chest X-ray- ,
  - e]-P.F.T.-obstructive/ restrictive/reversibility,
  - f]-A.B.G.-
  - g]-R.P.E.-Borge`s scale
  - h]-Quality of life questionnaires
- 5]- Evaluation, & treatment planning, presentation & documentation of TWO cases Each in-
  - a]-Medical Respiratory condition,
  - b]-Paediatric respiratory condition
  - c]-Thoracic Surgical condition,
  - d]-Cardiological condition,

## TEXT BOOKS-

- 1]-Cash`s Text book for Physio therapists in Chest, Heart & Vascular diseases  
-Jaypee bros. Publication
- 2]-Cash`s text book in General Medical & Surgical conditions for Physio therapists
- 3]-Chest Physical therapy & Pulmonary rehabilitation-by Donna Frownfilter
- 4]-Brompton`s hospital guide

## REFERENCE BOOK-

- Physio Therapy in Cardio- Vascular rehabilitation-Webber  
Exercise & the Heart-----Wenger

### **Scheme of Examination (Practical Examination) Total 80 Marks**

1. Long Case:- based on the History 10 marks ,  
Evaluation 10 marks, Treatment Plan on Patient 20 marks. (40 Marks)
  2. Short Case :- simulated (20 Marks)
  3. Five spots :- Spots based on ABG/X -ray/ECG/PFT/RPE/Bruces,  
protocol etc. 3 minute each spot (3x5 =15 Marks)
  4. Journal (5 Marks)
-

## **PHYSIO THERAPY IN COMMUNITY HEALTH --- [145 hrs]**

HEALTH PROMOTION & C.B.R.-----	Didactic-10 hrs-----	clinical-----	25 hrs
WOMENS' HEALTH-----	didactic-15 hrs-----	clinical-----	25 hrs
GERIATRICS HEALTH-----	didactic-10 hrs-----	clinical-----	25 hrs
INDUSTRIAL HEALTH [ERGONOMICS]---	didactic-10 hrs-----	clinical-----	25 hrs

**Objectives-**At the end of the course, the candidate will-

- 1] -be able to describe the general concepts about Health & Disease-general fitness,
- 2] -be able to describe-various National & International health policies-Role of I.A.P to promote Physiotherapy as a health delivery system
- 3] - be able to describe the strategy to assess-,Prevalence & Incidence of various conditions that increase the morbidity ,role of Physical therapy in improving morbidity, expected functional & clinical recovery ; reasons for non-compliance in specific community environment- solution-strategies of C.B.R. programme- Concept of Team work -role of P.T. /,O.T/ Audiologist/ P.&O./ vocational guide in the C.B.R. programme of the Physically handicapped.—role of Multi-purpose Health worker.
- 4] -be able to describe altered mechanics, & Physiological function due to-
  - a]-pregnancy, Labour, & parity in female
  - b]-Stress-
  - c]-pollution,
  - d]-aging
  - e]- peculiar environmental situation at the Industrial set up
- 5] -be able to attain ability of conducting small surveys, & collection of anthropometric data collection for morbidity assessment in various conditions-planning & implementation of appropriate Physio therapeutic modes & advise with clinical reasoning at the urban, rural & community level for-
  - a]- mother & child care
  - b]-various gynaecological/ Obstetrical conditions,
  - c]-aging population
  - d]-general fitness,
  - e]- Industrial set up

**Syllabus-** based on the principles of Community based rehabilitation in addition to institutional management

- 1] -Womens' Health—Anatomy of Pelvic floor-Clinical reasoning for Physical exercises during pregnancy. -Clinical reasoning for care to be taken during exercises during pregnancy, -Prenatal /antenatal programme-Clinical reasoning for specific breathing exercises/ relaxation/ postural training/ Pelvic floor stretching & strengthening exercises. -Physio therapy during labor -Post-natal exercise programe after normal labour / labour with invasive procedures – Uro-genital dysfunction-P.T. management -Menopause-De-conditioning – P.T. management -Common Gynaecological surgeries- role of P.T.-Clinical reasoning for application of Electro- therapeutic measures in Obst / Gynac
- 2] -Geriatrics-Physiology of Aging /degenerative changes-Musculoskeletal /Neuromotor /cardio – respiratory-/Metabolic Role of Physio Therapy in a Home for the aged.
- 3] -Fitness & Health promotion--Physiological effects of aerobic exercises –clinical reasoning for advocating aerobic exercises as preventive measure in Obesity & its related conditions / in cardio-respiratory conditioning/Aging/de-conditioning effect after prolonged bed rest /Diabetes
- 4]-Industrial Health-Environmental stress in the industrial area --Accidents due to

- a]-Physical agents-e.g.-Heat/cold, light, noise, Vibration, U.V. radiation, Ionizing radiation,
- b]-Chemical agents-Inhalation, local action, ingestion,
- c]-Mechanical hazards-overuse/fatigue injuries due to ergonomic alteration & ergonomic evaluation of work place-mechanical stresses per hierarchy –
  - i]-sedentary table work –executives, clerk,
  - ii]-inappropriate seating arrangement- vehicle drivers
  - iii]-constant standing- watchman- Defense forces, surgeons,
  - iv]-Over-exertion in labourers,-common accidents –Role of P.T.-Stress management,
- d]-Psychological hazards- e.g.-executives, monotonicity & dissatisfaction in job, anxiety of work completion with quality,Role of P.T. in Industrial setup & Stress management-relaxation modes-
- 5]-Principles of Community based rehabilitation.- W.H.O.'s policies-about rural health care-concept of primary /tertiary health centers-district hospitals etc-Role of P.T.-Principles of a team work of Medical person/P.T./O.T. audiologist/speech therapist /P.&O./vocational guide in C.B.R.of physically handicapped person

**CLINICAL-**

- Evaluation, treatment planning, presentation, & documentation of minimum Two cases Each in-
- 1]-Antenatal & Postnatal case,
  - 2]-Gynaecological condition
  - 3]-Geriatric condition,
  - 4]-Obesity/ Fitness,
  - 5]-Occupational musculoskeletal or respiratory lesion

**TEXT BOOKS**

- 1]-Physio Therapy in Gynaecological & Obstetrical conditions-by Poldon -Jaypee Publications
- 2]-Astrand P. A. Rodahe K.-Text book of Work Physiology-
- 3]-Therapeutic exercise –by Kisner

**REFERENCE BOOKS-**

- 1]-Mural K. F.-Ergonomics:Man in his working environment[latest edn]
- 2]-Exercise Physiology –by McKardal

**Scheme of Examination (Practical Examination) Total 80 Marks**

- 1. Long Case - Women's Health/ Geriatric / Industrial Health / Health Promotion. (Marks 40)
  - 2. Short Case :- simulated based on community health problem . (Marks 20)
  - 3. Project Presentation and Viva (15 Marks)
  - 4. Journal (5 Marks)
-

## SCHEME OF EXAMINATION (Theory)

SUBJECTS— [\*All the following subjects shall follow the same patterns of examination ]

- 1]PHYSIOTHERAPY IN MUSCULOSKELETAL CONDITION
- 2]-----DO-----NEUROSCIENCES
- 3]-----DO-----GENERAL MEDICAL & SURGICAL CONDITIONS
- 4]-----DO-----COMMUNITY HEALTH

THEORY-80 MRKS;	I.A.-20 MARKS;	TOTAL100MARKS
CLINICAL-80 MARKS;	I.A -20 MARKS	TOTAL-100MARKS

- 1]-THEORY-Pattern of Paper setting-----80 marks  
Section-A- -M.C.Q Q-1].-[20 X 1] Single best answer MUST KNOW area-----20 marks  
Section-B--S.AQ.- Q-2 ]-To answer any FIVE out of Six—[5 x 3]-----15 marks  
- Q-3 ]-To answer any THREE out of Four-[3 x5 ]-----15 marks  
#Section-C-L.AQ-.Q-4 ]-----15 marks  
Q-5]-----15marks

OR

Q-6 ]-----15 marks

Three questions included in Section-C -should preferably be based on Surgical, Medical, & Pediatric conditions respectively.

#- In the subject “P.T. in General Medical & Surgical condition”-- L.A.Q - Q-4 in THEORY paper should be based on “P.T.in Cardiovascular OR Pulmonary condition”

INTERNAL ASSESSMENT IN CLINICAL -----20 marks

- 1]- For the three subjects-i.e.-P.T. in Muskuloskeletal conditions, P.T. in Neurosciences & P.T. in General Surgical & Medical conditions;-there shall be one clinical exam & one case presentation of 20 marks each at Indoor +Outdoor unit respectively  
i.e.-total 4 assessments in each subject -20 % of the average to be considered for IA
  - 2]- I.A. for P.T. in Community shall include one ward exam each in-
    - a]-Gynaec-Obstr
    - b]-Geriatrics,
    - c]-Industrial Health
    - d]-Health promotion having 20 marks each & 20% of the average Total marks to be considered for the IA
-

## **PRINCIPLES OF BIOENGINEERING --- [30 hrs]**

[Didactic 20 hrs + Practical/Laboratory-10 hrs]

**Objectives**-at the end of the course ,the candidate shall

- 1] -acquire knowledge about biomechanical principles, of application of variety of aids & appliances used for ambulation, protection & prevention
- 2] -acquire in brief knowledge about various material used for splints/orthoses & prostheses-- selection criteria
- 3] -acquire the skill of fabrication of simple splints made out of low cost material

### **Syllabus**

- 1] -Classification of Aids & appliances-
- 2] -Biomechanical principles in designing of appliances & assessment Procedures for static & dynamic alignment of the following—Aids & appliances /Splints /Orthoses -for spine-upper & lower limbProstheses- for Lower limbs,Upper limb

Project-Temporary splints –to fabricate ONE splint each - [to use P.O.P, aluminum strips /sheets /wires rubber bands, rexine, Orfit etc] -1]-cock up [dorsal/volar, 2]-outrigger, 3]-Opponance splint 4]-Anterior and posterior guard splints for gait training,6]- Foot drop splint 7]-Facial splint 9] Mallet Finger, Splint , 10]-C bar for 1st web space of hand

SCHEME OF EXAMINATION-\*\*[**COLLEGE EXAMINATION** ]

\*\* THEORY-20 MCQs =20 MARKS + PROJECT-30 MARKS =50 MARKS

---

## **PROFESSIONAL ISSUES / ADMINISTRATION / MANAGEMENT & MARKETING --- [40hrs]**

### **SECTION-I-PROFESSIONAL ISSUES [INCLUDING ETHICS] 20 HRS**

#### **Objectives:**

This course is aimed to enable the candidate to acquire the knowledge of ethical code of professional practice ,as well as its moral & legal aspects; & role of W.H.O.& W.C.P.T.

- Contents-**
- 1]-Concepts of morality, Ethics & Legality-rules of professional conduct & their Medico- legal & moral implications-Th need of Council Act for Physio therapy
  - 2]-Constitution & Functions of the Indian association of Physical therapy-
  - 3]-Functioning of the World Confederation of Physical therapy[W.C.P.T.] & its various branches-Special Interest groups [brief]
  - 4]-Role of W.H.O.& WCPT

### **SECTION-II-ADMINISTRATION/MANAGEMENT & MARKETING-**

**Objectives** –At the end of the course the student will acquire the knowledge of the basics in Managerial & Management skills, & use of Information technology in professional Practic contents-

- 1] -Management studies related to -local health care organization management & structure,- planning delivery with quality assurance & funding of service delivery -information technology –Time management -career development in physio therapy
- 2] -Administration-principles-based on the Goal & functions -at large hospital set up / domiciliary services/ private clinic /academic
- 3] -Methods of maintaining records-
- 4] -Budget-planning -
- 5] -Performance analysis--physical structure/reporting system[man power /status /functions / quantity & quality of services/turn over-cost benefit- revenue contribution.

SCHEME OF EXAMINATION-\*\*[**COLLEGE EXAMINATION** ]TIME-2 HRS  
 THEORY -SECTION I-25 MARKS + SECTION-II-25 MARKS =50 MARKS

PATTERN OF EXAMINATION---IV B.P.TH

<b>Subject</b>	<b>Theory</b>	<b>IA</b>	<b>Total</b>	<b>Clinical</b>	<b>IA</b>	<b>Total</b>	<b>College exam</b>
1]-P.T.in Musculo skeletal conditions	80	20	100	80	20	100	
2]-P.T. in Neuro-sciences	80	20	100	80	20	100	
3]-P.T. Generl Medical & Surgical conditions	80	20	100	80	20	100	
4]-P.T. in Community Health	80	20	100	80	20	100	
5]-Principles in Bio- Engineering							Grade
6]-Professional Issues Administration Management/Marketing							Grade

\*\*-COLLEGE EXAMINATION must be conducted in the first term of the academic year & the result should be sent to the university along with the examination fee, since passing in EACH college examination is a pre-requisit for appearing at the respective university examination

\*\*\*A CERTIFICATE shall be issued by the college after passing the COLLEGE examination Succesfully., The marks obtained in the respective college examination shall be converted in to GRADES & such GRADES shall appear on the certificate

---

## **INTERNSHIP --- 1065 HRS**

975 hrs+ Residency [optional]-90 hrs

<b>Placement</b>	<b>Indoor</b>	<b>outdoor</b>
1]-Musculo-Skeletal [Surgical/Medical]--		
Traumatology / Rheumatology& cold cases-----	78hrs-----	78hrs
Burns & plastic surgery-----	39hrs-----	39hrs
2]-Neuro-Sciences-[Surgical/Medical/Psycho-somatic]-		
a)- Adult-----	78 hrs-----	78 hrs
b)-Paediatric-----	39hrs-----	39 hrs
c)-Psychiatry/Psycho-somatic-----	39 hrs-----	39 hrs
3]-Cardio-Respiratory-[Surgical/Medical]------	39 hrs-----	78 hrs
4] #-Intensive Care-[surgical/Medical/Trauma unit]-----	78hrs-----	
# Residency- recommended-----	[-90 hrs]-----	
5]-Gynaec- Obstr-----	39 hrs -----	39 hrs
6]-Community health-----		117 hrs
7]-Project-----		78 hrs

[ \*Includes Project on evidence based investigation measures or Clinical trials / prospective case studies having sample size of minimum 10 Subjects. ]

### EVALUATION OF THE INTERNSHIP

- 1]-ATTITUDE- The student shall put up Not less than 90 % attendance during EACH assignment. Student`s performance shall be graded by the respective clinical section In-charge at the end of each assignment .The candidate shall Repeat the particular assignment if the performance is found unsatisfactory [Grade-C or D ]
  - 2]-PROJECT- submitted by the candidate will be duly verified & a viva shall be conducted on the same at the end of the Internship & a grade shall be granted ..  
Internship Completion certificate shall be issued to the candidate ONLY after the Satisfactory performance .in Project Viva as well as in the “Attitude” during EACH clinical assignment
-