SUMANDEEPVIDYAPEETH

(Declared as Deemed to be University under Section 3 of the UGC Act 1956)

Accredited NAAC 'A' Grade with 3.53 CGPA out of 4

Conferred with UGC-Category-1 status

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CURRICULUM

BACHELOR OF PHYSIOTHERAPY (B.P.T.)

INDEX

The curriculum has following overall objectives:

A student at the end of the course shall

1. Have a humane and rational approach in use of the scientific and artistic knowledge to solve problems in Physiotherapy related to health, habilitation & Rehabilitation.
2. Interact with interdisciplinary groups at various levels for co-operation and collaboration to reach overall health objectives set by Physiotherapy.
3. Learn to participate and promote research activities to contribute both to the society and to the field of Physiotherapy.
4. Assume the responsibilities for the personal and professional development and for the administration of Physiotherapy services.
5. Apply moral and ethical principles while making decisions in the practice of Physiotherapy.

Program Outcome:

At the end of the program, a graduate:

- Shall be able to do independent physiotherapy assessment and treatment
- Shall be able to work as independent physiotherapists or in conjunction with a multidisciplinary team to diagnose and treat movement dysfunctions as per red and yellow flags.
- Shall be able to develop skill in the graduate's physical & functional diagnosis, treatment planning, management, and administration of physiotherapy treatment for the patient support.
- Shall be able to find employment opportunities in Hospitals/Nursing homes/Sports Teams/Fitness Centers/Community Rehabilitation /Health planning boards/Health promotions services in both private and public sectors as well as in independent physiotherapy clinics.
- Shall be able to pursue further qualification to attain senior position in the professional field and to keep abreast with the recent advances, new technology and research.
- Shall be able to opt for continuous professional education credits offered by national and international institutes.

Rules & Regulations for Degree of Bachelor of Physiotherapy (B.P.T.)

R.B.P.T.–1 A candidate applying for the degree of B.P.T. being eligiblefor admission to the Physiotherapy College, SumandeepVidyapeethmust have:

Passed the higher secondary examination of twelfth standard inscience stream (Physics, Chemistry, Biology & English) conducted by the Gujarat secondary educationboard or its equivalent examination with recognized board.

Completed the age of 17 years at the time of admission or willcomplete this on 31stDecember of the year of his / heradmission to the course.

R.B.P.T. –2 The candidate for the degree of B.P.T. shall be required toundergo a period of certified study extending over 4 years.After a period of study extending

over one academic year acandidate on the production of necessary certificates would beentitled to appear for the F.Y. B.P.T.examination. After passingthe F.Y. B.P.T. examination a candidate can appear for the S.Y. B.P.T. examination only after completing the courseprescribed under relevant regulations. The same rule is appliedfor the T.Y. & Final academic year. The degree of B.P.T. will not be conferred upon acandidate unless he undergoes internship for a period of sixmonths in the manner prescribed in relevant regulation, (as inR.B.P.T.12) subsequent to his / her passing the Finalexamination. i.e. Final year B.P.T.

R.B.P.T. -3 Candidate desirous of appearing for any examinationmust forward their applications in the prescribed form to theRegistrar through the Principal of the institution on or before the date prescribed for the purpose under the relevantordinances.

R.B.P.T. –4 No candidate will be allowed to reappear at any Examination inwhich he / she has already passed.

R.B.P.T.– 5 For the purpose of deciding final university results at theF.Y., S.Y., T.Y. & Final Year B.P.T. Examination, the ratiobetween Internal and the external assessment will be the sameas indicated in the scheme of examinations.

R.B.P.T. – 6 Following are compulsory for being eligible to appear at anyexamination.

i. **Attendance:** as per University rule minimum of 75% attendance ineach subject. Wherever two or more subjects are combined and form asingle paper like Psychology & Sociology, Pathology &Microbiology,Medicine–I, Medicine II, Medicine-III and Surgery subjects, a minimum of 60% ofattendance in each individual subject and an overall aggregate of 75%attendance in that concerned subject shall be required.

ii. **Internal assessment:** A minimum of 35% of the total marks of eachsubject for both theory and practical.

Note: Principal of the college will have to certify for both abovein the examination form, based on the record (log) book of thestudent.

R.B.P.T. – 7 Rules regarding internal and external evaluation for F.Y., S.Y.,T.Y. & Final Year B.P.T. Examinations.

Theory & Practical
Internal assessment:

For all the years of BPT, the Internal marks are 20% of the total marks of Theory and Practicals, separately. (For 100 marks of theory / practical – 20 marks are allotted to internals. For 50 marks of theory – 10 marks are allotted to internals)

Distribution of internal marks shall be as under:

For subjects (Theory & Practical) in which internal marks are 20, the distribution is as follows:

12 marks (60%) from College Internal Exams

4 marks (20%) from CCES tests

4 marks (20%) for attendance (1 mark for >80% to 85%, 2 marks for >85% to 90%, 3 marks for >90% to 95%, 4 marks for > 95% to 100%)

For subjects in which internal marks are 10, the distribution is as follows:

06 marks (60%) from College Internal Exams
2 marks (20%) from CCES tests
2 marks (20%) for attendance (0.5 mark for >80% to 85%, 1 marks for >85% to 90%, 1 ½ marks for >90% to 95%, 2 marks for > 95% to 100%)

Both CCES test and attendance will be a part of CCES, i.e. 20%+20%, total of 40%

There shall be minimum of two examination, one internal and onepreliminary examination respectively.

a. The result of each test shall be displayed on the notice board within one month after it is held.
b. The answer-scripts of the candidate in the various tests shall be duly examined and assessed by the Examiner concerned with the College and shall be marked in ink, and no marking shall be erased or defaced and no correction of marking will be made without corresponding initial of examiners to whom the work was assigned, in support of the correction.
c. The result of the internal evaluation shall be placed on the college noticeboard at least one week before the date on which university examination commences, and in any doubt or dispute regarding it, the student should apply to the principal of College within two days of the declaration of the result for internal evaluation in the subject concerned. If a mistake is found the principal shall communicate the amended result to the University. Noamendment shall be entertained once the University Examination commences.
d. The decision of the Principal in the internal evaluation, of any doubt or dispute relating to it, shall subject to time limit mentioned in (c)above, shall be final and no appeal shall be entertained thereon.
e. It shall be the duty of the college to communicate the result of internal evaluation of all the candidates whether fresh / repeaters by the prescribed date and in the prescribed manner to the University.

External Theory Examination:

1. Board of paper setter:
   As per Sumandeep Vidyapeeth Examination Policy.
2. Qualification of paper setter/Examiner/Convener – Masters Degree in respective professional course with preferably three years full time teaching experience as Lecturer / Asst. Professor.

   OR

   SumandeepVidyapeeth recognized teacher-holding degree in the respective professional course with minimum three years full time teaching experience. (such rules shall be relaxed to two years full time teaching experience if the candidate has more than ten years full time clinical experience at a recognized teaching institute).
3. Instructions to paper setters:The paper shall cover the entire syllabus of the subject and avoid setting question based on the psycho motor domain. Instructions if any shall bestated in bold letters – e.g. “Draw neat diagram” The paper shall be set according to the examination structure /pattern given in the Annexure 7

PRACTICAL EXAMINATION:

Panel of examiners&Selection criteria of examiners :

a. For any practical examination, appointment of the internal/External examiners shallbe according to the policy of SumandeepVidyapeeth.
b. Qualification of the examiner shall be same as the paper setter.
c. The University shall procure in advance the list of internaland external examinersso that on the 11th hour, the University shall select the substitute candidate fromthe list provided in case of non-acceptance of any external/internal examiner.

The Principal shall be the central co-ordinator of the centre forpractical examination.

Number of candidates to be evaluated per day: There shall be up to 35 candidates evaluated per day for any NONCLINICAL / PRACTICAL examination and up to 30 candidates evaluated perday for CLINICAL examination. The distribution of number of candidates across the total no. of days on which the practical examination held should be compatible.

Pattern of examination: The pattern shall be according to the need ofthe particular subject. The convener shall take care that maximum syllabusshall be covered in the practical examination. It is recommended to include viva&OSPE/OSCE methods in the exam.

R.B.P.T.- 8 The details of syllabus of the subjects for the F.Y., S.Y., T.Y. & final B.P.T. will be according to the under mentionedannexures.

Annexure- 1 List of Subjects of all years
Annexure- 2 Subjects transcripts
Annexure- 3 Syllabus for the subjects of F.Y.B.P.T
Annexure- 4 Include syllabus for the subjects of S.Y.B.P.T. & practicalexam Scheme for physiotherapy subjects
Annexure- 5 Include syllabus for the subjects of T.Y.B.P.T. & practicalexam Scheme for physiotherapy subjects
Annexure- 6 Include syllabus for the subjects of Final B.P.T. & practicalexam Scheme for physiotherapy subjects

R.B.P.T.-9 STANDARD OF PASSING:

A. To pass the F.Y., S.Y., T.Y.and Final year examination a student mustobtain: Minimum of 50 % marks in aggregate of both internal and external, intheory and practical in each subject separately.Failing to satisfy this condition the students will have toreappear in full subject in theory and practical.
B. 75% and above of the grand total shall be declared as Distinction.
C. 60% and above of the grand total shall be declared as first class
D. 55% but less than 60% of the grand total shall be declared to have passed with Second class.

The subject or subjects in which successful candidates maydistinguish themselves will be shown on the mark sheet. To obtaindistinction / first class in any subject, the candidates should passthe exam in the first attempt in all the subjects. Only those candidateswho have passed the whole examination are eligible for distinctionor for any prize to be awarded at the examination.

R. B.P.T.10 RE-EVALUATION : As per rules of SumandeepVidyapeeth.

R. B.P.T.11 COMMENCEMENT OF EXAMINATION:

The examination for BPT course shall be held at the end of each academic year.

1. A candidate who fails in two or less than two subjects shall be Allowed to Keep Term (ATKT) during all years of study; however the candidate has to pass the ATKT subject/s for that particular year to be eligible to take higher examinations. Ref:SVDU/COE/Exam/01/2013 dated 07/01/2014

2. That the re-examination/supplementary examinations will be conducted not before 4 months and not later than six months after the last examination, preferentially during January & July each year.

3. Students need to be emphasized that the failed / repeater batch shall be allowed to carry 02 subjects however the students with ATKT will have to clearall the ATKT subjects before appearing for any higher examinations, i.e. say a student carrying 02 subjects does not clear the supplementary exams, may be permitted to continue with course work of advance class, however shall not be permitted to appear for any higher examination unless the student passes / clears all the ATKT subjects.
   (Notification No. SVDU/Exam/COP-NAAS/2673/12/2014 dated 20/12/2014)

4. Barring the ATKT exemptions above; the candidates who fails will have to repeat that particular year of study till he/she clears all the papers of that year course of study to be promoted to next class.

5. (A) That the failed candidate (other than ATKT students) will have to attend the theory, practicals, tutorials, clinical postings and any other remedial program and also undergo evaluations (including ATKT students) as scheduled for them during period between the last exam and forthcoming exam.

   (B) Respective constituent units will calculate fresh internal assessment marks based on the performance, attendance etc. (vide respective statutory regulations) during the preceding period and submit it to the university within stipulated time for use during subsequent examination of the failed candidate. The previous I.A marks shall not be carried forward.

   The above mentioned clauses of exam reforms notification has been modified and interpreted as " That, the respective constituent units shall calculate fresh internal assessment marks based on the performance, attendance etc. (vide respective statutory regulations) during the preceding / repeat period and consider the best of previous internal assessment marks and current internal assessment marks to be submitted to the University before start of University theory examinations for use during subsequent examinations of the failed candidate"

(vide Notification Ref: SVDU/EXAM/4860/05/2017, dated 23/05/2017)

6. That the repeater student after passing will join the academic activities of higher class that are ongoing at that particular period of time. However, there may be possibility of creating a fresh batch as the case may be.

R.B.P.T.12: INTERNSHIP CRITERIA

For the Degree of Bachelor of Physiotherapy, the students after passing the professional examinations as per the syllabi prescribed by the Sumandeep Vidyapeeth, for First B.P.T., Second B.P.T., Third B.P.T. and Final Year B.P.T. shall undergo Six months compulsory rotatory (stipendiary allowances as per policy of Sumandeep Vidyapeeth) internship training program to develop skill and acquire clinical knowledge with proficiency in managing patients independently. The program of internship shall be as annexure- 8. The internship should be preferably done in Dhiraj Hospital however in case of student opting outside, a teaching hospital / MCI /IAP / SV recognized institutes as in annexure -9 shall be considered, and as per the rules of SumandeepVidyapeeth.

ANNEXURE – I

List of subjects of F.Y., S.Y., T.Y. and Final year B.P.T. as per university examination.
*** Subject shall mean some subjects inclusive of respective allied subspeciality**

F.Y. B.P.T.
1. Human Anatomy
2. Human Physiology
3. Bio-Chemistry
4. Psychology & Sociology
5. Bio-Medical Physics
6. Exercise Therapy –I & Massage Manipulation
7.Computer Applications #
8. Nursing, First Aid with emphasis on CPR #
9. English #
10. Evidence Based Physiotherapy I*

Not for University Exams
*Grade based results.

S.Y. B.P.T.
1. Pathology & Microbiology
2. Pharmacology
3. Medicine- I (Neurology & Pediatrics)
4. Medicine –II (Dermatology & Psychiatry)
5.Orthopedics & Traumatology
6. Exercise Therapy – II & Kinesiology
7. Electrotherapy (Introduction)#
8. Evidence Based Physiotherapy II*

Not for University Exams
*Grade based results.

T.Y. B.P.T.
1.Medicine – III(General Medicine, Cardio Vascular, Respiratory Conditions, Intensive& Emergency Care).
2. Surgery I(General Surgery, Cardio Vascular thoracic Surgery, Neuro Surgery)
3. Surgery II (Obstetrics & Gynecology)
4. Community Medicine
5. Electro Therapy
6. Physical and Functional Diagnosis
7. ENT#
8. Opthalmology #
9. Radiology #
10. Evidence Based Physiotherapy III*

Not for University examinations
*Grade based results.

FINAL B.PT.
1. Physiotherapy in Musculo-Skeletal Conditions

2. Physiotherapy in Neurosciences
3. Physiotherapy in Cardio-Thoracic, Medical & Surgical Conditions
4. Community Physiotherapy and Rehabilitation
5.Bio-Statistics & Research Methodology
6. Allied Therapeutics#
7. Management and Ethics#
8. Evidence Based Physiotherapy IV*

Not for University examinations
*Grade based results.

ANNEXURE – II

SUBJECT TRANSCRIPT (Minimum prescribed hours for teaching)

No. SUBJECT	Total hours
1. Human Anatomy	300
2. Human Physiology	250
3. Bio-Chemistry	050
4. Psychology & Sociology	080
5. Bio-Medical Physics	150
6. Exercise Therapy –I & Massage Manipulation	275
7.Computer Applications #	040
8. Nursing, First Aid with emphasis on CPR #	010
9. English #	020
10. Evidence Based Physiotherapy I*	040
11. Pathology & Microbiology	100
12. Pharmacology	050
13. Medicine- I (Neurology & Pediatrics) (80+40)	120
14. Medicine –II (Dermatology & Psychiatry)	050
15. Orthopedics & Traumatology	120
16. Exercise Therapy – II & Kinesiology	280
17. Electrotherapy (Introduction)#	040
18. Evidence Based Physiotherapy II*	040
19.General Medicine,	030
20.Cardio Vascular &Respiratoy Conditions,	030
21.Intensive& Emergency Care	020
22. Surgery I (General Surgery, Cardiothoracic Surgery, Neuro Surgery)	100
23. Surgery II (Obstetrics & Gynecology)	050
24. Community Medicine	080
25. Electro Therapy	200
26. Physical and Functional Diagnosis	120
27. ENT#	010
28. Plastic Surgery#	010
29. Opthalmology #	008
30. Radiology #	010
31. Evidence Based Physiotherapy III*	040
32. Physiotherapy in Neurosciences	120
33. Physiotherapy in Musculo-Skeletal Conditions	120
34. Physiotherapy in Cardio-Thoracic, Medical & Surgical Conditions	120
35. Community Physiotherapy and Rehabilitation	080
36. Bio-Statistics & Research Methodology	050
37. Allied Therapeutics#	010
38. Management and Ethics#	020
39. Evidence Based Physiotherapy IV*	040
40. Clinical Hours during I, II, III & IV year	2200
41. Internship clinical hours	1144
TOTAL	**6627**

FOLLOWING IS THE SYLLABUS OF VARIOUS SUBJECTS OF B.P.T. EXAMINATION

ANNEXURE –3

(A)F.Y.B.P.T.

(1) HUMAN ANATOMY (BPY101T, BPY101P)

Objectives:
At the end of the course, the student will be able to:
1) Acquire the knowledge of structure of human body in general.
2) Understand the regional anatomy in detail.
3) Anatomical changes right from embryonic period till old age.
4) Understand histological features of various organs.
5) Understand its application in medical science

Course Outcome:
At the end of the course the student shall able to understand the knowledge of structure of human body, regional anatomy like upper and lower extremities, head and neck, thorax and application of anatomy in medical sciences.
Note: Emphasis to be placed on topographical, skeletal, neuromuscular,cardiovascular pulmonary and functional aspects of anatomy. Students must take part in dissections to identify various structures.

Syllabus: (BPY101T)
1.Theory
1.1 General introduction:
1.1.1 Definitions and subdivisions
1.1.2 Plan of the human body.
1.1.3 System of the body.
1.1.4 The unit of structure and function of the cell.
1.2 Osteology:
1.2.1 Terminology: Anatomical position, axes planes, surface relationship of parts of the body proximal, distal etc.
1.2.2 Bones: Type of bones, formation, function, growth and repair, structure of longbone, vertebral, column, types of vertebrae, bones of extremities and bony landmarks.
1.3 Arthrology:
1.3.1 Classification of joints.
1.3.2 Construction of joints.
1.3.3 Motions of joints.
1.3.4 Articulations – articular Surfaces, types of joints, motions of upper andlower extremities, trunk, head.
1.4 Myology:
1.4.1 Types of muscle tissue.
1.4.2 Muscles of upper extremity, lower extremity, trunk, eye, face etc. origin, insertion, nerve, supply and action (in detail)

1.5 Cardiovascular System :

1.5.1 Blood, lymph, tissue, fluid – characteristics, composition, function.

1.5.2 The heart –main arteries, veins, capillaries.

1.5.3 Lymph circulation.

1.6 Nervous System:

1.6.1 Division and function of the nervous system.

1.6.2 Nerve tissue-neuron, nerve, fibre, synapse, end-organs etc.

1.6.3 Spinal cord, Brain – their structures, divisions.

1.6.4 Peripheral and cranial nerves and their distribution, special emphasis on nerve supply to voluntary muscles, segmental distribution.

1.6.5 Cerebro – spinal fluid.

1.6.6 Sensory end organs and sensation.

1.6.7 Autonomic nervous system – sympathetic, parasympathetic.

1.7 Respiratory system:

1.7.1 Anatomy of respiratory organs-air passages, lungs, bronchial tree etc.Relation with diaphragm and thoracic cage.

1.7.2 Respiratory movements in detail

1.8 Digestive System:

1.8.1 Anatomy of digestive organs, -esophagus, stomach, intestine, rectum etc.

1.8.2 The associated glands of digestive system

1.9 Urinary System:

Anatomy of urinary organs, kidneys, ureter, urinary bladder etc. Emphasis on types of bladder in paraplegics.

1.10 Endocrine System:

Glands, sites, secretion, enzymes, hormones

1.11 Reproductive System:

1.11.1 Outline of reproductive system-male and female reproductive organs.

1.11.2 Family planning

1.12 Special sensory organs and sensations:

Emphasis on skin, ear and eyes, less detail on smell and taste.

1.13 Histology:

Cell, tissues of the body, epithelium, connective tissue, cartilage, bone,blood vessels, Lymphatic tissue, muscles and nerves.

1.14 General Embryology:

1.14.1Ovum, spermatozoa, fertilization and information of the Germ layers and their derivations

1.14.2 development of skin, fascia, blood

1.14.3 Neural tube, brain vessels and spinal cord

1.14.4 Development of brain and brain stem structures, developmental anomalies (in brief)

1.15 Genetics

1.15.1 Introduction to human genetics

1.15.2 Cytogenetics-Karyotype, Karyotyping; Details of X and Y chromosomes Barr body, Lyon’s hypothesis

1.15.3 Inheritance-Autosomal dominant and recessive inheritance, Y-linked inheritance, x-linked dominant and recessive inheritance, Pedigree charting

1.15.4 Medical genetics- Chromosomal aberrations- Structural & Numeral

1.15.5 Clinical genetics- Prenatal diagnosis, genetic counselling

2. Practical work: (BPY101P)

2.1 Dissection: Dissection of upper and lower extremities, back, anterolateral abdominal wall,thoracic wall. Identification and description of all anatomical structures, surface marking, points of palpation of nerves and arteries.

2.2 **Regional Anatomy**

2.2.1 Upper Extremity

2.2.1.1 Osteology: Clavicle, scapula, humerus, radius, ulna, carpals, metacarpals, phalanges in articulated hand

2.2.1.2 Soft parts : Breast, pectoral region, axilla, front & back of arm, cubital fossa, front of fore arm, back of fore arm, palm, dorsum of hand, muscles,fascia, nerves, blood vessels and lymphatic drainage of upper extremity

2.2.1.3 Joints: shoulder girdle, shoulder joint, elbow joint, radio ulnar joint, wrist joint and joints of the hand

2.2.1.4 Arches of hand, skin of the palm and dorsum of hand

2.2.2 Lower extremity:

2.2.2.1 Osteology: Hip bone, femur, tibia, fibula, patella, tarsals, metatarsals, andphalanges in articulated foot

2.2.2.2 Soft parts: Gluteal region, front and back of the thigh (femoral triangle,femoral canal and inguinal canal), medial side of the thigh(adductor canal),leg, sole of the foot, arterial supply of the lower limb, venous drainage ofthe lower limb, lymphatic drainage of lower limb, nerves of the lower limb,arches of foot, skin of foot

2.2.2.3 Joints: Hip joint, knee joint, ankle joint, joints of the foot

2.2.3 Trunk:

2.2.3.1 Osteology: Cervical, thoracic, lumbar, sacral and coccygeal vertebrae and vertebral column and ribs

2.2.3.2 Soft parts: pre and para vertebral muscles, intercostal muscles, anteriorabdominal wall muscles, intervertebral disc. Thoracic and abdominalviscera

2.2.4 Head and neck:

2.2.4.1 Osteology: Mandible and bones of the skull

2.2.4.2 Soft parts: muscles of the face and neck and their nerve and blood supply extraocular muscles, salient points about the eye ball and internal ear and viscera

2.2.5 Neuro-Anatomy:

2.2.5.1 Organization of the central nervous system – spinal nerves and autonomic nervous system mainly pertaining to cardiovascular, respiratory and urogenital systems

2.2.5.2 Cranial nerves

2.2.5.3 Peripheral nervous system: Peripheral nerves, sensory end organs, neuromuscular junction and spinal segments and area.

2.2.5.4 Central nervous system- spinal cord, brains steam, cerebellum, Thalamus, Hypothalamus. Corpus striatum, Cerebral hemisphere – white and gray matter, Lateral ventricles, Blood supply of brain, Meninges, The pyramidal system and extrapyramidal systems, Anatomic integration

2.2.6 Surface Anatomy:

2.2.6.1 Bony land marks of body especially of extremitiesArteries and nerves of extremities
2.2.6.2 Lung, pleura, fissures and lobes of the lung, heart, liver, spleen and kidney
2.2.6.3 Cranial nerves
2.2.6.4 Demonstration of movements of important joints

Recommended Text books:
1.Anatomy by Chaurasia all 3 volumes
2.General Anatomy by Chaurasia
3.Central nervous – by Podar and Bhagat
4.Cunningham's manual of practical anatomy

Reference books:
1.Human anatomy by Snell
2.Anatomy and Physiology by Smout and Mcdowell
3.Neuro anatomy by Inderbirsingh
4.Gray's Anatomy

(2) HUMAN PHYSIOLOGY (BPY102T, BPY102P)

Objectives:
At the end of the course the student will be able to:
1)Explain the normal functioning of all the organ systems and their interactions for well - coordinated total body functions with special reference to musculo-skeletal, nervous system, cardio-respiratory, female uro-genital system and alteration in functions of organs due to aging.
2)Assess the relative contribution of each organ system to the maintenance of the milieu interior [Homeostasis]
3)Describe the physiological response and adaptations to environmental stresses with special emphasis on physical exercise and environmental temperature.
4)Acquire the skill of basic clinical examination, with special emphasis to exercise tolerance/ Ergography.

Course Outcome:
At the end of the course the student shall able to understand the functioning of organ systems and their interactions, contribution of each organ system in maintaining homeostasis and body functions. Be able to describe physiological responses to exercises.

Syllabus: (BPY102T)
1. Theory
1.1 GENERAL PHYSIOLOGY
1.1.1 Cell, structure and function
1.1.2 General Principles of Biophysics
1.1.3 Homeostasis
1.2 BLOOD
1.2.1 Introduction, Composition of blood
1.2.2 Plasma protein
1.2.3 Red Blood Cells, Anemia, Polycythemia
1.2.4 White Blood cells, Leukopenia, and Inflammation
1.2.5 Innate immunity and Acquired immunity

1.2.6 Hemostasis and Blood Coagulation, Platelets
1.2.7 OAB Blood types; Rh Blood types; Transfusion
1.3 CARDIOVASCULAR SYSTEM
1.3.1 Introduction to cardio-vascular system
1.3.2 Heart muscle; the heart as a pump and function of the heart valves
1.3.3 Cardiac cycle and heart sounds
1.3.4 Rhythmical excitation of the heart, The normal electrocardiogram
1.3.5 Cardiac output, venous return, and their regulation.
1.3.6 Heart rate and its regulation
1.3.7 Blood pressure and its Regulation, Hypertension
1.3.8 Physiology of shock, Hemorrhage
1.3.9 Effects of exercise on cardiovascular system
1.4 RESPIRATORY SYSTEM
1.4.1 Mechanics of pulmonary ventilation
1.4.2 Lung volumes and capacities.
1.4.3 O_2 transport between the lung and tissues
1.4.4 CO_2 transport between the tissues and lungs
1.4.5 Regulation of Respiration
1.4.6 Effects of exercise on respiratory system
1.4.7 Hypoxia, Asphyxia, Dyspnoea, Cyanosis
1.4.8 Artificial Respiration
1.5 DIGESTIVE SYSTEM
1.5.1 General principles of Gastrointestinal function
1.5.2 Composition, function, and Nervous Regulation of salivary secretion.
1.5.3 Physiology of swallowing
1.5.4 Composition, functions and Regulation of Gastric secretion
1.5.5 Gastric motility, Gastric emptying, Regulation of Gastric emptying
1.5.6 Composition, Functions and Regulation of pancreatic secretion
1.5.7 Composition, Functions and control of Bile secretion
1.5.8 Functions of Liver
1.5.9 Motility of small intestine
1.5.10 Functions of small intestine - secretion, digestion and absorption
1.5.11 Functions of large intestine - Defecation
1.5.12 Digestion, and absorption of carbohydrates, fats and proteins
1.6 ENDOCRINE SYSTEM
1.6.1 Anterior Pituitary hormones.
1.6.2 Posterior Pituitary hormones
1.6.3 Thyroid hormones.
1.6.4 Hormones of Adrenal Cortex
1.6.5 Hormones of Adrenal Medulla
1.6.6 Parathyroid hormone calcitonin, vitamin D
1.6.7 Insulin, Glucagon, and Diabetes mellitus
1.7 REPRODUCTIVE SYSTEM
1.7.1 Physiology of the male & Female sexual organs
1.7.2 Puberty
1.7.3 Spermatogenesis, functions of FSH, LH and Testosterone.
1.7.4 Menstrual cycle
1.7.5 Pregnancy
1.7.6 Lactation
1.7.7 Male and female contraception

1.8 EXCRETORY SYSTEM
1.8.1 Multiple functions of the kidneys in homeostasis
1.8.2 Structure and function of Nephron
1.8.3 Mechanism of urine formation by the kidneys
1.8.4 Renal function tests.
1.8.5 Physiology of micturition.
1.9 SPECIAL SENSES
1.9.1 Structure of Eye, Functions of rods and cones, Photoreceptor mechanism
1.9.2 Color vision
1.9.3 Errors of Refraction
1.9.4 Visual pathway, visual cortex
1.9.5 Physiology of hearing
1.9.6 Vestibular apparatus and its function
1.9.7 Sensations of taste and smell
1.10 MUSCLE AND NEURO MUSCULAR JUNCTION
1.10.1 Introduction to muscular system, Types of muscles and functions of eachtype.
1.10.2 Structure and properties of skeletal muscle
1.10.3 Molecular mechanism of muscle contraction
1.10.4 Energetics of muscle contraction
1.10.5 Motor unit recruitment and fatigue
1.10.6 Applied physiology of skeletal muscle - tone, atrophy, hypertrophy, effectof motor nerve sectioning, effect of exercise
1.10.7 Neuro-muscular transmission and excitation - contraction coupling,Myasthenia Gravis
1.10.8 Electromyography
1.10.9 Excitation and contraction of smooth muscle
1.10.10 Properties of cardiac muscle
1.10.11 Comparison of skeletal, smooth, and cardiac muscles
1.11 NERVOUS SYSTEM:
1.11.1 Structure and function of Neurons, Resting Membrane potential, actionpotential, saltatory conduction.
1.11.2 Wallerian degeneration and regeneration in peripheral nerves
1.11.3 Synapse, properties of synapse, synaptic fatigue
1.11.4 Introduction to sensory physiology, sensory receptors
1.11.5 General sensations: Touch, pain, pressure, proprioception
1.11.6 Pain receptors, pain sensations, referred pain
1.11.7 Pain control systems of the body
1.11.8 Sensory tracts
1.11.9 Introduction to motor system, reflex arc, stretch reflex
1.11.10 Pyramidal and extra-pyramidal tracts
1.11.11 Hemisection and complete section of spinal cord
1.11.12 Upper motor neuron paralysis and lower motor neuron paralysis
1.11.13 Basal ganglia and their role in control of voluntary movement
1.11.14 Cerebellum
1.11.15 Hypothalamus, Role of hypothalamus in regulation of body temperature
1.11.16 Limbic system
1.11.17 Physiology of sleep
1.11.18 Physiology of learning and memory
1.11.19 Physiology of speech
1.11.20 Cerebral Cortex and its functions

1.11.21 Cerebro-spinal fluid
1.11.22 Blood brain Barrier
2. Practical & Demonstration: **(BPY102P)**

2.1. BLOOD
2.1.1 Hemoglobin Estimation
2.1.2 TotalR.B.C. count.
2.1.3 Preparation and staining of Blood smears
2.1.4 DifferentialW.B.C count (DLC).
2.1.5 TotalW.B.C. count
2.1.6 Blood grouping.
2.1.7 Bleeding & clotting time.
2.1.8 Erythrocyte Sedimentation rate (ESR).
2.2 Respiratory System
2.2.1 Artificial Respiration
2.2.2 Lung volume and capacities
2.3 Cardiovascular system
2.3.1 Auscultation of Heart sounds
2.3.2 Measurement of arterial blood pressure
2.3.3 Cardiac efficiency tests
2.3.4 Recording and study of Electrocardiogram
2.3.5 Radial pulse examination
2.4 Nervous system
2.4.1 Cranial nerve examination
2.4.2 Sensory system examination
2.4.3 Superficial and deep reflexes
2.4.4 Motor system examination
2.4.5 Ergography
2.5 Various Stimulation on Frog
2.5.1 Varieties of stimuli, electrical apparatus for physiological experiment.Frogs Nerve muscle preparation and demonstration of the following experiments on it
2.5.2 Simple muscle twitch.
2.5.3 Effect of load & temperature, genesis of tetanus and fatigue on muscular contractions.
2.5.4 Frog's normal cardiogram.
2.5.5 Effect of following on normal cardiogram of frog.
2.5.5.1 Temperature.
2.5.5.2 Extrasystole.
2.5.5.3 Stimulation of vago-sympathetic trunk.

Recommended Text books:
1.Human physiology – Chatterjee
2.Text book of Medical physiology – Guyton & Hall
3.Concise Medical physiology by chaudhari
4.Text book on Medical physiology – Sembulingam

Reference Books
1. Review of Medical physiology – William F Ganong

(3) BIO – CHEMISTRY (BPY103T)

Objectives:
At the end of the course, the student will be able to:
1.describe the structure and function of the cell in brief
2.describe the normal functions of different components of food
3.describe Basal Metabolic rate and the factors affecting the same (in brief) with special reference to obesity
4.discuss nutritional aspects of carbohydrates, lipids, proteins, vitamins and minerals and their metabolism with special reference to obesity
5.define enzymes and discuss in brief the factors affecting enzyme activity, and diagnostic use of enzymes
6.describe in detail the biochemical aspects of muscle contraction
7.acquire knowledge in brief about the clinical biochemistry, with special reference to liver and renal function test, blood study for lipid profile, metabolism of fat, carbohydrate, proteins, bone minerals, electrolyte balance, water balance and acid base balance

Course Outcome:
At the end of the course the student shall able to describe components of food and their nutritional aspects and functions. Able to acquire knowledge on clinical biochemistry tests like blood, liver and renal functions and their importance in body functions.

Syllabus:
1 Cell biology:
1.1 Membrane structure and function
1.2 Functions of intracellular organs in brief
2 Carbohydrates:
2.1 Chemistry, definition, classification with examples
2.2 Function of mucopolysaccharide (in detail)
2.3 Reducing properties of sugars of clinical and diagnostic, importance (e.g. Benedict's test, Barfoed"s test etc.)
2.4 Metabolism digestion and absorption of carbohydrates, glycolysis-aerobic and anaerobic, energetics and regulation
2.5 Kreb's cycle, its energetics regulation, and role of TCA cycle
2.6 Glycogenesis, Glycogenolysis, their regulation, and the role of liver and muscle glycogen
2.7 Significance of HMP shunt, and gluconeogenesis
2.8 Hormonal regulation of blood sugar level, important metabolic disorders of glycogen, lactose intolerance, diabetes mellitus
3 Proteins:
3.1 Chemistry, definition, classification of amino acids, protein structure, effect of temperature on proteins, denaturation, coagulation, isoelectric pH and its importance.
3.2 Metabolism, digestion, and absorption, decarboxylation, deamination, Transmethylation, transamination and their importance and detoxification of ammonia including urea cycle.
3.3 Special products of amino acids, e.g., phenylalanine, glycine, methionine
3.4 Neurotransmitters
3.5 Plasma proteins including immunoglobulins,

3.6 Hemoglobin, myoglobin, functions haemoglobinopathies, Thalassemia
3.7 Structural proteins: Collagen, elastin
4 Lipids:
4.1 Chemistry, Definition, classification and function
4.2 Metabolism, digestion and absorption of lipids, beta-oxidation of fatty acids and its energetics, regulation of fat metabolism in adipose tissue, ketone bodies formation and its utilization, cholesterol and importance of lipoproteins, lipoprotienemia with atherosclerosis-causes and prevention, fatty acid synthesis, fatty liver and obesity
5 Nucleic acids, nucleosides and nucleotides
DNA, RNA – definition, structure and functions, types, genetic codes catabolism of purines – gout
6 Enzymes:
6.1 Definitions, Coenzymes, classification, factors, affecting
6.2 Inhibition and types of inhibitors,
6.3 Isoenzymes
6.4 Clinical and therapeutic uses of enzymes
7 Vitamins:
Definition, classification, functions, deficiency symptoms, RDA
8 Biological oxidation:
Oxidativephosphorylation and ETC
9 Minerals:
9.1 Phosphate, calcium and iron (in details)
9.2 Magnesium fluoride, zinc, copper, selenium, Molybdenum, iodine-sources, RDA, absorption, transport, excretion, function and disorders Acid base balance, water and electrolyte balance
10 Connective tissue:
Biochemistry of connective tissue-collagen, glycoprotein, proteoglycans
11 Nutrition and BMR, PEM balanced diet
12 Clinical Biochemistry:
12.1 Liver function test and renal function test
12.2 Relevance of blood levels of glucose, urea, calcium, phosphate and uric acid
12.3 Enzymes-amylase, CPK, LDH, Isoenzymes
12.4 Lipid profile – Triglyceride, Cholesterol, HDL, LDL, VLDLetc
12.5 Glycosuria

Recommended Text books:

1.Biochemistry by Dr. Vasudevan
2.Biochemistry by Dr. Satyanarayana
3.TB of Biochemistry by Dr. Dinesh Puri

Reference book:

1.Review of biochemistry by Harper (24th Ed.)
2.Biochemistry – Lippincott

(4) PSYCHOLOGY & SOCIOLOGY (BPY104T)

(A) PSYCHOLOGY

Objectives:

At the end of the course the candidate will

1.be able to define the term psychology and its importance in the healthdelivery system and gain knowledge of psychological maturation duringhuman development and growth and alteration during aging process
2.be able to understand the importance of psychological status of the person in health and disease, environmental and emotional influence on the mindand personality
3.to acquire the knowledge as to how to deal with the patientReference should be made where ever appropriate to the therapist's relationshipwith the patient and with his professional colleagues. Emphasis should be laid onthe effects of disease on the patient's behaviour.

Course Outcome:
At the end of the course student shall be able to understand importance of psychology in the health delivery system, its importance in influencing the mind and personality. Be able to understand effects of disease on patient's behaviour and how to deal with a patient.

Syllabus:
1.Introduction of psychology, school of psychology, biology of behavior
2.Therapy for psychological distress
3.**Biological foundation** of behavior, hereditary and environment and
logical basis for development, developmental psychology (child)
4.**Learned and unlearned behavior:** simple learning and conditioning,social learning
5.**Thinking and Intelligence:**Learning and problem solving, development of conceptual thinking in children. Communication, language and thinking.Measurement of intelligence, influences on intelligence, extent andconsequence of individual difference.
6.**Perception:** Sensory basis of perception, attention and perception, observer error
7.**Memory:** Phases of memory, short term storage, memory and perception thinking etc. forgetting testimony and recall of events. Memory and ageing.
8.**Motivation and Emotion:** Approaches to motivations,emotion, development, influence of early experience. Family and social influences on motivation and behavior.
9.**Personality:**nature of personality structure and dynamics, dimensional,psycho analytical and constitutional theories of personality, measurement of personality, culture and personality patterns.
10.**Attitude:** Nature of attitudes and beliefs including prejudice, group influences on attitudes, attitude change, doctor – patient expectations and attitude, prejudice formation and reduction.
11.**Interpersonal Behavior:** Experimental analysis on social interaction,studies of the interview situation, behavior in formal and informal groups,group norms and roles. Leadership in formal and informal groups, group morale.
12.**Social Psychology :** Nature and scope of social psychology, socialinteraction, psychological groups and their classification, socialization of theindividual social control (social heredits) – moves, customs, fashion,propaganda and its techniques.
13.**Tests :** Weschler scales, stanford – binet intelligence scale, bender andGestalt – other projective test, Anxiety scale.

Recommended books:

1.Morgan CT & king RA–Introduction to psychology –7th edn(Tata McGraw – Hillpublication

2.Munn. NL – Introduction to psychology (premium oxford, IBP publish C/o.)

(B) SOCIOLOGY

Objectives:

At the end of the course the candidate will

1.be able to define the term sociology and its importance in the health deliverysystem

2.be able to understand the basic sociological concepts, principles and social process, social institution in relation to the individual family and communityand the various social factors affecting the family in rural and urbancommunities in India.

Course Outcome:

At the end of the course the student shall able to understand importance of sociology in the health delivery system, how social factors affecting the health and disease. Also able to understand how social institutions like family can get affected with health and disease and how they can support a patient.

Syllabus:

1. Introduction:

1.1 Meaning – definition and scope of sociology

1.2 Its relation with anthropology, psychology, social psychology and ethics.

1.3 Methods of sociology – case study, social survey, questionnaire interview andopinion poll methods.

1.4 Importance of its study with special reference to health care professionals.

2. Social factors in Health and disease:

2.1 The meaning and nature of socialization

2.2 The role of social factors in health and illness

3. Socialization:

3.1 Meaning and nature of socialization

3.2 Primary, secondary and anticipatory socialization

3.3 Agencies of socialization

4. Social Groups:

Concepts of social groups, influence of formal and informal groups on healthand sickness, the role of primary groups and secondary groups in the hospitaland rehabilitation setting.

5. Family:

5.1 The family

5.2 Meaning and definition

5.3 Function

5.4 Types

5.5 Changing family patterns

5.6 Influence of family on the individuals health, family and nutrition, theeffects of sickness on family and psychosomatic disease and theirimportance to physiotherapy

6. Community:

6.1 Rural community-meaning and feature-health hazards of ruralites

6.2 Urban community- meaning and features- health hazards of urbanites

7. Cultural and Health:
7.1 Concept of cultural
7.2 Culture and behavior
7.3 Cultural meaning of sickness
7.4 Cultural and health Disorder
8. Social change:
8.1 Meaning of social changes
8.2 Factors of social change
8.3 Human adaptation and social change
8.4 Social change and stress
8.5 Social change and deviance
8.6 Social change and health programme
8.7 The role of social planning in the improvement of health and rehabilitation
9. Social Problems of Disabled:
Consequences of the following social problems in relation to sickness anddisability, remedies to prevent these problems.
9.1 Population explosion
9.2 Poverty and unemployment
9.3 Beggary
9.4 Juvenile delinquency
9.5 Prostitution
9.6 Alcoholism
9.7 Problems of women in employment
10. Social Security: Social security and social legislation in relation to disabled
11. Social worker: Meaning of social work. The role of a medical social worker

Recommended Text books:
1.Sachdeva and Vidyabushan, Introduction to the study of sociology
2.IndraniT.K. TB of Sociology for graduates nurses and physiotherapystudents, JP Brothers, New Delhi
3.Social Problems in India – By Ram Ahuja

(5) BIO-MEDICAL PHYSICS (BPY105T, BPY105P)

Objectives:
At the end of the course the candidate will able to
1.describe the fundamentals of general physics and able to relate itsapplication in physiotherapy
2.understand basic physical principles of sound, light and heat and theirapplication in physiotherapy field
3.understand basic aspects of electricity and electronics as related to its application in electrotherapy instruments
4.describe in brief, certain common electrical components such as capacitors,transformers, valves & transistors and will be able to identify suchcomponents.
5.understand the fundamentals of computer and its application

Course Outcome:
At the end of the course student shall be able to understand the fundamentals of physics, its relation in Physiotherapy sciences and basic physical principles of sound, light and heat and their application in physiotherapy field. At the end of the

course student shall be able to understand basic aspects of electricity and common electrical components and their application in electrotherapy equipment.

Syllabus: (BPY105T)

1. Theory

1.1 General Physics: Force – Definition, unit, resolution of forces. Newton's laws of motion. Types of motion, direction and quantity of motion. Force of gravity,center of gravity. Reaction forces, Equilibrium,determination of equilibrium of abody. Work, power, energy, torque. Friction – force of friction, static and dynamic friction, limit of friction, friction a necessity and evil. Simple machine – mechanical advantage, velocity ratio, efficiency, pulley, lever, wheel and axle,elasticity, spring properties of spring, fluid mechanic – viscosity, definition,coefficient of viscosity, streamline and turbulent flow, effect of temperature andpressure on viscosity. Principle of Archimedes, laws of floatation, hydrostaticpressure, buoyancy, surface tension, excess pressure in spherical liquefied drop.Physical property of water.

1.2 Heat: Heat transfer, properties of thermal radiation, absorptive power, emissive power,perfectly black body, blackbody radiation. Specific heat, thermal capacity, waterequivalent. Newton's laws of cooling. Determination of specific heat of a liquefiedby cooling, specific heat of gases, joules law of heat production. Energyconservation I and II law of thermodynamics, grothus law, physical effects of heat – expansion, evaporation, thermionic emission etc. concept of heat andtemperature, measurement of heat thermometry, thermometer. Method ofmeasuring body temperature. Human body temperature. Biophysics of superficialheat and cold.

1.3 Sound: Origin of sound, definition- wavelength, frequency, amplitude, time period,vibration, phase. Relation between frequency and wavelength. Newton's formulafor velocity of sound, laplace's correction, effect of temperature, pressure, densityof medium, humidity, wind. Velocity of sound in water. Interference of soundwaves. Resonance, velocity of sound in air by resonance method. Doppler effect,echo. Ultrasonics, production and its application. Recording and reproduction ofsound.

1.4 Light: Emission and absorption spectra. Electromagnetic spectrum - infrared specturm, ultraviolet spectrum. Laws of transmission, reflection, refraction, absorption.Interference of light. LASER and its application. Fiber optics.

1.5 Electricity: Conductors and insulators, fundamentals of electricity, different types ofcapacitors, biological cell as a capacitor. Principle laws of electricity: Ohms law,variable rheostat and potentiometer. Effects of electric current – thermal,chemical and magnetic effect. Electromagnetic induction, mutual – Lenz's law, Faraday's law, Fleming's right hand rule, self-induction, mutual induction,induction coil, induction of EMF in a coil rotating with in the magnetic field. Eddycurrents, Transformer, Step-up, step-down auto-transformers. Production ofelectricity and mains supply. Measurement of AC, DC, Milliammeter, voltmeter.

1.6 Modern Physics: Infrared radiation, Ultraviolet radiation, Short Wave diathermy, microwavediathermy. Electric shock – causes & prevention. Therapeutic currents: impulses– definition & types. Pulse duration & pulse depletion time. Galvanic currents,faradic currents, surging current, exponentially progressive current, biphasic stimulation, types of electrodes of electro-diagnostic and therapeutic application.

1.7 Electronics: Thermionic valves, semiconductor, diode characteristics, advantages ofsemiconductor over thermionic valves. Rectifier, transistors, photodiodes, lightdependent resistors, light emitting diodes, integrated circuits. Production of highfrequency current by klystron, magnetron. Electronic circuit – Oscillating circuit,production of shaped pulses, modification of electric pulses, amplification ofelectrical pulses. Cathode Ray Oscilloscope.

The following amendment is made for Omission ofPhysics practicalin First BPT syllabus as under: (Board of Studies letter no. COP/341/02/2023 dated 09/02/2023; and Vide Notification of Board of Management resolutions Ref: No. SVDU/NOTFN/0337/2022-23 dated 27/05/2023.)

Recommended Text books:

01. Physics for Scientist by Halliday and Resnick
02. Fundamentals of Bio Medical Physics by Akils Babita Saiyed
03. Text Book of Physics by Zemansky

(6) EXERCISE THERAPY –I & MASSAGE MANIPULATION (BPY106T, BPY106P)

Objectives:

At the end of the year the student will be able:

1.to understand the basic mechanical principles and effect of exercise therapeutic modality in the restoration of physical function.

2.to describe and also acquire the skills of application and demonstration of the use of various tools of the therapeutic gymnasium and of various starting and derived positions.

3.to describe the physiological and therapeutic effects of various movements and demonstrate in various anatomical planes.

4.acquire the skills of application of various massage manipulation and describe the physiological effect, therapeutic uses, merits / demerits of the same.

5.to demonstrate and acquire the skill of relaxation.

Course Outcome:

At the end of the course student shall be able to understand effect of exercise therapeutic modality in restoration of physical function. Student also able to describe the physiological and therapeutic effects of various movements and acquires the skills of using of various tools of the therapeutic gymnasium.

Student acquires the skills of application of various massage manipulation and describe the physiological effect, therapeutic uses, merits / demerits of the same.

Syllabus: (BPY106T)

1. Theory

1.1 General mechanical principles:

1.1.1 Mechanical principles applied in physiotherapy like force momentum torque etc.

1.1.2 Momentum action and reaction, friction, rotation about a pivot, angle of pull of muscle

1.1.3 Gravity: Definition, line of gravity, centre of gravity

1.1.4 Equilibrium – supporting base, stability, uses

1.1.5 Energy, work and power

1.1.6 Lever: Definition, orders of lever, examples in human body, levers functional, levers in physiotherapy
1.1.7 Springs – properties of springs, springs in series and parallel
1.1.8 Mechanics of muscle – group action of muscles, types of contraction, muscle work

1.2 Exercise Therapy

1.2.1 Introduction to exercise therapy
1.2.2 Physiological effects and uses of exercise
1.2.3 Uses of apparatus in exercise therapy
1.2.4 Joint movement – terminology, range of motion axis and planes Fundamental starting positions, derived position – effects and uses
1.2.5 Muscle work for all positions
1.2.6 Classification of movements
Active movements –definition types, techniques, effects and uses
Passive movements – definition, types, techniques of relaxed passive movements and uses, comparison of both movements.
1.2.7 Causes of restriction of range of movement – distinguish between skin, muscles, capsular Contracture
1.2.8 Goniometer – types principles and method for measuring each (ROM)
1.2.9 Group work – criteria of selection of patients advantages and disadvantages of group/ class exercises
1.2.10 Home exercises, trick movements
1.2.11 Suspension therapy – definitions of suspension and point of suspension, types of suspension, pulleys and use of pulleys in suspension therapy, application of suspension therapy either to increase the joins range or to increase muscle power

The following amendment is made for removingSET system in First BPT syllabus as under: (Board of Studies letter no. COP/SV/8441/12/2021, dated 6/12/2021; and Vide Notification of Board of Management resolutions Ref: No. SVDU/NOTFN/3070/2021-22, dated 30/07/2022)

1.2.12 Resisted Exercises- techniques and types of resistance
1.2.13 Free Exercise – classification. Technique, effects of free exercise,
1.2.14 Relaxation – concepts, principles, indications, techniques
1.2.15 Hydrotherapy: Physiological properties of water and hydrodynamic, physiological effect and application of Bad – Ragaz technique, indications and contra indications of hydrotherapy.
1.2.16 Assessment of sensation, reflex testing, blood pressure, pulse rate, chest, expansion and respiratory rate
1.2.17 Maintenance of record – range of motion,resistance

1.3 MASSAGE & MOBILIZATION

1.3.1 Introduction- brief history, definition, classification
1.3.2 Physiological effects and therapeutic uses, contra-indication
1.3.3 Preparation of patient, basic points to be considered before and during massage procedure
1.3.4Technique, effects and uses of each massage manipulation and contra indications
1.3.5 Specific effects of certain manipulations'
1.3.6 Massage for arm, leg ,neck and upper back, face
1.3.7 Massage for oedema, scar, tendinitis, fibrosis (tight fascia)
1.3.8 Practice of soft tissue manipulation in subjects

1.3.9 Mobilization of soft tissues, joints and fluids collection

2. Practicals: (BPY106P)

Skill included in Sr. No. 1.2.4 to 1.2.17 from Exercise Therapy (1.2) and Sr. No. 1.3.3 to 1.3.9 from massage & Mobilization (1.3) above to be practiced on self and model.

Recommended Text books:
1.Principles of Exs. Therapy – Dena Gardiner
2.Massage for Therapist- Margaret Hollis
3.Practical exs. therapy - Margaret Hollis & Cook
4.Guide line for Goniometry by Cynthia Norkin& Joyce white

Reference books:
1.Therapeutic Exercise foundation and techniques- Kisner
2.Clinical Kinesiology – Brunnstrom
3.Clinical Kinesiology for physical therapist Assistants- published by JP Bros.

Scheme of Practical Examinations
External + Internal Total
Practical - 80 + 20 = 100
1. Massage (Compulsory) 15 Marks
2. Suspension / Goniometry 20 Marks
(any one)
3. Any one of the following 10 Marks
(Passive movements, Active movement, Relaxation, Hydrotherapy,group/home exercise, Fundamental/derivedposition, Axes/planes, pelvic tilt, musclework, effects of exercise therapy,general principles of biomechanics)
4. Spots – 10 Spots – 2 Marks each 20 Marks
(based on therapeutic gymnasium –2 minutes per spots)
5. Viva Voce 10 Marks
6. Journal (Minimum of 12 topics) 05 Marks

(7) COMPUTER APPLICATIONS #
(Not for University exam)
Objective:
The course enables the students to understand the fundamentals of computerand its applications

Course Outcome:
At the end of the course the student shall able to understand basic anatomy of computer and understand the concepts of Hardware and Software..

1.Introduction to data processing:
Features of computers, advantages of using computers, getting data into /out of computers, role of computers. What is data processing?Applicationareas of computers involved in data processing. Common activities inprocessing. Types of data processing, characteristics of information, what are hardware and software
2.Hardware Concepts:

Architecture of computers, classification of computers, concept of damage.Types of storage devices. Characteristics of disks, tapes, terminals, printersand network. Applications of networking, concept of PC system care, floppycare, data care

3.Concept of software:

Classification of software: system software, application of software,operating system, computer system, computer virus. Precautions againstviruses. Dealing with viruses. Computers in medical electronics

4.Basic Anatomy of computers

Principles of programmingComputers application- principles in scientific research, work processing,medicine, libraries, museum, education, information systemData processingComputers in physical therapy – principles in EMG, exercise testing equipment,laser and computer simulation in biomechanics.

(8) NURSING FIRST AIDWITH EMPHASIS ON CPR #

(Not for University exam)

Objectives:

At the end of the course the candidate will be able to

1.know the role and importance of Nursing in patient care

2.know basic handling of patient in Positioning, lifting and transporting fromwheelchair and stretchers, feeding and self-hygiene

3.do simple dressings and first aid in emergencies

Course Outcome:

At the end of the course the student shall know the role and importance of Nursing in patient care, learns the basic handling of patient in Positioning, lifting and transporting from wheelchair and stretchers. Should be able do simple dressings and first aid in emergencies

Syllabus:

1. **Introductory class**

What is nursing? Nursing principles, Inter-personal relationships, Bandaging,Basic turns, Bandaging extremities, Triangular bandages and their application

2. **Nursing position**

Environment safety, Bed making, prone, lateral, dorsal, dorsal re-cumbent,Fowler's positions, comfort measures, Aids and rest and sleep

3. Lifting and transporting patients

Lifting patients up in the bed. Transferring from bed to wheel chair. Transferringfrom bed to stretcher.

4. Bed side management

Giving and taking bed pan, urinal, observation of stools, urine, observation ofsputum, understand use and care of catheters, enema giving.

5. Methods of giving nourishment

Feeding, tube feeding, drips, transfusion

6. Care of rubber goods

Observation, reporting and recording temperature, respiration and pulse, simpleaseptic techniques, sterilization and disinfection

7. Surgical dressing

Observation of dressing procedures

8. First aid

Syllabus as for certificate of Red cross society of St. John's Ambulance Brigade

9. CPR

(9) ENGLISH

(Not for University exam)

Objectives:

At the end of the course the candidate will be able to
1.read and comprehend English language
2.speak and write grammatically correct English
3.appreciate the value of English language in personal and professional life

Course Outcome:

At the end of the course the candidate shall be able to read and comprehend English language, speak and write grammatically correct English. Also should be able appreciate the value of English language in professional life

Syllabus:

1. Introduction

Study techniques, Organization of effective not taking and logical processes of analysis and synthesis, the use of the dictionary, Enlargement of vocabulary,effective diction

2. Applied Grammar

Correct usage, the structure of sentences, the structure of paragraphs,enlargements of vocabulary

3. Written Composition

Precise writing and summarizing, writing of bibliography, Enlargement ofvocabulary

4. Reading and Comprehension

Review of selected materials and express oneself in one's words. Enlargement ofvocabularyThe study of the various forms of compositionParagraph, Essay, Letter, Summary, Practice in writing

5. Verbal Communication

Discussions and summarization, Debates, Oral reports, Use in teaching

(10) Evidence Based Physiotherapy (EBP) I

Course Outcome:

At the end of the course the student learns the basics concepts of EBP, terminologies used in and the importance of EBP in professional life.

Syllabus:

Theory:

1. Introduction to Evidence Based Practice: Definitions, Evidence BasedPractice, Evidence BasedPhysiotherapy Practice, Evidence Based Practice in Medical and Physiotherapy.
2. Concepts of Evidence based Physiotherapy: Awareness, Consultation, Judgment andCreativity.
3. Development of Evidence based knowledge in the Individual Professional, Professionals within a discipline, and Professionals across disciplines.

Practical:

- Searching for the Evidence, Internet search engines, Keywords, Booleans.

The following amendments for includingENVIRONMENTAL SCIENCES in First BPTsyllabus as under: (Board of Studies letter no. COP/SV/7718-A/4/2020 dated 16/04/2020; andVide Notification of Board of Management resolutions Ref: No.SVDU/R/3383-D/2019-20 dated 31/07/2021)

11. ENVIRONMENTAL SCIENCES

(Not for University Exam)

1. Multidisciplinary nature of environmental studies

1.1 Definition, scope and importance

1.2 Need for public awareness.

2. Natural Resources:

Renewable and non-renewable resources:

Natural resources and associated problems.

2.1 Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.

2.2 Water resources: Use and over-utilization of surface and ground water, Floods, drought, conflicts over water, dams-benefits and problems.

2.3 Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

2.4 Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water Logging, salinity, case studies.

2.5 Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.

2.6 Land resources: Land as a resource, land degradation, man induced Landslides, soil erosion and desertification.

2.7 Role of an individual in conservation of natural resources.

2.8 Equitable use of resources for sustainable lifestyles.

3. Ecosystems

3.1 Concept of an ecosystem.

3.2 Structure and function of an ecosystem.

3.3 Producers, consumers and decomposers.

3.4 Energy flow in the ecosystem.

3.5 Ecological succession.

3.6 Food chains, food webs and ecological pyramids.

3.7 Introduction, types, characteristic features, structure and function of the Following ecosystem: -

•Forest ecosystem

•Grassland ecosystem

•Desert ecosystem

•Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

4. Biodiversity and its conservation

4.1 Introduction – Definition: genetic, species and ecosystem diversity.

4.2 Biogeographical classification of India

4.3 Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values

4.4 Biodiversity at global, National and local levels.

4.5 India as a mega-diversity nation

4.6 Hot-sports of biodiversity.

4.7 Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.

4.8 Endangered and endemic species of India
4.9 Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

5. Environmental Pollution

5.1 Definition, Cause, effects and control measures of: -
5.2 Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, nuclear hazards
5.3 Solid waste Management: Causes, effects and control measures of urban and Industrial wastes.
5.4 Role of an individual in prevention of pollution.
5.5 Pollution case studies.
5.6 Disaster management: floods, earthquake, cyclone and landslides.

6. Social Issues and the Environment

6.1 From Unsustainable to Sustainable development
6.2 Urban problems related to energy
6.3 Water conservation, rain water harvesting, watershed management
6.4 Resettlement and rehabilitation of people; its problems and concerns. Case Studies
6.5 Environmental ethics: Issues and possible solutions.
6.6 Climate change, global warming, acid rain, ozone layer depletion, nuclear
6.7 Accidents and holocaust. Case Studies.
6.8 Wasteland reclamation.
6.9 Consumerism and waste products.
6.10 Environment Protection Act.
6.11 Air (Prevention and Control of Pollution) Act.
6.12 Water (Prevention and control of Pollution) Act
6.13 Wildlife Protection Act
6.14 Forest Conservation Act
6.15 Issues involved in enforcement of environmental legislation.
6.16 public awareness.

7. Human Population and the Environment

7.1 Population growth, variation among nations.
7.2 Population explosion – Family Welfare Programme.
7.3 Environment and human health.
7.4 Human Rights.
7.5 Value Education.
7.6 HIV/AIDS.
7.8 Women and Child Welfare.
7.9 Role of Information Technology in Environment and human health.
7.10 Case Studies.

8. Field work

8.1 Visit to a local area to document environmental assetsriver/forest/grassland/hill/mountain
8.2 Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
8.3 Study of common plants, insects, birds.
8.4 Study of simple ecosystems-pond, river, hill slopes, etc.

ANNEXURE –4

(B) S.Y. B.P.T.

(1) PATHOLOGY & MICROBIOLOGY (BPY201T)

(A) PATHOLOGY:

Objectives:
At the end of the course, the student will be able to:
1.acquire the knowledge of concepts of cell injury and changes produced thereby in different tissues and organs; capacity of the body in healing process
2.recall the etio-pathogenesis, the pathological effects and the clinicopathological correlation of common infection and non-infectious disease
3.Acquire the knowledge of concepts of neoplasia with reference to the etiology, gross and microscopic features, diagnosis and prognosis indifferent tissues and organs of the body
4.Correlate normal and altered morphology of different organ systems indifferent diseases needed for understanding disease process and their clinical significance (with special emphasis to Neuro Musculoskeletal andCardio Vascular -Respiratory systems)
5.Acquire knowledge of common immunological disorders and their resultant effects on the human body.
6.Understand in brief, about the hematological diseases and investigations necessary to diagnose them and determine their prognosis

Course Outcome:
At the end of the course student shall acquire the knowledge of concepts of cell injury and changes produced thereby in different tissues and organs and also about the etio-pathogenesis, the pathological effects and the clinic pathological correlation of common infection and non-infectious diseases. Student should be able to understand disease process and their clinical significance (with special emphasis to Neuro Musculoskeletal and Cardio Vascular -Respiratory systems).

Syllabus:
1. General Pathology:
1.1 Inflammation – General aspects – types
1.2 Tissue repair – wound healing, fracture
1.3 Cell injury – degeneration – physical and chemical irritants; ionising radiations– cellulitis
1.4 Disturbances of circulation – edema, thrombosis, embolism
1.5 Necrosis, gangrene
1.6 Growth cellular adaptation – atrophy, hypertrophy, hyperplasia
1.7 Cellular ageing
1.8 Tumors – definitions, classification, etiology and spread (brief)
1.9 Infection-acute / chronic, including AIDS
1.10 Blood: anemia, definition, classification, etiology, laboratory investigationblood picture, hemorrhagic disorders, (causes and classification)
2. Systemic pathology (each condition in this section is to be taught under the specific headings of caused, development, gross and microscopic only)
2.1 Respiratory systems**:** Bronchitis, bronchial asthma, emphysema, Pneumonia

2.2 Cardiovascular system: Rheumatic heart disease, myocardial infarction, Atherosclerosis, Congenital heart diseases
2.3 Alimentary system: Peptic ulcer, Ulcerative lesions of intestine
2.4 Liver: Hepatitis, Cirrhosis
2.5 Central nervous system: Meningitis, encephalitis, cerebral hemorrhage, brief outline of CNS tumor
2.6 Peripheral Nerves: neuritis, neuralgia, GB syndrome, neuropathies
2.7 Bones – joints: osteomyelitis, osteoarthritis, septic arthritis, goutarthritis, osteomalacia, bone tumors (briefly)- giantcell tumour, osteosarcoma, ewings only.
2.8 Muscle: disorders of muscle including poliomyelitis and Myopathies and myasthenia gravis
2.9 Skin: scleroderma, psoriasis
2.10 Urinary system: Nephritis, glomerulonephritis, nephritic syndrome
2.11 Endocrine: Thyroid – thyroiditis, thyroid tumors, diabetes

Recommended Text Books:
1.TB of pathology – by Harsh Mohan
2.Pathologic basis of disease by Cortran, Kumar, Robbins
3.General Pathology- by Bhende
4.General and systemic pathology by JCE, underwood, published by Churchill Livingstone

(B) MICROBIOLOGY

Objectives:
At the end of the course, the student will be able to have:Sound knowledge of the agents responsible for causing human infections, pertaining to CNS, CVS, musculoskeletal and respiratory system.

Course Outcome:
At the end of the course, the student shall be able to have: Sound knowledge of the agents responsible for causing human infections, pertaining to CNS, CVS, Musculoskeletal and respiratory system.

Syllabus:
1. General Bacteriology:
1.1 Introduction, historical background, classification of micro –Organisms
1.2 Morphology of bacteria *
1.3 Staining of bacteria*
1.4 Sterilization and disinfection
1.5 Cultivation and culture media*
2. Systemic Bacteriology:
2.1 Gram positive cocci-strepto cocci, staphylococci and pneumococci
2.2 Gram negative cocci-gono and meningococci
2.3 Gram negative bacilli – Typhoid, Cholera, Dysentery *
2.4 Gram positive bacilli
2.4.1 Aerobic – diptheria, tuberculosis, leprosy
2.4.2 Anaerobic – tetanus, gas gangrene, botulism
3. Immunology:
3.1 Immunity, antigens*
3.2 Antibodies, antigen and antibody reaction*

3.3 Agglutination, precipitation*
3.4 Hypersensitivity reactions*
3.5 Infection (Nosocomial)
3.6 Immunoprophylaxis

4. General Virology:

4.1 Poliomyelitis
4.2 Rabies
4.3 HIV (opportunistic infections)
4.4 H_1N_1 (Influenza)
4.5 Demonstration of tests in: Diagnosis of AIDS
4.6 Diagnosis of hepatitis
4.7 Diagnosis of syphilis

5. Parasitology:

5.1 Malaria
5.2 Amoebiasis
5.3 Round worm and hook worm (Superficial)

6. Mycology :

Candidiasis,Dermatophytes (Ring worm, scabies) Practicals: (Demonstration only) Staining, Microscopy, Sterilization, Media, Stool sample, applied Microbiology with respect to systemic, parasitology, Mycology, immunology, hypersensitivity tests Infection of bones / joints Infection of burns caseSerological test – interpretation of ASO, RA, VDRL,CRP, Widal, ELISA (HIV,HB sag) Demonstration gross / microscopic appearance of various parasites Aseptic universal precautions practices : Practical appraisal, Waste Disposal

Recommended Text Books:

1.TB of Microbiology – Chakraborthy
2.TB of Microbiology – Dr. Arora

Reference Books:

1.TB of Microbiology – R. Ananthnarayan&CKJayramPanikar
2.Short TB of Medical Microbiology by Satish Gupta
3.Microbiology for nurses by Ichhpujani and Hatia
* to be taught superficially / introductory

(2) PHARMACOLOGY (BPY202T)

Objectives:

At the end of the course the candidate will be able to

1. Describe pharmacological effects of commonly used drugs by patients referred for physiotherapy; list their indications adverse reactions, precautions to be taken and contra indications, formulation and routes of administration
2. Identify whether the pharmacological effect of the drug interferes with the therapeutic response of physiotherapy and vice-versa
3. Indicate the use of analgesics and anti-inflammatory agents with special reference to movement disorders focusing on consideration of cost, efficacy and safety for individual needs
4. Get the awareness of other essential and commonly used drugs by patients, and the bases for their use and common as well as serious adverse reaction.

Course Outcome:
At the end of the course student shall be able to indicate the use of analgesics and anti-inflammatory agents with special reference to movement disorders and able to describe pharmacological effects of commonly used drugs by patients referred for physiotherapy. Student should also be able to identify whether the pharmacological effect of the drug interferes with the therapeutic response of physiotherapy.

Syllabus:

1. Chemical character and general action of drugs.
2. Principles of drug administration and routs of administration, distribution, metabolism, excretion of drugs, factors influencing drug reaction, dosage and factors modifying it.
3. Drug toxicity including allergy and idiosyncrasy.
4. Definition, action, indication, contraindication, adverse reaction of the followings:

4.1 Drugs acting on PNS: stimulating and inhibiting, cholinergic and anticholinergic. Drugs acting at NM junction. Muscle relaxants, alcohol.
4.2 Drugs acting on CNS: Analgesics, antipyretics, narcotics, anti-inflammatory, anti-epileptic, sedatives, hypnotic, tranquilizers, anticonvulsants, stimulants, psychotherapeutics.
4.3 Pulmonary effects of general and local anesthetic agents.
4.4 Drugs acting on CVS: antihypertensive, vasoconstrictors, vasodilators, diuretics, mucolytic agents. Drugs that influence myocardialcontractility and heart rate.
4.5 Drugs acting on Respiratory system: Bronchodilators, drugs used in inhalation therapy, drugs acting on CNS and cardio respiratory system which influence the physical exercise.
4.6 Antimicrobial Agents.
4.7 Immunological agents and vaccines.
4.8 Chemotherapeutic agents.
4.9 Endocrine Pharmacology: Thyroxin, glucocorticoids, anabolic steroids, calcitonin, insulin and hypoglycemic agents.
4.10 The vitamins.
4.11 Irritants counterirritants, plasters, poultice and pastes.
4.12 Diagnostics.

Recommended Text Books:

1. Pharmacology &Pharmacotheraputics : by R.S. Satoskar, S.D. Bhandarkar, Nirmala N. Rege, Publisher Popular Prakashan, Mumbai,Latest Edition.
2. Text book of pharmacology by Padmaja

(3) MEDICINE – I (Neurology & Pediatrics) (BPY203T)

(A) Neurology :

Objectives:
At the end of the course, the candidate will be able to:

1.describe etiology, patho-physiology and signs and symptoms, Investigations andmanagement of common neurological conditions which is encountered in medical & physiotherapeutic practice.
2.understand interplay of various risk factors in genesis of neurological problem. A candidate shall understand how pain, movements, paralysis, gait are related with neurological diseases.
3.understand importance of various investigations like hematological, biochemical,electrophysiological & radioimaging investigations in diagnosis as well as in management of neuro conditions.

Course Outcome:
At the end of the course, the candidate will be able to describe etiology, patho-physiology and signs and symptoms, Investigations and management of common neurological conditions which is encountered in physiotherapy practice. Student should also be able to understand importance of various investigations like hematological, biochemical, electrophysiological & radio imaging investigations in diagnosis as well as in management of Neurological conditions

Syllabus:
1. Anatomy, Physiology, Lesion and Disease of Pyramidal system, extrapyramidalsystem ,cerebellum, spinal cord, upper and lower motor neuron,cranial nerves, brachial plexus including costoclavicular syndrome, lumbosacral plexus ,peripheral nerves and ANS.
2. Approach to Unconscious patient and causes, clinical feature andmanagement of hemiplegia, paraplegia, quardriplegia, cerebral diplegia,spastic child, foot drop and wrist drop.
3. Cerebrovascular diseases.
4. Infections: Encephalitis, meningitis, poliomyelitis, transverse myelitis, pirons HIV & neurological diseases.
5. Disease of Peripheral nerves: Peripheral neuropathy: Types and diagnosis.
6. Muscle disorders: Myopathy, polymyositis and Muscular dystrophies & neuro muscular junction disorder & myasthenia gravis.
7. Degenerative disease: Parkinsonism, motor neuron disease (including ALS), ataxic disorders and Alzheimer's disease and other dementias.
8. Demyelinating disorders including multiple sclerosis.
9. Basic concept of electro-physiology and electro-myography.
10. Seizure disorder including abnormal movements: etiology,diagnosis,differential diagnosis and management.
11. Nutritional neurological disorders.

Recommended Text Books:
1. Principles of Neurology:Raymonds D. Adams and Victor,8th ED 2005.
2. Brain's diseases of Nervous system,Dejong 11th ED.
3. Neurological Examination of Clinical Practice,Bickerstaff 6th ED.

(B) PAEDIATRICS

Objectives:
1.Acquire knowledge in brief about intra uterine development of the fetus
2.Be able to describe normal development and growth of a child, importanceof immunization and breast feeding and psychological aspect ofdevelopment

3.Be able to describe neuromuscular, musculoskeletal and cardio pulmonaryconditions related to immunological conditions, nutritional deficiencies,infectious disease and genetically transmitted conditions
4.Acquired skill of clinical examination of a neonate / child with respect toneurological musculoskeletal and respiratory function

Course Outcome:
At the end of the course the student shall able to describe normal development and growth of a child. Student should be able to describe neuromuscular, musculoskeletal and cardio pulmonary conditions in children and also acquires the skill of clinical examination of a child with respect to neurological musculoskeletal and respiratory functions.

Syllabus:
1.CNS involvement in children – tubercular meningitis and other infective conditions
2.Birth trauma / intrauterine and early infancy conditions. Cerebral palsy types methods of evaluation – management
3.Normal development and growth including physical social and adaptive development common causes for development disorders and brain damage
4.Learning disorders – perceptual disorders
5.Mental retardation – etiological factors, types symptomatology treatment
6.Problems thumb sucking, aggressive and harmful behaviour, relationship of child – parent – teacher
7.Hereditary neuromuscular disorders – Down's syndrome
8.Congenital neuromuscular disorders including spinal dysraphism
9.Peripheral neuromuscular disorders, including polio, spinal muscular atrophies, muscular dystrophies, myopathy
10.Malnutrition and vitamin deficiency – associated systemic conditions–rickets; skin conditions, deficiency neuromuscular conditions
11.Respiratory conditions; asthma, TB, bronchiectesis and neuromuscular conditions
12.Acute pediatric respiratory distress syndrome – intensive pediatric care

Recommended Text Books
1. Achar's textbook of pediatrics
2. Textbook of pediatrics by O.P. Ghai

(4)Medicine – II (BPY204T)

(A) Dermatology(Dermatology and Venereal diseases)

Objectives:
1.Acquire knowledge in structure and function of the skin and about various primary, secondary and special skin lesions related to systemic disorders.The student will also be able to describe etiology, clinical features and management of bacterial, fungal, viral, allergic, autoimmune skindiseases. The candidate also will acquire knowledge in sexually transmitted diseases and leprosy.

Course Outcome:
At the end of the course the student shall acquire knowledge in structure and function of the skin. The student will also be able to describe etiology, clinical features and management of bacterial, fungal, viral, allergic, autoimmune skin

diseases. The student will acquire knowledge in sexually transmitted diseases and leprosy.

Syllabus:

1.Structure, function of normal skin, primary, secondary and special skin lesions
2.Scabies and pediculosis
3.Fungal infections of skin Dermatophytosis Tinea Versicolor Candidiasis
4.Bacterial infections of skin – impetigo, Boil, Furuncle, Carbuncle
5.Viral infections of skin –Herpes zoster, Warts, mulluscum contagiosum
6.Eczema
7.Psoriasis, Volgaris, Acne, Volgaris Alopecia, Vitiligo / Leucoderma
8.Leprosy: Classification Lepra – reaction
9. Skin diseases related to rheumatology diseases
10 Sexually transmitted disease
10.1 Syphills – primary & secondary
10.2 Gonorrhoea
10.3 Chancroid
10.4 Skin disorders and HIV

Recommended Text Books:

1.Rox burg's common skin diseases
2.An illustrated hand book of skin and STD with an update of HIV infection by Dr. UdayKhopkar

(B) Psychiatry

Objectives:

1.Enumerate various psychiatric disorders with special emphasis tomovement / pain and ADL & describe the various causative factors and methods of assessment and management.
2.Acquire the knowledge in brief about the pathological and etiological factors, common signs and symptoms and management of various psychiatric conditions.
3.Describe in brief the various treatment modalities commonly used

Course Outcome:

At the end of the course the student shall able to describe various psychiatric disorders with special emphasis to movement / pain and ADLs & describe the methods of assessment and management.

Syllabus:

1.History taking and mental state examination
2.Organic mental disorders like Delirium and Dementia
3.Substance dependence i.e., Alcohol dependence
4.Schizophrenia, postpartum psychosis and brief reactive psychosis
5.Mood disorders – bipolar disorder, major depressive disorder
6.anxiety disorder – panic disorder, generalized anxiety disorder, phobias – agoraphobia, social phobia (social anxiety disorder), obsessive compulsive disorder (OCD)
7.Dissociative conversion disorder (e.g., hysterical fits)
8.Psychosexual dysfunction

9.Psychosomatic disorder – bronchial asthma, ulcerative colitis, peptic ulcer, thyrotoxicosis, rheumatoid arthritis, essential hypertension
10.Child psychiatry – mental retardation, ADHD, conduct disorder, primarye nuresis, tic disorder
11.Pharmacology – antipsychotics, antidepressants, anxiolytics, moodstabilizers
12.ECT
13.Strees & related dysfunctions & its managements.
13.Psychotherapy (in brief)

Recommended Text Books:
1.Short textbook of Psychiatry – Niraj Ahuja5th Edition, 2004. Jaypee Brothers
2.Textbook of Psychiatry – B.K.Puri,Churchil Livingstone

(5) ORTHOPAEDICS & TRAUMATOLOGY (BPY205T)

Objectives:
At the end of the course, the student will be able to:
1.Discuss the patho-physiology, clinical manifestations and conservative/surgical management of various traumatic and cold cases of the musculo-skeletal conditions
2.Traumatic and cold cases both operative and non-operative
3.Gain the skill of clinical examination and interpretation of the preoperative cold cases and all the post-operative cases
4.Read and interpret a) salient features of the x-ray of the spine and extremities b) pathological / biochemical studies pertaining to orthopedic conditions
5.Correlate the radiological findings with the clinical findings

Course Outcome:
At the end of the course, the student shall be able to understand the patho-physiology, clinical manifestations and conservative/surgical management of various traumatic and cold cases of the musculo-skeletal conditions, both operative and non-operative. Student shall be able to gain the skill of clinical examination and interpretation of the preoperative cold cases and all the post-operative cases. Student shall be able to read and interpret pathological / biochemical studies and radio imaging pertaining to orthopaedic conditions and able to correlate the findings with the clinical findings.

Syllabus:

1. **Orthopedics**

1.1 General Orthopedics
Clinical examination of an orthopedic patient, investigations, radiological and imaging techniques(salient features) Deformities, acquired deformities, causes and principles of management Splinting Traction procedures – materials Preventive orthopedics Geriatric orthopedics

1.2 Congenital disorders:
Congenital deformities, congenital elevation of scapula, torticollis, endocranial dystosis, superior radio – ulna dysostosis, madelung's deformity, sternocleidomastoid tumor, congenital wry neck, Kyphosis, lordosis, scoliosis-primary and secondary, spina bifida, myelomenigocele, Coxavara, congenital dislocation of hip, Congenital genu recurvatum, talipes equinovarus.

1.3 Infection of bones &joints:

Osteomyelitis (Acute and Chronic), Brody's abscess, as a complication of open fracture,Skeletal tuberculosis, Principles of treatment, T.B. of shoulder, elbow and wrist, T.B. of hip, knee ankle, and foot.T.B. osteomyelitis –Dactylitis, Caries rib

1.4 Arthritis:

Acute pyogenic arthritis, Septic arthritis of infancy, small pox arthritis, Syphilic infection of joint, Rheumatoid arthritis, Osteoarthritis

1.5 Bone tumors: Classification, true bone tumors – Osteosarcoma, giant celltumor, ewing sarcoma, chondroblastoma, chondrosarcoma, fibrosarcoma, Lymphoma of bone, Plasmacytoma Bone metastasis: Synovial sarcoma, hemangioma of bone, adamanatinoma of long bones and chondroma.Tumor like lesions: Osteoid osteoma, Benign osteoblastoma, non osteogenicfibroma, osteoma, osteochondroma and enchondroma.

1.6 Neurological and Muscular disorders

Poliomyelitis – recovering and late stages, rehabilitation in recovery phase,tenodesis, tendon transplants, stabilization problems short limb and equalizations, tendon lengthening Cerebral Palsy – Types, treatment including Orthopedic surgeries Leprosy – classification, multi drug therapy, foot drop, trophic ulcer, deformitiesin the hand – claw hand, rehabilitation, Muscular dystrophy – types and treatment Injuries to plexus and nerves: Radial, Ulnar, Median, Brachial plexus, Sciatic andLateral Popliteal.

1.7 Regional conditions of Spine and Lower limb:

Back ache: Kyphosis, Scoliosis, Spondylolisthesis, Lumbosacral strain,intervertebral disc prolapse, fibrositis back, Lumbar canal stenosis, sacroiliac strain, spondylosis, spondylolysis

Hip: Coxa vara, Slipped Upper femoral epiphysis, idiopathic chondrolysis of hip

Knee: Genu valgum, genu varum, tibia varum, genu recurvatum, quadriceps fibrosis, recurrent dislocation of patella, bursa around the knee, loose bodies in the knee, chondromalacia patella

Foot: Painful heel, Plantarfascitis, Posterior heel pain, flat foot, foot strain, painin fore foot, Hallux valgus, anterior metatarsalgia

1.8 Regional conditions of Neck and Upper limb:

Neck: Cervical spondylosis, intervertebral disc prolapse, Cervical rib, torticollis,Brachialgia,

Shoulder: Supraspinatus tendinitis calcification, rupture of rotator cuff,periarthritis shoulder, deltoid fibrosis, subarachnoid bursitis, Bicepital tendinitis

Elbow: Tennis elbow, Golfers elbow, recurrent slipping of ulnar nerve, cubitus varus and valgusWrist and Hand: Ganglion, De quervains disease, trigger finger, trigger thumb,carpal tunnel syndrome and Dupuytren's contracture

Miscellaneous: Backache, Disc lesions cervical spondylosis, metabolic disease,rickets, osteomalacia, osteoporosis, parathyroid osteodystrophy, scurvy etc,tenosynovitis, Trigger finger, Wrist ganglion, Tennis elbow, rotator cuff injury

2. Traumatology:

Traumatic Disorders:

2.1 Introduction: Fracture, dislocation and injuries of the upper limb. Briefly mention general principles of Orthopedic surgery, definition and scope, brief history

2.2 Fracture & dislocations: causes, types, mechanisms, displacement, general symptoms, Healing, principles of treatment, complications, malunion, delayed union, non-union, myositis ossificans, Volkman's Ischemic contracture, Fat embolism,sudeck's osteodystrophy.

2.3 Injuries to the hand: types (open, closed), Principles of treatment, injuries to the phalanges, sprains, dislocations of MP & IP joints, fractures of the phalanges, metacarpals, Bennet's fracture, mallet finger, Tendon injuries (Flexor & Extensor)

2.4 Wrist & Forearm injuries: Wrist dislocation, colle's fracture, displaced epiphysis, Smith fracture, Barton's fracture, injuries to carpal, scaphoid, and sprains, , Fractures of forearm bones – greenstick fracture. Infraction injury, Both bone fracture, Galleazi, monteggia fracture dislocation.

2.5 Injuries to the elbow: Traumatic synovitis, sprain, dislocation of elbow joint. Fractures involving elbow joint: Supracondylar fracture, Intercondylar fracture, fracture medial epicondyle, fracture of lateral condyle, , Myositis ossificans, volkman's ischaemic contracture. Fracture of the head of the radius, fracture of olecranon.

2.6 Injuries of shoulder and arm: Fractures of the proximal end, neck, shaft of humerus, Fractures of clavicle, acromioclavicular and sternoclavicular dislocations, fractures of the scapula.

2.7 Injuries of the spine and pelvis:

Injuries to the cervical spine (Both Upper and Lower), atlanto-axial injuries. Dorso Lumbar spine: Classification, Mechanism and types of injuries, Stable fracture without paraplegia, Fracture dislocation with paraplegia, Management of fracture, Management of paraplegia, Bedsore and Bladder care.

2.8 Injuries of the pelvis:

Fractures, its mechanism, classification, management Fractures of acetabulam, Sacrum and Coccyx

2.9 Injuries of the lower limb:

Dislocations of the hip joint, Intracapsular and Trochantric fractures of femur, fractures of the neck of femur, fracture of the shaft of femur, fracture femur in children, Fracture of femoral condyles, tibial condyles and patella. Injuries to extensor mechanism, contusion, haemarthrosis, knee joint dislocation and traumatic dislocation of patella. Fracture & Fracture dislocation of ankle, epiphyseal injury lower end of tibia

2.10 Foot fracture of talus, calcaneum, metatarsals and phalanges

2.11 Soft tissue injuries: Ligamentous injuries of ankle, knee and injury to Muscles

2.12 Amputations:types, site, ideal stump, complications, general principles of treatment. Upper extremity and lower extremity amputations – prosthesis and prosthetic service. Orthopedic splints and appliances for injuries to muscles and tendons. Principles of Operative management, indications and contraindications for Arthroplasty, Osteotomy, arthrodesis, spinal stabilization, tendon operations, arthroscopy, total and partial joint replacements, limb reattachments.

Recommended Text Books

1.TB of orthopedics by Maheshwari
2.Natrajan's TB of orthopedics and Traumatology
3.Outline of orthopedics by Adam's
4.Apley's orthopedics

(6) EXERCISE THERAPY – II & KINESIOLOGY:(BPY206T, BPY206P)
OBJECTIVES:
At the end of the course the candidate will be able to:
1.describe the biophysical properties of connective tissue, and effect of biomedical loading and factors which influence the muscle strength and mobility of articular and periarticular soft tissues
2.acquire the skill of assessment of isolated and group muscle strength functionally and objectively respectively
3.analyze human posture, and its associated problems, its management
4.analyze various normal musculoskeletal movements, during breathing, gait and daily living activities and in terms of bio-mechanical and physiological principles
5.describe and demonstrate various therapeutic exercises with its technique;including chest physiotherapy on self and also acquire the skill of application on model
6.to be able to demonstrate, general fitness, exercises and shall gain fitness forself
Course Outcome:
At the end of the course the candidate will be able to:
Acquire the skill of assessment of isolated and group muscle strength, analyze human posture, and its associated problems, its management. Student is also able to analyze various normal musculoskeletal movements, during breathing, gait and daily living activities and in terms of bio-mechanical and physiological principles. Should be able to describe and demonstrate various therapeutic exercises with its technique and also acquire the skill of application.
Syllabus: (BPY206T)
1. Theory
1.1 EXERCISE THERAPY
1.1.1 Stretching: Abnormal / pathological end feel, bio-physical properties of connective tissue, (contractile and non-contractile) elasticity, plasticity, response to sudden / slow/ sustained loading, stress and strain curve, creep,manual and mechanical stretching, cyclic and ballistic stretching, indications and contra indications, techniques and precautions.
1.1.2Mobilization: Joint mobilization: manipulation - glides – rolling – spin, types of joint shapes, methods of applications, indications, contraindications and precautions.
1.1.3 Traction: types of traction, principles and applications of (spinal) traction,indications and contra indications, CPM.
1.1.4 Manual muscle testing: Need of MMT, Uses of MMT, Fundamental principles,anatomical and physiological bases of muscle testing, Oxford scale of muscle gradation, principles of isolation, substitution, stabilization, grading procedure for muscles of upper extremity,lower extremity,neck and trunk.
1.1.5 Breathing exercise: Mechanisms of normal breathing, muscles of respiration,changes in thoracic cage during the process of respiration,segmental and diaphragmatic breathing exercise, purse lip breathing,Forced Expiratory type of breathing exercises, Breathing mechanisms and postural drainage, assistive measures, techniques, indications and contraindications.
1.1.6Posture: types, factors influencing posture, regulation of postural reflex mechanism, pelvic tilt and postural deviations of spine andits treatment.Crawling Exercises; principles, types, effects and uses of clapp's crawl.
The following amendment is made as value addition as under: (Board of Studies letter no. COP/SV/8441/12/2021, dated 6/12/2021; and Vide Notification of Board of Management resolutions Ref: No. SVDU/NOTFN/3070/2021-22, dated 30/07/2022)

1.1.7Strengthening of muscle (PRE): Factors that influence the strength of the normal muscle, load assisted and load resisted exercise, use of equipment,reeducation of muscles and restoration of muscles, strength training withuse of isometric, isotonic and isokinetic regime.SET system (Heavy resisted exercises oxford Method, Delorme method, Mcqueen's Method).

1.1.8Proprioceptive neuromuscular facilitation:introduction, response of neuromuscular mechanism, basic techniques ofPNF patterns of arm, leg, head. Special techniques –repeatedcontractions, slow reversal, contract and relax, hold-relax, rhythmicstabilization, PNF for respiration

1.1.9Neuromuscular co-ordination factors governing co-ordination, principle of re-education of co-ordination, Frenkel's exercise and its techniques.

1.1.10 Functional re-education.

1.1.11 Aerobic Exercise: Physiological effects and therapeutic uses of aerobic exercises. Fitness testing, stress testing for healthy and convalescent individuals. Exercise programme to test - strength, flexibility andendurance skill.

1.2 KINESIOLOGY:

Application of

1.2.1 Basic concepts:

Centre of gravity, line of gravity, planes and axes of motion (mechanical & Anatomical)

1.2.2 Principles of stability:

Base of support, height, center of gravity, line of gravity, mass of body, the impact of forces, friction, segmentation, visual factors, psychological factors, physiological factors.

1.2.3 Principles of motion:

Cause of motion, kinds of motion, motions experienced by body, laws of motions, centripetal and centrifugal forces.

1.2.4 Mechanics of joint motion:

Structure of joint, types of movement

1.2.5 The mechanics of muscular action:

Classification of muscles, line of pull, types of contractions, role of muscles,tendon, action of two joint motion, non-customary action.

1.2.6 Muscular skeletal mechanics:

Anatomical levers, anatomical wheel and axis, anatomical pulley

1.2.7 Force and work:

Magnitude of force, point of application, direction of force and resistance arm of lever, perpendicular distance, composite effect of two of more forces, methods of determining the components of force and work,movements of body as a whole, movements of the segments of the body in air, water and on surface.

1.2.8 Locomotion:

Normal gait analysis:definition of Gait, phases of normal gait with kinetic and kinematics abnormal / pathological gaits, gait training, Walking aids and crutches, its measurement, pre ambulatory training crutch walking

1.2.9 Bio-mechanics of joints:

Kinetics, kinematics and Patho–mechanics of joints-hip, knee, ankle, foot,shoulder, elbow, wrist and hand

1.2.10 Bio -Mechanics of spinal column:

Spinal curves, articulations, non-contractile soft tissue of column, I V disc,ligaments, intrinsic equilibrium, movements of spinal column and muscle mechanics.

1.2.11 Mechanics of Pelvic complex:

Pelvis at rest, in standing, in motion, patho-mechanics of pelvis

1.2.12 Mechanics of the thorax:

Movement between ribs and vertebrae, sternum and ribs. Patho-mechanics of respiration.

1.2.13 Postural strain and occupational hazards:

Correct use of body mechanics at home, at school, at work, recreation,particular application for patients, physiotherapists and other staff.

2. PRACTICALS: (BPY206P)

Skills included in Sr. No. 1.1.1 to 1.1.11 of exercise therapy and Sr. No. 1.2.10 of BioMechanics and Kinesiology to be practiced on self and model.

Recommended Text Books:

1.Therapeutic exercise by Kisner and colby
2.Principles of exercise therapy – Dina Gardiner
3.Muscle testing – Daniel and Worthingham
4.Clinical kinesiology- Brumstrome

Scheme of Practical Examinations

External + Internal Total

Practical - 80 + 20 = 100

1. **Long Case** (any one of the following) 35 Marks
Mobilization, MMT with Isolation, Muscle
Length test / Passive stretching, Posture
Functional reeducation, locomotion, Breathing
Exercises / Postural drainage, Limb length / girth
Measurement, Mat Exercise.

2. **Short Case** (any one of the following) 25 Marks
Tractions, CPM, PNF,
PRE, Aerobic Exercises, Co-ordination exercises.
3. **Viva Voce** 15 Marks
4. **Journal** (Minimum of 12 topics) 05 Marks

(7). Electrotherapy (Introduction)#

(Not for University exam)

Objectives:

1.Recall the Physics – Principles and laws of electricity, Electromagnetic spectrum, etc
2.Describe the electrical main supply, Electric shock – precautions
3.Describe and identify various types of superficial heat modalities used in therapeutics, resistance offered by the skin and significance of various media used to reduce the same

Course Outcome:

At the end the course student should be able to describe and identify various types of superficial heat modalities used in therapeutics

Syllabus:

1. **Review of physics –** Current electricity, Ohms law, Resistance, Rheostats, potentiometers, Electromagnetic induction, capacitors, valves, semiconductors and transistors
2. **Nerve Muscle Physiology:** resting potential action potential propagation of action potential, motor unit, synapse and synaptic transmission of impulses. Effect of negative and positive electrodes on nerve & accommodation.
3. **Electric shock**: causes, severity, treatment and precautions, earth shock and its precautions.
4. **Faradic Current:**Definition, characteristic and modified faradic current, sinusoidal current, parameters of faradic stimulation, physiological and therapeutic effects of faradic-stimulation. Indication, contra-indications and precautions, techniques of stimulation, group muscle stimulation, faradic foot bath, faradism under pressure and pelvic floor muscle re-education
5. **Interrupted Direct Current:**Introduction & characteristics, Parameters of stimulation, physiological and therapeutic uses of stimulation, precautions.
6. **Galvanic Current:**Introduction & characteristics, Parameters of stimulation, physiological and therapeutic uses of stimulation, precautions.
7. **Superficial heat modalities:** Paraffin wax bath: structure of the bath, composition of wax and mineral oils physiological effects and therapeutic uses of wax bath, technique of application Other Heating Modalities: Heating pad, moist heat and fluidotherapy.
8. **Cryotherapy:** Physiological effects and therapeutic uses of ice therapy Techniques of application, contra – indication to ice treatment
9. **Infra Red Rays:** Production of infra red rays, luminous and non – luminous generators, penetration, technique of application, physiological effects and therapeutics uses of infra red rays, duration and frequency of treatment, indications and contra indications, dangers and precautions.

Recommended Text books:

1.Electrotherapy explained by Low & Reed
2.Clayton's electrotherapy – 6th and 9th ed.
3.Clinical electrotherapy by Nelson & Currier

(8). Evidence Based Physiotherapy II*

Course Outcome:

At the end of the course student should be able to understand and use outcome measures, able to evaluate the evidences and describe levels of evidences.

Syllabus:

Theory:

1. Steps of Evidence Based Practice, Formulate the question with PICO.
2. Introduction of Research and Research Design, Types of Research.
3. Levels of evidence in research, introduction of Systematic review and Meta-analysis.
4. Statistics - Descriptive statistics.
5. The Cochrane collaboration.
6. Outcome Measures, Reliability, Validity and Sensitivity.

Practical:

- Formulate the question with PICO, Searching for the Evidence.

- Identify level of evidence

ANNEXURE - 5
(C) T.Y. B.P.T.

(1) MEDICINE- III(General Medicine, Cardio Vascular, Respiratory Conditions, Intensive& Emergency Care) (BPY301T)

Course Outcome:
At the end of the course the student shall able to acquire the knowledge of Etiology, Patho-physiology, signs and symptoms and management in brief, of the infectious diseases, cardio-vascular and respiratory disorders and auto-immune conditions. Able to describe the principles of management at the medical intensive care unit including practice of first aid / Cardio Pulmonary Resuscitation (CPR).

(A) General medicine

Objectives:
At the end of the course, the candidate will:
1.Acquire the knowledge of Etiology, Patho-physiology, signs and symptoms and management in brief, of the infectious diseases, diseases of metabolism especially obesity and other related medical conditions, diseases of hematopoietic system, diseases of GI and urinary tract, endocrine disorders and rhumetological disorders.
2. Able to describe etiology, patho-physiology, sign and symptoms, clinical evaluation and management of the various cardio-vascular and respiratory disorders with interpretation of investigations: chest x-ray,Echocardiography, blood gas analysis, blood investigations and pulmonary function test.
3 To acquire the knowledge of auto-immune conditions with special emphasis to those involving Musculoskeletal system and skin, with regards to etiology, pathophysiology, signs and symptoms, differential diagnosis, and medical management of same.
4 Able to describe the principles of management at the medical intensive care unit including theory and practice of first aid / Cardio Pulmonary Resuscitation (CPR).

Syllabus:
1. GENERAL MEDICINE –
1.1 Infection: infectious diseases including AIDS, poisons and venom with emphasis on common diseases.
1.2 Vitamins and trace mineral deficiency and malnutrition in adults.
1.3 endocrine diseases: special emphasis to be given to diabetes mellitus, its types and management & disorders of thyroid (thyrotoxicosis & myxoedema).
1.4 Diseases of metabolism: special emphasis to be given to obesity and its related disorders –evaluation and management in form of diet, exercise and medication.
1.5 Disorders of hematopoietic system: especially clinical manifestations and management common anemias.
1.6 Diseases of Digestive systems and in brief management.
1.7 Common rheumatic conditions.
1.7.1 Disorders of immune system
1.7.1.1 Rheumatoid Arthritis with etiology, pathology & pathogenesis, clinical features, laboratory investigationsand medical management.
1.7.1.2 Rheumatic fever, SLE, Scleroderma, Primary vasculitis syndromes wegener's granulomatosis & Poly-arthritis nodosa, Spondyloarthropathies (Ankylosing spondylitis).

1.7.2 Disorders of the joints and adjacent tissues
1.7.2.1 Primary/secondary osteoarthritis with its epidemiology, risk factors, pathogenesis, clinical features, medical management.
1.7.2.2 Gout.
1.7.3 Calcium and vitamin D metabolism and its disorders, especially osteoporosis

2. Cardio Vascular disorders:

2.1 Cardio-vascular system:

2.1.1 Cardiac failure: definition, causes, symptoms and signs and brief management of cardiac failure
2.1.2 Rheumatic fever: definition, etiology, pathogenesis, clinical features, complications and treatment.
2.1.3 congenital heart diseases: classification, symptoms & signs complications (in brief) management.
2.1.4 ischemic heart disease: etiopathogenesis, classification, symptoms, Investigations including stress test and echocardiography medical and surgical treatment.
2.1.5 Hypertension: definition, classification, symptoms and signs, complications and treatment.
2.1.6 Infective endocarditis: brief etiopathogenesis, clinical features, diagnosis and treatment.
2.1.7 Brief description of deep vein thrombosis and pulmonary embolism.
2.1.8 Peripheral arterial diseases including atheresclerotic diseases, Buerger's disease & arterial thromboembolism.
2.1.9 Cardiac muscle disorder: cardiomyopathies and myocarditis.

2.2 Respiratory system: (respiratory disease including disease of chest Wall).

2.2.1 Chronic Bronchitis and emphysema: Definition, etiopathogenesis, clinical features and treatment.
2.2.2 Bronchial asthma: Definition, etiology, pathophysiology, clinical features, and treatment.
2.2.3 Pneumonia: Definition, classification, Pathology, epidemiology, complications and treatment.
2.2.4 Tuberculosis: etiopathogenesis, clinical manifestations, diagnosis,complications and treatment.
2.2.5 Lung abscess and bronchiectasis: Definition, clinical features, diagnosis and treatment.
2.2.6 Pleural disorders: Pleural effusion, empyema, Pneumothorax.
2.2.7 Chest wall deformities-various deformities of chest wall and its effects on cardio-respiratory system.
2.2.8 Occupational lung diseases: clinical features, diagnosis and treatment.
2.2.9 Respiratory failure: classification, causes and treatment, especially mechanical ventilation.
2.2.10 Lung function tests.

3. Intensive & Emergency Care:

3.1 Review of anatomy and physiology related to acute care.(airway,breathing,circulation, respiratory centers, cardiovascular system, nervous system and musculoskeletal system related to acute care.
3.2 First Aid and CAB of Resuscitation.

3.3 Common emergencies (surgical and medical) Polytrauma-accidents including fractures, explosions, gunshots, shock syndromes, acute abdomen, hemorrhage, DIC, burns, septicemia with MODS, acute respiratory failure, pulmonary oedema, pulmonary embolism,acute cardiac failure, myocardial infraction, cardiac arrhythmias, coma,drug overdose, poisoning, tetanus, acute respiratory paralysis (including poliomyelitis and GB syndromes), acute renal failure, obstetrical emergencies, pediatrics emergencies.
3.4 Common anesthetics agents: Types– indication-merit-demerit-effects of general anesthesia on cardiopulmonary function.
3.5 Special procedures in intensive care: cardio - pulmonary resuscitation andairway care,CVP insertion, bronchoscopy, thoracocentesis, Tracheostomy, endotracheal intubation, nasogastric tubes and feeding,skeletal and skin tractions.
3.6 Bio-electric instrumentation: ECG and its interpretation, cardiopulmonary monitoring, radiological evaluation, ABG analysis, fluid and electrolyte imbalance, hematological studies.
3.7 Oxygen therapy: Methods and delivery, mechanical ventilators and various modes of ventilation.
3.8 Psychosocial aspect of critical care.

Recommended Text Books: (most recent editions)
1.Davidson's principles and practice of Medicine
2.API Textbook of Medicine
3.Principles of Critical Care, FarokhUdwadia (intensive andemergency care).
4.Harrison's Principles of Internal Medicine
5.Braunwald Text of Cardiology (for Cardiovascular disorders).
6.Text Book of Cardiology by Hurst.

(2) SURGERY I (General Surgery, Cardiothoracic Surgery, Neuro Surgery) (BPY302T)

General Surgery, Cardio Vascular thoracic Surgery & Neuro Surgery (Section-I)

A.General Surgery:

Objectives:
At the end of the course, the student will be able to:
1.Describe the effects of surgical trauma and anesthesia in general
2.Classify, clinically evaluate and describe the surgical management in brief in (a) wounds-ulcers B) Burns
3.Describe pre-operative evaluation, surgical indications and various surgical approaches in various abdominal conditions.
4.Recall the surgical approaches in the form of line diagram and will be able to describe the components of soft tissues cut to reach the target tissue, and the possible post-operative complication in movement
5.Clinically evaluate post-operative abdominal conditions, with special reference to the cardio-vascular and pulmonary function and scar/wound management describe post-operative management in brief

Course Outcome:
At the end of the course, the student will be able to describe pre-operative evaluation, surgical indications and various surgical approaches in various abdominal conditions. Also able to clinically evaluate post-operative abdominal

conditions, with special reference to the cardio-vascular and pulmonary function and describe post-operative management.

Syllabus:

(A)General surgery:

1. Hemorrhage, shock, water and electrolysis balance
2. Acute infection inflammatory fever bacteriemia, septicemia, pyaemia, toxaemia specific types – cellulitis – sites – lymphangitis - abscess with special reference to hand infection, carbuncle
3. Specific types conditions:

3.1 Tetanus

3.2 Gas gangrene

3.3 Hospital infection, cross infection with modes of spread and prevention.

3.4 General survey of chronic inflammations syphilis (reference to other venereal disease) Leprosy, actinomycosis

4. General survey of trauma, pathology and clinical features of wound repair – primary, secondary and tertiary wound healing.

4.1 Debridement of Wounds

4.2 Clean wounds

4.3 Contaminated wounds and infectious wounds

4.4 principles of treatment survey of factors affecting wound healing, Ulcers and gangrene.

4.5 Burns as a specific type of severe trauma, classification, early and late complications management & reconstructive surgery –skin as an example of plastic procedure.

5. Various abdominal incisions.

5.1 Abdominal drainage tubes catheters and naso-gastric tubes, ward demonstration for as hour a day for a period of one week.

5.2 Abdominal surgeries:

5.2.1 Appendectomy

5.2.2 Cholecystectomy

5.2.3 Partialcolectomy, Ileostomy

5.2.4 Hernia

5.2.5 Prostatectomy

5.2.6 Nephrectomy with special emphasis on upper abdominal surgeries, post-operative complications of abdominal surgery.

6. Problems of trauma to hand and their management, urinary tract infection

B.Cardiothoracic Surgery & Neuro Surgery

Objectives:

At the end of the course, the student will be able to:

1.Describe types of incision, pre and post-operative assessment and complications of Cardio-thoracic surgery and their management

2.clinically evaluate post-operative cardio-vascular and pulmonary function status

3.describe the management of head injury, spinal surgeries.

4. to be able to read and interpret investigations including findings of the x-ray chest, CT scan and MRI Scans.

Syllabus:

1. Cardiothoracic Surgery

1.1 Basic anatomy of chest wall, trachea and bronchial tree, lungs and bronchopulmonary segments. Pleura and mediastinum
1.2 Physiology and mechanics of breathing and use of mechanical breathing – ventilators (respiratory)
1.3 Pulmonary function tests
1.4 Investigation of lung disease including endoscopies
1.5 Chest injury
1.6 Common supportive disease of lung –bronchiectesis, lung abscess
1.7 Bronchogenic carcinoma
1.8 Common surgeries of chest Throacoplasty, pulmonary dissection, thoracotomy
1.9 Pneumothorax hydrothorax – pneumothorax, empyema
1.10 Common disease of oesoaphagus and related conditions causing dysphasia
1.11 Surgery of portal hypertension
1.12 Surgery of pulmonary tuberculosis
1.13 Surgery of heart and great vessels
1.14 Basic anatomy of heart, great vessels
1.15 Investigation of patient undergoing cardiac surgery
1.16 Cardiac arrest, its management
1.17 Basic principles of open heart surgery
1.18 Heart lung bypass (extra co-portal circulation)
1.19 Common disease of heart requiring surgery both congenital and acquired including open heart surgery
1.20 Common drugs used in cardiac surgery, its uses, side effects
1.21 Common vascular surgery Embolectomy, vascular reconstructive surgery,(Thrombosis, Embolism, atherosclerotic and occlusive vascular disease including coronary artery bypass)
1.22 Clinical Examination of patients as regard chest & heart disease
1.23 Radiology –X-ray studies-X-ray chest on various lung disease

2. NeuroSurgery :

Clinical features and management of the following:

2.1 Congenital and childhood disorders –hydrocephalus spina bifida
2.2 Trauma –broad localization, first aid and management of sequelae of head injury and spinal cord injury.

Recommended Text Books:

1.Under graduate surgery by Nan
2.Bailey and love's short practice of surgery – 21st ed.
3.General surgical operations by Kirk and Williamson
4.Chest disease by corofion and Douglos
5.Patricia A Downie, TB of Heart, Chest, Vascular disease for physiotherapy

(3) SURGERY II (Obstetrics & Gynecology) (BPY303T)

OBSTETRICS AND GYNAECOLOGY: -

Objectives: -

At the end of the course the candidate will be able to:

1. Describe the normal and abnormal physiological events during the puberty, labor, puerperium, post –natal stage and menopause.
2. Discuss the various complications during pregnancy, labour, puerperium and post – natal stage, pre and postmenopausal stage and various aspects of urogenital dysfunction and their management in brief.
3. Acquire the skill of clinical examination of pelvic floor.
4. Acquire the skill of clinical examination of pregnant woman

Course Outcome:

At the end of the course the candidate will be able to describe the normal and abnormal physiological events during the puberty, labour, post – natal stage and menopause. Student shall be able to discuss the various complications during pregnancy and their management. Also acquire the skill of examination of pelvic floor muscles and also pregnant woman.

Syllabus:

1. Anatomy and physiology of the female reproductive organs. Puberty dynamics.
2. Physiology of menstrual cycle – ovulation cycle, uterine cycle, Cx cycle, duration, amount.
3. Hormonal regulation of menstruation.
4. Diagnosis of pregnancy.
5. Abortion.
6. Physiological changes during pregnancy.
7. Importance of antenatal care exercise.
8. High risk pregnancy, prenatal common complications – investigation and management.
9. Musculoskeletal disorders during pregnancy.
10. Multiple child birth.
11. Normal labor.
12. Child birth complications, investigation and management.
13. Normal puerperium, lactation and importance of post natal exercises.
14. Family planning.
15. Medical termination of pregnancy.
16. Infection of female genital tract including sexually transmitted diseases, low back ache.
17. Prolapsed of uterus and vagina.
18. Principle of common gynecological operations – hysterectomy, D&C, D&E, Pep smear.
19. Menopause: Its effect on emotions and musculoskeletal system.
20. Urogenital dysfunction – pre and post natal condition.
21. Sterility: Pathophysiology, investigations, management.
22. Carcinoma of female reproductive organs – surgical management in brief.

Recommended Text Books:
1.TB of Gynecology by Dutta
2.TB of Obstetrics by Dutta

(4) COMMUNITY MEDICINE (BPY304T)

Objectives
At the end of the course the candidate will be able to
1.describe the concept of health and diseases, natural history of diseases
2.describe the health administration at various levels (Centre and State), health care delivery at urban and rural areas.
3.describe the health problems of vulnerable groups and national health programmes.
4.explain principles and philosophy of health education and health education tools
5.describe the role of various health agencies, NGOs at international and national level
6.identify occupational health hazards and its management

Course Outcome:
At the end of the course the candidate will be able to describe the concept of health and diseases, natural history of diseases. Able to describe the health care delivery system and able to describe the health problems of vulnerable groups and national health programmes. Able to identify occupational health hazards and its management and describe the role of various health agencies, NGOs at international and national level.

Syllabus
1.General concept of health and disease with reference to natural history of disease with pre-pathology phase. The role of social economics in communities
2.Epidemiology and scope
3.Public health administration – over all view of the health administration setup and central and state levels. Health care delivery programs in urban and rural areas, health and population statistics.
4.The national health programs – high lighting the role of social, economic and cultural factors in the implementation of the national programs
5.Health problems of vulnerable groups – pregnant and lactating women, Infants and pre-school children. Occupational groups and geriatrics
6.Occupational health: Definition, scope, occupational diseases and hazards
7.Social security and other measures for the protection of occupational hazards, accidents and diseases
8.Family planning – objectives of national family planning programs and family planning methods. A general idea of advantages and disadvantages of methods.
9.Mental health – community aspects of mental health: role of physiotherapists therapists in mental health problems such as mental retardation.
10.Communicable diseases – An overall view of communicable diseases classified according to principle mode of transmission. Role of insects and other vectors
11.International health agencies
12.Principles and process of communication, IEC (Information Education and Communication)
13.Health education philosophy, main principles and objectives
14.Methods and tools of health education individual and group methods

15.The role of profession in health education: role of other personal in health education, co-ordination and co-operation, health education with other members of the health team
16.Elements of planning a health education programs

The following amendments were made for includingIntellectual Property Rights in Third BPT syllabus as under: (Board of Studies letter no. COP/SV/7718-A/4/2020 dated 16/04/2020; and Vide Notification of Board of Management resolutions Ref: No. SVDU/NOTFN/0359/2020-21, dated 29/07/2021)

17.Introduction - Concept of intellectual Property, Historical view of intellectual Property system in India and international Scenario, Evolution of intellectual Property Laws in India, Legal basis of intellectual Property Protection, Need for Protecting intellectual Property, Theories on concept of property - Major IP Laws in India.
18.Types of IPR: Patents, Copyright, Trademark, Industrial Designs, Trade Secrets.
Patents: Concept of Patent, Criteria of Patentability, Inventions NOT patentable, Process of Obtaining a Patent, Duration of Patents, Rights of Patentee, Limitation of rights, Infringement and Enforcement.
19.Copyrights: Meaning of Copyright, Copyright Vs. Moral rights, Copyright eligibility, Term of Copyright, Registration of Copyright, Infringement and Remedies.
20.Trade Secrets: Meaning of Trade Secrets, need to protect Trade secrets, Criteria of Protection, Procedure for registration, Infringement.
21.Commercialization of IPR: Traditional IP and Evolving IP, Assignment, Licensing, Cross License, patent pool, Negotiations, Defensive Publications, Technical Disclosures, Patent Pooling, Patent Trolling, Brand Management, Brand and Pricing Strategies.

Recommended Text Books:

1. Preventive and social Medicine – By Park & Park

(5) ELECTRO THERAPY (BPY305T, BPY305P)

Objectives:
At the end of the course the candidate will be able
1.Recall the Physics – Principles and laws of electricity, Electromagnetic spectrum, Ultrasound
2.Describe the electrical main supply, Electric shock – precautions
3.Describe and identify various types of electrodes used in therapeutics, resistance offered by the skin and significance of various media used to reduce the same
4.Describe the production, physiological effects, therapeutic uses, merits/ demerits, indications and contraindication of various low, medium and high frequency currents and modes. Describe the panel diagrams of the machine
5.Acquire the skill of application of Low, Medium and High frequency currents on models for the purpose of treatment
6.Describe the physiological effects and therapeutic uses of various therapeutic ions to be used for the application of Iontophoresis.
7.Describe effects of environmental and man made electromagnetic field at the cellular level and risk factors on prolonged exposure
8.Describe the physiological effects and therapeutic uses of various topical pharmaco-therapeutic agents to be used for the application of sono/ phonophoresis

9.Acquire an ability to select the appropriate mode as per the tissue specific and area specific application

Course Outcome:

At the end of the course the student shall able to describe the production, physiological effects, therapeutic uses, merits/ demerits, indications and contraindication of various physical agents and low, medium and high frequency currents. Acquire the skill of application of physical agents and Low, Medium and High frequency currents on models for the purpose of treatment.

Syllabus: (BPY305T)

1. Theory

1.1 Low frequency currents:

1.1.1 Review of physics: Current electricity, Ohms law, Resistance, Rheostats, potentiometers, Electromagnetic induction, capacitors, valves, semiconductors and transistors

1.1.2 Nerve Muscle Physiology: resting potential action potential propagation of action potential, motor unit, synapse and synaptic transmission of impulses. Effect of negative and positive electrodes on nerve & accommodation

1.1.3 Electric shock: causes, severity, treatment and precautions, earth shock and its precautions.

1.1.4 Faradic Current: Definition, characteristic and modified faradic current, sinusoidal current, parameters of faradic stimulation, physiological and therapeutic effects of faradic-stimulation. Indication, contra-indications and precautions, techniques of stimulation, group muscle stimulation, faradic foot bath, faradism under pressure and pelvic floor muscle re-education

1.1.5 Interrupted Direct Current: Introduction & characteristics, Parameters of stimulation, physiological and therapeutic uses of stimulation, precautions.

1.1.6 Galvanic Current: Introduction & characteristics, Parameters of stimulation, physiological and therapeutic uses of stimulation, precautions.

1.1.7 Iontophoresis: definition, principles of iontophoresis, physiological and therapeutic uses, indications, techniques of iontophoresis, principles of treatment, contra-indications and dangers.

1.1.8 TENS: Definition, Theories of pain modulation, pain gate theory, principle of TENS treatment, Techniques of treatment, indication and contra –indications.

1.2. Medium Frequency Current:

1.2.1 Interferential current: Definition, characteristics, physiological & therapeutic effects of I.F. current . Indications, Techniques of application, Contra-indications and precautions.

1.2.2 Advanced Electrotherapy: Computerization in electrotherapy, Programming of parameters of treatment appropriate selections of parameters and combination in therapy, combined therapy-principles, therapeutic uses and indications like, U.S. therapy with stimulation or TENS etc. Introduction to Russian currents, Dia-dynamic current, HVPGS and Micro currents Electrical currents for Care of the wound

1.3 High Frequency Current: Short Wave Diathermy: introduction, physiological effects and Therapeutic effects of S.W.D. methods of application (capacitor field method and cable method etc.) Techniques of treatment, indication, contra-indications and dangers.

1.4 Pulsed SWD: Definition, characteristics, mechanism of work, physiological effects and therapeutic effects, indications, Techniques of application, principles of treatment and contra-indications.

1.5 Ultrasonic Therapy: introduction and characteristics, U.S. Therapy parameters, coupling media, therapeutic effects, indications contra-indications and dangers, testing of apparatus, techniques of application & dosage, Phonophoresis
1.6 Electromagnetic waves: Electromagnetic spectrum , physical properties of electromagnetic radiations reflection, reflection, absorption penetration, grothus law, cosine law, inverse square law and its practical application. Cellular bio-physics – reception and emission of EM signals. Environmental currents and fields – risk factors on prolonged exposure to EM field.
1.7 Infra-RedRays: Production of infra red rays, luminous and non – luminous generators, penetration, technique of application, physiological effects and therapeutics uses of infra red rays, duration and frequency of treatment, indications and contra indications, dangers and precautions.
1.8 Ultra Violet rays: Production of U.V.R., test dose,, physiological effects of U.V.R. dosimetry in UVR. PUVA
1.9 LASERS: introduction and characteristics, effects on tissue, therapeutic effects, principles of application, indications, contra-indications and dangers.
1.10 Microwave Diathermy: Introduction and characteristics, physiological effects, therapeutics effects techniques of application and principles of treatment, dangers and contraindications of microwave diathermy.
1.11 Superficial heat modalities: Paraffin wax bath: structure of the bath, composition of wax and mineral oils physiological effects and therapeutic uses of wax bath, technique of application Other Heating Modalities: Heating pad, moist heat and fluidotherapy
1.12 Cryotherapy: Physiological effects and therapeutic uses of ice therapy Techniques of application, contra – indication to ice treatment
1.13 Care of the wound: UVR, Laser and US

Practical: (BPY305P)
Practical application of instruments from 1.1 to 1.12.

Recommended Text Books:
1.Electrotherapy explained by Low & Reed
2.Clayton's electrotherapy – 6th and 9th ed.
3.Clinical electrotherapy by Nelson & Currier

Scheme of Practical Examinations
External + Internal Total
Practical - 80 + 20 = 100

2. Any one of the following 25 Marks
Motor Points, Faradism Under Pressure,
Faradic bath, Muscle reeducation including
pelvic floor muscles, TENS, IFT

2. Any one of the following 25 Marks
SWD, US, IRR, MWD, Cryotherapy.
Superficial heat modalities – PWB, MH etc.

3. Spots 15 Marks
A. Panel diagram of an equipment
(5 minutes) - (5 Marks)

B. Testing of equipment - Ionization, Bio feedback (Omitted)

C. Testing of equipment (New Addition)
Electrical stimulator, TENS, IFT, IR lamp, US, SWD, MWD and LASER
(Two equipments – 5 minutes each-5 Marks each – 10 marks)

4. Viva Voce 10 Marks

5. Journal (Minimum of 12 topics) 05 Marks

(6) PHYSICAL AND FUNCTIONAL DIAGNOSIS (BPY306T, BPY306P)

Objectives:
This course is aimed at physical diagnosis based on I.C.I.D.H-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 Neuromusculo-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 cardiorespiratory 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 skill of performance and interpretation of various electrodiagnostic tests in the assessment of peripheral nerve lesions and pain.
5.Be able to describe the physiology of nerve impulse, motor unit, its electro-physiological character, bases for detection of abnormal EMG, & Nerve conduction
6. Acquire the simple skills of mobilization of the extremities on models

Course Outcome:
At the end of the course the student shall able to acquire the skill of detection & objective documentation of the Neuro-musculoskeletal dysfunction such as Pain, altered muscle power, mobility, endurance, limb length, posture, gait, hand function & A.D.L.s. Should be able to analyze & discuss the Physiological & Biomechanical bases of movement dysfunction, Acquire the skill of performance and interpretation of electro diagnostic tests.

Syllabus:
1. Theory
1.1 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, in anatomical directional pattern-Cephalo-caudal –proximo-distal, centero-lateral, Mass to specific pattern, gross to fine Motor development of nervous system-development; iii]- Neuro development of Hand function
1.2Electrodiagnosis- 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 ,Chronaxie & Rheobase, Accommodation, 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 f]-E.M.G. instrumentation, basic components, panel diagram, types of electrodes

1.3Assessment of movement dysfunction-higher functions/cranial nerves / altered muscle strength/power /balance /endurance/ tone, spasticity, incoordination, abnormal deep & superficial reflexes ,/limb length discrepancy /Goniometry/Trick movements/Special Tests / Assessment Scales /altered Posture & Gait—Functional analysis as per I.C.I.D.H-II norms-Functional diagnosis-

1.4Interpretation of various investigations like – Radiological [X-rays],routine Biochemical investigations, Electrodiagnostic findings

1.5 Assessment of pain –Intensity/quality-Objective assessment/ documentation

The following amendment is made as value additions as under: (Board of Studies letter no. COP/SV/8441/12/2021, dated 6/12/2021; and Vide Notification of Board of Management resolutions Ref: No. SVDU/NOTFN/3070/2021-22, dated 30/07/2022)

1.6Assessment of cardio -pulmonary and vascular dysfunction – Vitals, BMI, Chest expansion,Abnormal breath sounds, Tests for PVD – Homen's test, Rubor of dependency, Venous filling time, ABI and Burger's test. Quality of life questionnaires /Borg scale /MMRC/NYHA scale of dyspnea. 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-flow metry –Theorotical bases of Bruce's protocol, Astrand Protocol, & step test. Interpretation of Normal Chest X-Ray.

Outcome measures:

In Musculoskeletal Conditions:
1. Neck Disability Index(NDI)
2. Shoulder Pain and Disability Index(SPADI)
3. Western Ontrario&Mcmaster Universities osteoarthritis Index(WOMAC)
4. Numerical Pain Rating Scale(NPRS)
5. Visual Analogue Scale(VAS)

In Neurological Conditions:
1. Glasgow Coma Scale(GCS)
2. Rancho Los Amigos Scale(RLA)
3. Modified Ashworth Scale(MAS)
4. Berg Balance Scale(BBS)
5. Functional Independence Measure(FIM)

In Cardio-Pulmonary conditions:
1. Saint George Respiratory Questionnaire(SGRQ)

1.7 Assessment of Hand - pinches,grips,routine sensory motor evaluation stereognosis

1.8 Physiotherapy assessment of Obstetrics and Gynecology cases shall include: chest assessment, edema, posture, gait, diastasis recti, post caesarian assessment of incision

2. PRACTICALS-

2.1 Electro-diagnostic assessment using short/long pulse direct currents, alternating currents- & Biofeedback fora] Motor function-- faradic / galvanic type test/ accommodation test/ S.D. curves /Integrated EMG,b] Sensory function-sensory & pain threshold, pain tolerance
2.2 Identification of abnormal breath sounds/chest expansion/pattern of breathing /Respiratory rate/ Grades of Dyspnea/Rate of Perceived exertion/ Interpretation of Normal Chest X-Ray.
2.3 Exercise tolerance & fitness testing –6 minutes walk test,Symptom limited test

Recommended Text Books:
1 Clinical Electro Therapy –Nelson-Currier -Appleton & Lange publication
2 Clinical Electromyography-by Mishra
3 Mobilisation - Kaltenborn

Reference Book-
1]-Orthopaedic Physical examination-by Magee-
2]-Clinical Electromyography-Kimura
3]-Orthopaedic Physical therapy-Donnatelli
4]-Exercise & Heart-Wenger
5]-Exercise Physiology-M`Cardal
6] O'Sullivan

Scheme of Practical Examinations
External + Internal Total
Practical - 80 + 20 = 100
1. Long Case 30 Marks
Assessment of Medical or Surgical Case
(Assessment only, no treatment plan)
2. Two Short Cases 30 Marks
a. Basic assessment skills 15 Marks
b. Electro Diagnosis
(S.D. Curve, F.G. test, Chronaxie&
Rheobase, Accommodation, Motor points
of a nerve) (15 Marks)
3. Spots – 5 spots – 3 Marks each 15 Marks
(Based on X-Ray, NCV, etc.)
4. Journal (Minimum of 12 topics) 05 Marks

(7)E.N.T. #
(Not for University exam)

Course Outcome:
At the end of the course the student shall able to describe Anatomy of ENT and physiology of hearing and the use of audiometry in assessment of hearing. Abel to understand diseases of E.N.T. emphasis on Otitis media, Bell's palsy, sinusitis and rhinitis
Syllabus:
1.Anatomy and physiology of hearing and the use of audiometry inassessment of hearing –outline only.
2.General introduction to disease of E.N.T. emphasis on otitis media. Bell's, sinusitis, rhinitis.

3.Mastoid surgery
4.Larynx and associated functional paralysis with Tracheostomy and care of Tracheostomy.
5.Causes of hearing loss, conservative and surgery intervention including types and availability of hearing aids.

(8) OPTHALMOLOGY #
(Not for University exam)

Course Outcome:
At the end of the course the student shall able to describe Common eye diseases, vitamin A deficiency, Eye lesion in leprosy and disorders of ocular movements in myasthenia gravis, progressive supra nuclear palsy and lower motor neuron diseases.

Syllabus:
1. Common eye diseases, including refraction errors, conjunctivitis and trachoma
2. Cataract and glaucoma
3. Squint and ptosis
4. Eye lesion in leprosy, including causes treatment and complication of lagophthalmos
5. Causes, clinical features and treatment of disorders of occular movement occurring in disease such as myasthenia gravis, progressive supranuclear palsy and lower motor neuron diseases
6. Causes clinical features treatment and prognosis in inflammatory disorders, vitamin A deficiency, emphasis on preventable causes and prophylactic measures

7. Definition of blindness, and visual disability evaluation, investigative procedures used for testing visual failures.

(9) RADIOLOGY #
(Not for University exam)

Course Outcome:
At the end of course student shall able to identify the differences between normal and abnormal X rays of extremities, spine and chest and also in specific conditions like OA. Student shall able to understand other radio imaging techniques.

Syllabus:
Introduction, X-rays of Fractures of bones, Orthopedic conditions- O.A., P.A., Cervical & lumbar spondylosis, foot condition etc. Common chest conditions, C.T Scan, M.R.I., angiography, Arthroscopy etc.

(10) Evidence Based Physiotherapy III*

Course Outcome:
At the end of the course the student shall able to critically appraise the evidence, do economic evaluation of evidence and communicate the evidences to clients, managers and funders.

Syllabus:
Theory:

1. Critical Appraisal, Critical Appraisal tool, Critical Appraisal of descriptive studies, cohort studies and randomized controlled trials.
2. Communicating evidence to clients, managers and funders.
3. Inferential statistics.
4. Economic evaluation: Types of economic evaluation, Steps in conducting economic evaluation.

Practical:

- Critical appraisal different types of studies.
- Evidence based practice under supervision in clinic,
- Desirable attending minimum one state level/national level workshop / conference.

ANNEXURE–6

FINAL YEAR B.P.T.

(1) PHYSIOTHERAPY IN NEUROSCIENCES (BPY401T, BPY401P)

Objectives:

At the end of the course candidate will be able

1. Acquire the knowledge of normal neurodevelopment with specific reference to locomotion

2.Be able to identify and analyze neuromotor and psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements, sensations/ perceptions etc., correlate the findings with provisional diagnosis and investigations such as EMG/NC studies andarrive at functional diagnosis with clinical reasoning in various neuromuscular disorders.

3.Be able to plan, prescribe and execute short term and long term treatment with special reference to relief of neuropathic and psychosomatic pain anduse of various physiotherapeutic techniques/ modalities, including ergonomicadvise and parent education in neuropediatric cases

4.Be able to prescribe appropriate orthoses/splints will be able to fabricate temporary protective and functional splints.

Course Outcome:

At the end of the course candidate shall be able to identify and analyze neuro motor and psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements, sensations/ perceptions etc., arrive at functional diagnosis and be able to plan, prescribe and execute short term and long term treatment with the use of various physiotherapeutic techniques/ modalities

Syllabus: (BPY401T)

1. Theory

1.1 Review of basic neuro anatomy and physiology

1.2Symptomatology of neurological disorders role of investigations in different diagnosis

1.3Clinical examination of CNS function including cranial nerves

1.4Developmental disorder of CNS early detection of brain damaged child, risk babies, Neuro pediatric examination

1.5Developmental programs and delayed milestones. Neurodevelopmental screening test. Minimum brain damage, sensory motor, functional psychosocial behaviors of a child perception development and training

1.6Neuro-developmental approaches (like bobath technique, rood's approach,vojita technique, biofeedback) primitive patterns and abnormal motorbehavior due to brain damage, its control and training with reference togait and hand function.

1.7Assessment and treatment techniques in stroke, meningitis, encephalitis,parkinson's disease, parkinsonism syndromes, CP, Cerebral ataxia,friedriech's ataxia etc., head injury, brain tumors

1.8Assessment and treatment of spinal cord lesions and bladder dysfunction,such as motor neuron disease (ALS, SMA and other types) disseminated sclerosis, multiple sclerosis, transverse myelitis, spinal tumors, poliomyelitis, syringomyelia, spinal cord injury and subacute combineddegeneration of spinal cord

1.9Assessment and treatment of neuropathies and nerve injuries including 7th and 8th cranial nerves
1.10Assessment and treatment of myopathies and myasthenia gravis
1.11Prepost surgical assessment and treatment in neuro surgery (including hydrocephalus and myelomeningocele, C.V. junction anomalies, syringomyelia)
1.12Electro diagnostic procedures and prognosis in neurological disorders (SDcurves, EMG & NC studies)
The following amendment is made as value addition as under: (Board of Studies letter no. COP/SV/8441/12/2021, dated 6/12/2021; and Vide Notification of Board of Management resolutions Ref: No. SVDU/NOTFN/3070/2021-22, dated 30/07/2022)
1.13 Neurological manifestations in COVID19. Introduction, COVID19 and Nervous System, Common neurological symptoms/manifestations and Role of Physiotherapy in COVID19 induced Neurological manifestations.

2. Practical: (BPY401P)
Demonstration and performance of assessment and management of 1.3 to 1.12.

Recommended Text Books:
1.Key issue in neurological physiotherapy by Ada / canning
2.Elements of pediatric physiotherapy by eckersly
3.Steps to follow – Davies
4.Patrica A Downie, Cash's TB of neurology for physiotherapists, JP bros.,
Medial publishers, Banglore, Ist Indian ED. 1993

Scheme of Practical Examinations
External + Internal Total
Practical - 80 + 20 = 100
1. Long case 30 Marks
2. Short Case – Simulated 20 Marks
3. Spots – 5 Spots – 3 Marks each 15 Marks
(3 Minutes each)
spots based on EMG,NCV studies,
Orthosis and Neuro assessment scales
4. Viva Voce 10 Marks
5. Journal (Minimum of 12 topics) 05 Marks

(2) PHYSIOTHERAPY IN MUSCULO-SKELETAL CONDITIONS (BPY402T, BPY402P)

OBJECTIVES:
At the end of the course the candidate will be able to
1.Identify, discuss and analyze the Musculoskeletal dysfunction in terms of biomechanicaland biophysical bases and correlate the same with the provisional diagnosis, routine radiological and electro physiologicalinvestigations and arrive at appropriate functional diagnosis with clinical reasoning
2.Describe as well as acquire the skill of executing short and long term physiotherapy treatment by selecting appropriate modes of mobilization/manipulation, electrotherapy, therapeutic exercise and appropriate ergonomic advise for the relief of pain, restoration / maintenance offunction & / or rehabilitation for maximum functional independence in ADLat home & workplace.

3.Understand the nature of sports injuries, able to evaluate and treat sportsinjuries, understand the role of physiotherapist in training andrehabilitating a sports person

Course Outcome:

At the end of the course the candidate will be able to identify, discuss and analyze the Musculoskeletal dysfunctions and acquire the skill of executing short and long term physiotherapy treatment by selecting appropriate modes of mobilization/ manipulation, electrotherapy, therapeutic exercise and appropriate ergonomic advise for the relief of pain, restoration / maintenance of function & / or rehabilitation for maximum functional independence in ADL at home & workplace.

Syllabus: (BPY402T)

1. Theory

1.1 Physiotherapy approach in Traumatology: Fractures and complications;Definitions, healing process of fractures causes, signs and symptoms offractures, methods of reduction, means of immobilization, duration of immobilization, fractures in children, epiphyseal injury, principles of physiotherapy assessment and management in fractures of upper, lower extremity bones, scapula, ribs, vertebrae, spine and pelvis and fracture complications.

1.2 Physiotherapy approach in Dislocations: causes, types, principles, physiotherapy assessment and management (conservative, surgicalmanagement) of -shoulder, elbow, wrist. MP, IP, hip, knee, ankledislocations, acromioclavicular and sternoclavicular joints.

1.3 Physiotherapy assessment and management of Soft tissue injury:Contusion, sprains, strains, ruptures etc..

1.4 Physiotherapy assessment and management of Miscellaneous orthopedic conditions: mallet finger, trigger finger, De quervain's disease, metatarsalgia, hallux valgus, dupuytren's contracture etc.

1.5 Physiotherapy assessment and management of Rheumatology and arthritis: Still's disease, ankylosing spondylitis, bursitis, capsulitis, synovitis, tendinitis, infective arthritis, osteoarthritis, cervical spondylosis, lumbarspondylosis, PID, spondylolisthesis, gout, periarthritis, fascitis, tennis elbow, ganglions, tenosynovitis, chondromalacia patellae, Osgoodschlatters disease, cauaslgia.

1.6 Physiotherapy assessment and management of Infective Conditions: tuberculosis of spine and other major joints, perthe's disease,osteomyelitis, pyogenic arthritis, TB Spine

1.7 Rehabilitation of patient with Orthopedic surgery: pre and post-operative management of arthroplasty of all major joints, girdle stone arthroplasty arthrodesis, arthroscopy, oesteotomy

1.8 Physiotherapy assessment and management of Congenital and acquired Deformities : Coxa vara, coxa valgus , C.D.H. Genuvaram, genuvalgum, Sprengle's scapula, torticollis, Madelung's deformity, wry neck, kyphosis, hyperlordosis, spina bifida, CV anomalies, CTEV, pes cavas, pes planus,Scolioses

1.9 Physiotherapy assessment and management of Amputations: classificationsand levels of amputations of lower and upper extremities. Physiotherapy and prosthetic management / complete rehabilitation

1.10 Physiotherapy assessment and management of Re-constructive surgery in Cerebral Palsy and polio patient,

1.11Physiotherapy assessment and management of metabolic and hormonaldisorders of the bone tissue – osteoporosis etc.

1.12. Sports Physiotherapy
1.12.1 Introduction & evaluation of sports injury
1.12.2 Frequency and site of injury
1.12.3 Etiological factors
1.12.4 Investigation in sports injury
1.12.5 Diagnosis and prognosis
1.12.6 Principles of sports injuries management and effects of fatigue onplay
1.12.7 Pharmacology in sports
1.12.8 Rehabilitation in sports

2. Practical: (BPY402P)
Demonstration and performance of assessment and management of 1.1 to 1.12.

Recommended Text Books:
1.Cash's TB of Orthopedics for physiotherapists
2.Essentials of orthopedics and applied physiotherapy by Jayant Joshi
3.Tidy's Physiotherapy

Reference books
1.Orthopedics physical examination by Magee
2.Orthopedic physical therapy by Donnatelli
3. Physical medicine and rehabilitation by O'sullivan

Scheme of Practical Examinations
External + Internal Total
Practical - 80 + 20 = 100
1. Long case 30 Marks
2. Short Case – Simulated 20 Marks
3. Spots – 5 Spots – 3 Marks each 15 Marks
(3 Minutes each)
Spots based on X-ray (limb, spine)
Orthosis, Prosthesis and Metal implants etc.
4. Viva Voce 10 Marks
5. Journal (Minimum of 12 topics) 05 Marks

(3)PHYSIOTHERAPY IN CARDIO-THORACIC, MEDICAL & SURGICAL CONDITIONS (BPY403T, BPY403P)

Objectives:
At the end of the course candidate will be able to
1.identify discuss and analyze cardio vascular and pulmonary dysfunction based on pathophysiological principles and arrive at the appropriate functional diagnosis
2.acquire knowledge of rationale of basic investigative approaches in the medical system and surgical intervention regimes related to cardio vascular and pulmonary impairment and in general surgeries (special emphasis on abdominal surgeries)
3.to be able to execute the effective physiotherapeutic measures (with appropriate clinical reasoning) with special emphases to breathing retraining, nebulization, humidification, bronchial hygiene, general mobilization and exercise conditioning
4.acquire knowledge of the overview of patients care at the intensive care area, artificial ventilation, suctioning, positioning for bronchial hygiene and continuous monitoring of the patient at the intensive care area

5. Acquire the knowledge of various conditions where physiotherapy plays a vital role in the rehabilitation (psychiatry, dermatology, geriatric and ENT conditions). Evaluate, grade and treat unhealing wounds. Assess the various degrees of burns, plan and implement physiotherapy techniques for the rehabilitation of a burns patient
6.acquire the skill of evaluation and interpretation of functional capacity,using simple exercise tolerance tests, symptoms limited tests
7.be able to select strategies for cure and care and prevention adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work place and in community
8.acquire the skill of basic cardiopulmonary resuscitation

Course Outcome:
At the end of the course candidate will be able to identify discuss and analyze cardio vascular and pulmonary dysfunction based on pathophysiological principles and arrive at the appropriate functional diagnosis. Also be able to execute the effective physiotherapeutic measures (with appropriate clinical reasoning) with special emphases to breathing retraining, nebulization, humidification, bronchial hygiene, general mobilization and exercise conditioning.

Syllabus: (BPY403T)
1. Theory
1.1 Review of basic cardio-respiratory anatomy and physiology
1.2Symptomatology of cardio-respiratory disorders investigations, diagnosis, differential diagnosis and prognosis
The following amendments are made as value addition and omission as under: (Board of Studies letter no. COP/SV/8441/12/2021, dated 6/12/2021; and Vide Notification of Board of Management resolutions Ref: No. SVDU/NOTFN/3070/2021-22, dated 30/07/2022)

1.3Clinical examination of respiratory system disorder. Abnormal chest X-ray and PFT
1.4Principles and techniques of physiotherapy in disease of respiratory systems – postural drainage, breathing exercise, PNF –respiration
1.5Physiotherapy assessment and management techniques in the following: Chronic Bronchitis, emphysema, Asthma, Cystic fibrosis, Bronchiectesis,pulmonary embolism, pulmonary tuberculosis, pleurisy and empyema, atlectasis, pneumothorax, bronchopulmonary fistula and other restrictive lung diseases.
1.6Pulmonary rehabilitation: Definition, aims, and objectives patho-physiology of the disease, techniques of rehabilitation including bio-feed back
1.7Clinical examination of cardio-vascular system disorders principles andtechniques of physiotherapy in cardio-vascular diseases
1.8Physiotherapy assessment and techniques of management in the following cardiovascular disease, congestive heart failure, myocardial infarction,endocarditis, valvular diseases of heart, congenital pediatrics problems
1.9Cardiac Rehabilitation: Definition, Aims & objectives, pathophysiology ofdisease, physiotherapy assessment, principles of rehabilitation
1.10Cardio-thoracic surgery: incision, types, indications and contraindications
1.11Pre and post-operative evaluation: principles and techniques of physiotherapy management of heart and vascular surgery
1.12Evaluation, principles and techniques of physiotherapy management intraumatic and surgical conditions of chest, lung, pleura and mediastinum

1.13Principles of chest physiotherapy in ICU and ICCU along with effect of anesthesia on cardio-respiratory system. Knowledge of equipment inICCU, ICU.
1.14Pre and post-operative physiotherapy assessment and management in the following conditions: Lobectomy, Pneumonectomy, decortication, thoracoplasty,bronchopulmonary fistula. Surgery on pericardium Open heart surgery and heart transplant, Congenital abnormalities of heart
1.15 Physiotherapy assessment and management of Vascular diseases:Thrombosis, phlebitis and phlebothrombosis, burger's disease, varicoseveins, DVT, Venous ulcers and Lymphedema
1.16 Complications common to all operations
1.17 Physiotherapy during pre-operative and post-operative stages.
1.18 Abdominal incisions; Operations on upper gastro-intestinal tract-oesophagus-stomach duodenum. Operation on large and small intestine – Appendectomy, Cholecystectomy, partial colectomy, illiostomy, hernia, herniotomy, herniorraphy, Hysterectomy, Prostatectomy, Nephrectomy, Pelvis repair, Caesarian, Other gynecological operations
1.19 Mastectomy – simple, radical
1.20Physiotherapy in burns, skin grafts, Wounds, local infections, ulcers, pressure sores andRe-constructive surgery
1.21Physiotherapy in ENT& Skin Conditions.
1.22 Psychiatry –Physiotherapy in Psychiatric conditions
1.23Physiotherapy in Covid19. Introduction, Physical assessment including Functional capacity, Role of physiotherapy in ICU and Post-Covid19 Rehabilitation.

2. Practical: (BPY403P)
Demonstration and performance of assessment and management of 1.3 to 1.22.

Recommended Text Books
1.Cash TB of chest, heart, vascular disorder for physiotherapist
2.TheBrompton guide to chest physiotherapy DU Gasket
3.Physiotherapy for respiratory and cardiac problems by Webber and pryor
4.Essential of cardiac pulmonary physical therapy by Hillegass and Sadowsky
5. Cash's TB of General Medicine and surgical conditions for physiotherapists
6.Physical therapy for the cancer patient by MC Garvey
7.Physiotherapy in obstetrics and gynecology by Polden

Scheme of Practical Examinations
External + Internal Total
Practical - 80 + 20 = 100
1. Long case 30 Marks
2. Short Case – Simulated 20 Marks
3. Spots – 5 Spots – 3 Marks each 15 Marks
(3 Minutes each)
Spots based on ABG, X-ray, ECG, PFT
RPE and Bruce's protocol etc.
Based on Incisions, Post-operative external supports,
Endurance testing
4. Viva Voce 10 Marks
5. Journal (Minimum of 12 topics) 05 Marks

(4) COMMUNITY PHYSIOTHERAPY & REHABILITATION (BPY404T)

Objectives:

At the end of the course candidate will be able to

1. Understand the role of physiotherapist in multidisciplinary team approach in rehabilitation
2. Understand the principles of bio-mechanics and their application in neuro, musculoskeletal dysfunction in design, manufacture and use of bioengineering appliances.
3. Describe the general concepts about health and disease, general fitness. Woman & Child care, Geriatrics, Industrial health. Health promotion – role of PT in health for all
4. Describe various national and international health policies – Role of IAP to promote physiotherapy as a health delivery system
5. Attain ability of conducting small surveys & collection of anthropometric data, data collection for morbidity assessment.

Course Outcome:

At the end of the course candidate will be able to understand the role of physiotherapist in multidisciplinary team approach in rehabilitation. Be able to describe the general concepts about health and disease, general fitness in Woman & Child care, Geriatrics and Industrial health.

Syllabus:

1. Concepts of community health [preventive, promotive, restorative and rehabilitative]
2. WHO definition of health and disease
3. Health delivery system – 3 tier
4. The Philosophy, Principles and need of Rehabilitation
5. The evaluation process, treatment planning, Principles of prescription writing
6. Communication problems
7. Social problems
8. Vocational problems and vocational placements
9. Introduction to community based rehabilitation (CBR)
10. Definition of impairment, disability, rehabilitation
11. Disability surveys – epidemiological aspects, screening for disabilities and development disorders,disability evaluation
12. Pediatric disorders screening including mental retardation
13. Vocational evaluation and goals for the disabled
14. Contribution of social worker to rehabilitation
15. Rural rehabilitation incorporated with primary health centers
16. Extension services and mobile units
17. Community awareness and participation in preventive aspects and demands physiotherapy services
18. National district level rehabilitation programme
19. Health Care -Prevention, Promotion & Restoration

    19.1 InPeri Pubertal age group

    19.2 In women-pregnancy, menopause

    19.3 In Geriatrics- neuromusculoskeletal, Cardiovascular, Pulmonary, metabolic and degenerative conditions

    19.4 In Obese / Over weight

19.5 In Cardiovascular and Pulmonary conditions
19.6 In Diabetes
19.7 In Sport Person (Identify risk factor & type of training)
19.8 For Health Promotion for All
20. Woman and child care –
20.1 Antenatal exercises , Specific Breathing exercises, Relaxation, Postural Training,Pelvic floor stretching and strengthening exercises with clinical reasoning
20.2 Physiotherapy during labor
20.3 Postnatal exercises program after normal labor / labor with invasive procedureswith clinical reasoning
20.4 Menopause -Osteoporosis , Mental health , Physiotherapy management
20.5 Preterm babies
20.6 Adolescent age group
20.7 Nutritional disorders in women and children
21.Geriatrics –Physiology of Aging, Environmental changes and adaptations, Balance and falls, Physiotherapy management, Role of Physiotherapy in prolonged bed rest and in home for aged
22.Industrial health and Occupational Hazards
22.1 Ability Management -Job analysis: - Job description, Job demand Analysis, Task Analysis,Ergonomic Evaluation including Anthropometric data collection,Injury Prevention, Employee Fitness Programme
22.2 Disability Management:- Acute care, Concept of Functional Capacity Assessment, Work Conditioning, Work Hardening
23. Prosthesis and Orthosis
23.1 Introduction and terminology: prosthesis and orthosis
23.2 Classification of orthosis and prostheses
23.3 Bio-mechanical principles of orthotic application
23.4 Bio-mechanical principles of prosthetic application
23.5 Designing of upper and lower extremity and spinal orthosis including indications
23.6 Designing of upper and lower extremity prostheses, indications and check out
23.7 Materials used for fabrications
23.8 Psychological aspects of orthotic and prosthetic application
23.9 Prescription and design of foot wear and modification
23.10 Wheel chairs
23.11 Design and construction of adaptive devises

Recommended Text Books:

1.Atlas of orthotics: Bio-mechanical principles and applications by St. Louis,
2.American academy of orthopedic surgeon : Atlas of limb prosthetic principles
3.ALIMCO volumes
4.O' young physical medicine and rehabilitation secrets, JP bros, medicalpublishers, Bangalore Ist, Indian Ed. 1997
5.Amputations and prosthetics: A case study approach, JP Bros, Medicalpublishers, Bangalore, May Ist Indian Ed. 1996
6.Physical Diagnostic Secrets, JP, Bros, Medical Publishers,Bangalore, Mangalore, Ist Ed. 1997
7.Sports injuries: Diagnosis and management for physiotherapists
8.The children sports injuries by David Kennedy
9. Therapeutic exercise – Kisner

10. Industrial Therapy – Glenda Key
11. Textbook of Comm. Med &Comm.Rehab - Bhasker Rao
12. Geriatric Physical therapy - Andrew Guccione
13. ACSM (set of 3 books)
14. P.S.M. - Park
15. Textbook of Women's Health – Ruth Sapsford
16. Legal Rights of Disabled – RCI

(5) BIO-STATISTICS & RESEARCH METHODOLOGY (BPY405T)

Objectives:
At the end of the course the candidate will be able to
1.Gain knowledge of the basic concepts of Bio-statistics and Researchmethodology and its need for professional practice and research
2.Describe an over-view a) Design & methodology of an experiment orsurvey, b) Demography & Vital statistics, c) Sampling & interpretation of data d) Epidemiology

Course Outcome:
At the end of the course the candidate will be able to gain knowledge of the basic concepts of Bio-statistics and Research methodology and its need for professional practice and research

Syllabus:
1. Introduction – uses of statistical methods in physiotherapy –Measurement scales, variables and their measurements, Symbolic data, Operations
2. Statistical data – Tabulation – calculation of central tendency& dispersion – Linear regression & correlation – presentation of data in diagrammatic and graphic form
3. Probability & sampling – as a mathematical system –population & samples – sampling distribution – samplingmethods

Research Methodology:
1.Introduction
2.Role of research in physiotherapy
3.Principles of conducting research
a.Defining a problem
b.Review of literature
c.Formulation of Hypothesis
d.Testing hypothesis
e.Analyzes and report writing
4.Different methods of research
5.How to read and what to read from journals

Recommended books:
1. An introduction to Bio-statistics – A manual for students in health sciences-PSS Sundar Rao,
2. Methods in Bio-statistics by BK Mahajan

(6) ALLIED THERAPEUTICS#

Objective:
1. Comprehend the uses of various allied therapeutic sciences in healthcare delivery

Course Outcome:
At the end of course student shall be able to comprehend the uses of various allied therapeutic sciences in health care delivery

Syllabus:
1.Acupuncture : Definition, principles, techniques, physiological andtherapeutic effects, contra indications and dangers
2.Introduction to naturotherapy
3.Magneto therapy
4.Yogasanas and their scientific studies

Recommended books:
1.Anatomy and physiology of Yogic practice by MM Gone
2.Yoga stretching and relaxation for sports men by Capt. M Rajan

(7) MANAGEMENT AND ETHICS
(Not for University exam)

Objectives:
1. Describe management and its principles, branches, theories of management and management in health sector and its application inPhysiotherapy.
2. Describe the health policies of government of India and health care system in India
3. Plan to organize a physiotherapy department

Course Outcome:
At the end of the course the student shall able to describe management and its principles, branches, theories of management and management in health sector and its application in Physiotherapy. Also should be able to plan to organize a physiotherapy department.

Syllabus:
Management
1. Introduction, branches of management, nature and scope of management process
2. General principles of management – theories of management, principles ofhealth sector management, its application to physiotherapy
3. Personal management – policies, procedures, basic concepts including performance appraisal
4. Planning and organization- planning cycle, principles of organizations charts, resource and quality management, planning change
5. Financial issues including budget and income generation
6. Hospital management; hospital organization, staffing, information,communication and coordinator with other services of hospital, cost of services, monitoring and evaluation
7. Self management-preparing for first job: time management,career development
8. National health policy and health care system in India
9. Organization of physiotherapy department – planning, space, man power and other basic resources

Recommended books:
1. Kulkarni GK - Hospital management, accounting, planning and control Dr.MP Ghei, Secretary, Indian Hospital Association, B-401, SaritaVihar NewDelhi

2. Srinivasan R &ChunawallaSA , Principles and practice of management
1.Francis Cm – hospital administration second Ed.2
2.Llewlyn – Hospital planning and administration, JP Bros.
3.Welner EM – Human services management analysis and application
4.Rose Mary MC Mohan,- A guide for middle level management in primary health care

Ethics:
1.History of physiotherapy
2.Ethical principles in health care
3.Ethical principles related to physiotherapy
4.Scope of practice
5.Rules of professional conduct
a.Physiotherapy as a profession
b.Relationship with patients
c.Relationship at health care institution i.e. hospital, clinic etc..
d.Relationship with colleagues and peers
e.Relationship with medical and other professionals
6.Confidentiality and responsibility
7.Malpractice and negligence
8.Provision of services and advertising
9.Sale of goods: personal and professional standards
10.Legal aspects:
10.1 legal responsibility of physiotherapists for their action in the professional context understanding liability and obligations in case of medico legal action
10.2 consumer protection act

Recommended books:
1.CM Francis, Medical ethics by Jaypee publication
2.George, V Lobo, current problems in medical ethics
3.Consumer protection act – 1986 Govt. of India, New Delhi

(8) Evidence Based Physiotherapy IV*

Course Outcome:
At the end of the course the student shall able to practice EBP under supervision.

Syllabus:
Theory:
In every area of specialty viz.
1. Musculo-skeletal
2. Neurology
3. Cardio- Respiratory
4. Community – webinar based

Clinical scenario will be given and EBP will be assessed

Practical:

- Evidence based practice under supervision in clinic.
- Attending minimum one state level / national level workshop / conference on recent issues.
- Presenting poster / paper in state / national level conference.

ANNEXURE – 7

Scheme and the Structure of Examination

FIRST YEAR B.P.T.

01 - HUMAN ANATOMY
External + Internal Total
Theory - 80 + 20 = 100
Practical - 80 + 20 = 100

SECTION-I

Q.1 Long Question (1 out of 2)	16 Marks
Q.2 Write notes in short (4 out of 5)	24 Marks
TOTAL MARKS	**40**

SECTION-II

Q.1 Long Question (1 out of 2)	16 Marks
Q.2 Write notes in short (4 out of 5)	24 Marks
TOTAL MARKS	**40**
TOTAL MARKS-(40+40) =	**80**

02 - HUMAN PHYSIOLOGY
External+ Internal Total
Theory - 80 + 20 = 100
Practical - 80 + 20 = 100

SECTION-I

Q.1 Long Question (1 out of 2)	16 Marks
Q.2 Write notes in short (4 out of 5)	24 Marks
TOTAL MARKS	**40**

SECTION-II

Q.1 Long Question (1 out of 2)	16 Marks
Q.2 Write notes in short (4 out of 5)	24 Marks
TOTAL MARKS	**40**
TOTAL MARKS-(40+40) =	**80**

03- BIO-CHEMISTRY
External + Internal Total
Theory - 40 + 10 = 50
(2 Hours Duration)

Q.1. Long Question (2 out of 3)	24 Marks
Q.3. Write notes in short (4 out of 5)	16 Marks
TOTAL MARKS	**40**

04 PSYCHOLOGY & SOCIOLOGY
External + Internal Total
Theory
(Psychology) 40 + 10 = 50
(Sociology) 40 + 10 = 50
SECTION-I
Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)
TOTAL MARKS 40
SECTION-II
Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)
TOTAL MARKS 40
TOTAL MARKS-(40+40) = 80

05 BIO-MEDICAL PHYSICS
External+ Internal Total
Theory - 80 + 20 = 100
Practical - 40 + 10 = 50
SECTION-I
Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)
TOTAL MARKS40
SECTION-II
Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)
TOTAL MARKS40
TOTAL MARKS-(40+40) = 80

06 EXERCISE THERAPY – I & MASSAGE MANIPULATION
External+ Internal Total
Theory - 80 + 20 = 100
Practical - 80 + 20 = 100
SECTION-I
Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)
TOTAL MARKS 40

SECTION-II
Q.1 Long Question 16 Marks
(1 out of 2)

Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

TOTAL MARKS-(40+40) = 80

SECOND YEAR B.P.T.

01 - PATHOLOGY & MICROBIOLOGY •
External + Internal Total
Theory
(Pathology) 40 + 10 = 50
(Microbiology) 40 + 10 = 50

SECTION-I

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

SECTION-II

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

TOTAL MARKS-(40+40) = 80

02- PHARMACOLOGY
External + Internal Total
Theory - 40 + 10 = 50
(2 Hours Duration)
Q.1. Long Question 24 Marks
(2 out of 3)
Q.3. Write notes in short 16 Marks
(4 out of 5)

TOTAL MARKS 40

03. Medicine – I (Neurology, Pediatrics) •
External + Internal Total
Theory
(Neurology) 40 + 10 = 50
(Pediatrics) 40 + 10 = 50
• Aggregate passing

SECTION-I (NEUROLOGY)

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

SECTION-II (PEDIATRICS)

Q.1 Long Question 16 Marks
(1 out of 2)

Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

TOTAL MARKS-(40+40) = 80

04. Medicine – II (Dermatology & Psychiatry) •
External + Internal Total
Theory
Dermatology - 20 + 05 = 25
Psychiatry - 20 + 05 = 25
• Aggregate passing

SECTION I (DERMATOLOGY)

Q.5. Full Question 12 Marks
OR
Full Question
Q.6. Write short notes 08 Marks
(2 out of 3)

TOTAL MARKS 20

SECTION II (PSYCHIATRY)

Q.5. Full Question 12 Marks
OR
Full Question
Q.6. Write short notes 08 Marks
(2 out of 3)

TOTAL MARKS 20
TOTAL MARKS 40(20+20)

05.ORTHOPEDICS& TRAUMATOLOGY
External + Internal Total
Theory
(Orthopedics) 40 + 10 = 50
(Traumatology) 40 + 10 = 50

SECTION-I

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

SECTION-II

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

TOTAL MARKS-(40+40) = 80

06. Exercise Therapy –II & Kinesiology
External + Internal Total
Theory - 80 + 20 = 100
Practical - 80 + 20 = 100

SECTION-I (EXERCISE THERAPY II)

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS40

SECTION-II (KINESIOLOGY)

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS40
TOTAL MARKS-(40+40) = 80

THIRD YEAR B.P.T.

01-MEDICINE - III (General Medicine, Cardio Vascular, Respiratoy Conditions, Intensive
& Emergency Care)
External + Internal Total
Theory - 80 + 20 = 100

Section – I (General Medicine + Cardio Vascular)

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS40

SECTION-II (Respiratory System, Emergency Medicine& ICU)

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS40
TOTAL MARKS-(40+40) = 80

02- SURGERY I
(General surgery, Neuro Surgery, CardiothoracicSurgery)
External + Internal Total
Theory - 80 + 20 = 100

SECTION-I (Gen. Surgery, Neuro Surgery)

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

SECTION-II (Cardio Vascular Thoracic Surgery)

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40
TOTAL MARKS-(40+40) = 80

03-SURGERY II (Obstetrics & Gynecology)

External + Internal Total
Theory - 40 + 10 = 50
Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)
TOTAL MARKS 40

04. COMMUNITY MEDICINE

External + Internal Total
Theory - 80 + 20 = 100
SECTION-I
Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)
TOTAL MARKS 40
SECTION-II
Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)
TOTAL MARKS 40
TOTAL MARKS-(40+40) = 80

05. ELECTROTHERAPY

External + Internal Total
Theory - 80 + 20 = 100
Practical - 80 + 20 = 100
SECTION-I
Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)
TOTAL MARKS 40
SECTION-II
Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)
TOTAL MARKS 40
TOTAL MARKS-(40+40) = 80

06. PHYSICAL & FUNCTIONAL DIAGNOSIS
External + Internal Total
Theory - 80 + 20 = 100
Practical - 80 + 20 = 100

SECTION-I

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

SECTION-II

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40
TOTAL MARKS-(40+40) = 80

FINAL YEAR B.P.T.

01. Physiotherapy in Neurosciences
External + Internal Total
Theory - 80 + 20 = 100
Practical - 80 + 20 = 100

SECTION-I

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

SECTION-II

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40
TOTAL MARKS-(40+40) = 80

02. PHYSIOTHERAPY IN MUSCULO SKELETAL CONDITIONS
External + Internal Total
Theory - 80 + 20 = 100
Practical - 80 + 20 = 100

SECTION-I

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

SECTION-II

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

TOTAL MARKS-(40+40) = 80

03. PHYSIOTHERAPY IN CARDIOTHORACIC, MEDICAL & SURGICAL CONDITIONS

External + Internal Total

Theory - 80 + 20 = 100

Practical - 80 + 20 = 100

SECTION-I

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

SECTION-II

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

TOTAL MARKS-(40+40) = 80

04. COMMUNITY PHYSIOTHERAPY & REHABILITATION

External + Internal Total

Theory - 80 + 20 = 100

SECTION-I

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

SECTION-II

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

TOTAL MARKS-(40+40) = 80

05. BIO-STATISTICS & RESEARCH METHODOLOGY

External + Internal Total

Theory - 80 + 20 = 100

SECTION-I

Q.1 Long Question 16 Marks
(1 out of 2)
Q.2 Write notes in short 24 Marks

(4 out of 5)

TOTAL MARKS 40

SECTION-II

Q.1 Long Question 16 Marks
(1 out of 2)

Q.2 Write notes in short 24 Marks
(4 out of 5)

TOTAL MARKS 40

TOTAL MARKS-(40+40) = 80

Evidence Based Physiotherapy (for all years)

EVIDENCE BASED EDUCATION SYSTEM

PAPER PATTERN

Total Marks: 30 Time: 1 hour

Q. 1 Short Note (2 out of 3) (2×5=10 Marks)

Q.2 Descriptive Type/Application Type/ Problem Salving Types Question (1×5=5 Marks)

Q.3 Short Answer (5 out of 6) (5×2=10 Marks)

Q.4 Multiple Choice Questions (5×1=5)

ANNEXURE- 8
Internship Criteria

For the Degree of Bachelor of Physiotherapy, the students after passing the professional examinations as per the syllabi prescribed by the Sumandeep Vidyapeeth, for First B.P.T., Second B.P.T., Third B.P.T. and Final Year B.P.T. shall undergo Six months compulsory rotatory internship training programto develop skill and acquire clinical knowledge with proficiency in managing patients independently. The program of internship shall be as annexure- 8. The internship should be preferably done in Dhiraj Hospital however in case of student opting outside, a teaching hospital / MCI /IAP / SV recognized institutes as in annexure -9 shall be considered.

GENERAL:

Internship is a phase of training where a candidate is expected to conduct actual Physiotherapy practice, with fair independence in clinical decision making in low risk cases where as to work under supervision at high risk areas, so that at the end of Internship he/ she is capable to practice Physiotherapy independently.The concerned college authority shall do the posting of the successful candidates for internship within 15 days of the declaration of results of Final BPT students.It shall be binding on the candidate to follow strictly, the code of conduct prescribed by the IAP & accepted by the Sumandeep Vidyapeeth. Any breachin the conduct / discipline shall disqualify the candidate from pursuing Internship for a period of One week to One month or more depending upon the gravity of breach of conduct.Stipend during the Internship: As may be determined by the college from time to time.Compulsory Internship shall include rotational clinical assignments,administrative skills & a Scientific project over a period of 26 weeks. The candidate is however encouraged to extend optional “Hands on” practice for six additional months in the desired areas at the hospital attached to the college affiliated to Sumandeep University conducting B.P.T program; as per the rules & regulations applicable to Internees regarding attendance, attitude & performance. Such clinical experience on successful completion & on passing shall be documented in the transcript & shall be strongly recommended for additional credits for higher education or employment.On successful completion of Internship, to the satisfaction of the Head of Physiotherapy Dept and / or the Chief of the parent institution, the Internship completion certificate shall be issued by the parent institution;and it will be forwarded to the Sumandeep University for the award of B.P.T Degree.The University shall issue a provisional B.P.T pass certificate on passing the final examination.

OBJECTIVES OF INTERNSHIP PROGRAME:

1.Detect and evaluate and arrive at appropriate physical and functional diagnosis.
2.Understand the rationale & basic investigative approach of the Medical system & Surgical intervention regimens & accordingly, Plan & implement specific Physio therapeutic measures effectively
3. Develop ability to prescribe, assess fitting & use of appropriate orthotic & prosthetic devices; in addition to an ability to fabricate simple splints for extremities , for the purpose of prevention , support& training for ambulation & activities of daily living.

4. Practice professional autonomy & ethical principle with referral as well as first contact client in conformity with ethical code forPhysiotherapists.

SCHEDULE:

Candidate shall be posted to minimum Eight Rotational Clinical assignments of total 26 weeks, including administrative skills pertaining to Physiotherapy practice & a scientific project of 3 hours per week [total not less than 78 hours].

SCHEDULE OF INTERNSHIP:

Assignment	**Discipline**	**Duration**
Musculo-skeletal Physiotherapy	OPD/Indoor Orthopedics / Trauma / Rheumatology	4 weeks
Optional-Hand rehab. /Sports injury /wound & skin care		2 weeks
Neuro-physiotherapy	OPD/ Neurology/ Neurosurgery/ Medicine	4 weeks
	Pediatrics (NICU)	2 weeks
Optional- EMG / NCV (Observation only)		2 weeks
Cardio-pulmonary Physiotherapy	OPD /Medical/ Cardiothoracic	4 weeks
General Medical & Surgical Physiotherapy	Surgical / Burns / Plastic & Reconstructive surgery	
	Dermatology / Psychiatry	4 weeks
Intensive care Physiotherapy	Medical ICU / Surgical ICU	4 weeks
	Obstetrics & Gynecology	2 weeks
Womens health + Geriatric health / Community Physiotherapy at primary health center or community		2 weeks
Optional – Industrial health/ fitness clinic/Disaster Management		2 weeks

* Clinical Posting in Community P.T can also be conducted at the Rural set up with prior permission from the HOD and the Principal of the parent institution. Internees shall under take a small research in consultation and consent of the college authority / HOD PT department and the ethical committee of the parent institution. The candidate shall submit the project not earlier two weeks and not later than four weeks of last day of internship. The HOD PT dept shall sign on the same if the project isup to his/her satisfaction. Candidate shall then present the project in front of all faculties.

EVALUATION:

The Candidate shall maintain a logbook and record of all events of the respective postings, he / she shall be closely monitored by a senior physiotherapy faculty and who shall also sign in the logbook on completion of assignment.

LEAVE FOR INTERNS:

An internee shall be entitled for maximum 6 days leave during six months period of internship posting. An internee will not be permitted to avail more than 2 days leave in any department. Period of leave in excess of 2 days in adepartment will have to be repeated in the same department. Under any circumstances this period will not be condoned by any authority. In special circumstances this period may be condoned by HOD PT Dept./Principal /Dean.

TRANSFER OF INTERNEE:

Transfer of Internee to other Physiotherapy college:The student desirous of transfer to another Physiotherapy college for doinginternship training program may apply to the University in the prescribedform along with the fee prescribed by the University from time to time.

(A) Colleges affiliated to Sumandeep University:

1.All parts of internship will be necessarily done in the respected parent institute itself or/and in the institute affiliated/recognized by the Sumandeep University as in the annexure 9.

2.Internee shall be permitted to complete all parts of internship at approved/recognized Physiotherapy college which is attached to MCI recognized college/hospital.

3.Parent college shall grant NOC subject to the realization that the internshipis done in a MCI recognized medical institute/hospital and similarly inrecognized physiotherapy college which is attached to MCI recognized institute/ hospital listed in annexure.

4.The student will have to apply for No Objection Certificate to parent college and also where he/ she wants to get internship transferred.

5.The college in which the internee is transferred will have to complete the program as per the guidelines of Sumandeep University.

6.The parent institution will then receive the Internship Completion Certificate from that college and will forward the same to Sumandeep University for the award of degree.

INTERNSHIP COMPLETION CERTIFICATE:

Internee will be issued internship completion certificate by the Principal onlyafter completion of internship training program satisfactorily.

ANNEXURE-9

List of recognized Hospitals as provided by Sumandeep University and few as approved byadhoc board of Physiotherapy, for permitting candidates to do their internship in part or full especially for the physiotherapy college not associated with the medical college.

LIST OF RECOGNIZED HOSPITAL

1.Civil Hospital, Ahmedabad
2.L.G. Hospital, Ahmedabad
3.KM Patel Institute of Physiotherapy, Karamsad
4.Vadilal (V.S.) Hospital, Ahmedabad.
5.Sola Hospital, Ahmedabad
6.Rajasthan Hospital, Ahmedabad
7.General Hospital, Surat
8.M.G. Hospital, Surat
9.Lokhat Surat Hospital, Surat
10.Mahavir General Hospital, Surat
11.Civil Hospital, Surat
12.S.S.G. Hospital, Baroda
13.S.P. Sanatorium, Baroda
14.K.G.P. Hospital, Baroda
15.Civil Hospital, Rajkot
16.Physiotherapy College, Rajkot
17.Civil Hospital, Bhavnagar
18.C.U.Shah Medical College and Physiotherapy, Surendranagar
19.Surendra Nagar Hospital, Surendra Nagar.
20.Sterling Hospital, Ahmedabad
21.Krishna Heart Institute, Ahmedabad
22.Irwin Group of Hospital, Jamnagar
23.Sardaben Hospital, Ahmedbad
24.Jamnabai Hospital, Baroda
25.Jubilee Hospital, Bhuj
26.General Hospital, Bhuj
27.Bidada Sarvodaya Trust Hospital, Bidada
28.General Hospital, Rajkot
29.Gandhinagar Civil Hosopital, Gandhinagar
30.Santram Physiotherapy, Nadiad