ORDINANCE

FOR

THE DEGREE

OF

BACHELOR OF PHYSIOTHERAPY

(BPT)

INSTITUTE OF PHYSIOTHERAPY

BHAGWANT UNIVERSITY

AJMER

RAJASTHAN

JULY, 2008

Approved in academic council meeting held on July 2008

APPLICABILITY:

This ordinance shall apply to all programmes leading to Bachelor's Degree In Physiotherapy (BPT)

LDEFINmONS:

1. Academic proeramme/Programmes shall mean a programme of courses and/or any other component leading to Bachelor's degree of physiotherapy.
2. An academic year is a period of nearly 12 months devoted to completion requirements specified in the Scheme of teaching and the related examinations
3. Board of StudiesfBOSl shall mean the Board of Studies of the Institute concerned
4. Course means a component of academic programme, carrying a distinctive code no. and specific credits assigned to it.
5. University shall mean Bhagwant University
6. External Examiner shall mean an examiner who is not in the employment of the Bhagwant University.
7. Semester system- a programme wherein each academic year is apportioned into 2 parts known as semesters.
8. Student shall mean a person admitted and registered for a programme in the institute of physiotherapy of the university

II. **ADMISSION**

The university will permit admission to BPT degree courses, which are duly approved by the Academic Council of the university Admission to BPT first semester will be made as per the rules prescribed by the Academic Council of the university Admission on migration from any other university to the university is permitted.

Lateral entry to the BPT programme 12nd year (3rd semester) is permitted if the candidate has completed the diploma in the relevant area/field with 55% marks or completed B.Sc degree with 55% marks.

III. **ELIGIBILITY FOR ADMISSION**

Intermediate/Higher secondary 10+2 from any approved board with minimum pass marks in PCM/PCB.

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Bhagwant university entrance examination or any other equivalent entrance examination conducted on state or national level

IV. PROGRAMMES CONENT AND DURATION

a) A Bachelor's degree shall comprise of a number of courses and/or other components as specified in the Teaching and Evaluation Scheme of the concerned programme duly approved by the Academic Council.
b) The minimum period required for completion of BPT (8 semesters) shall be the programme duration as specified in the Teaching and Evaluation Scheme of the concerned programme.
c) Students have to register for all courses offered in any particular semester.
d) Students are permitted to register for an additional coursefback log) for 2nd semester onwards provided the subject I being offered in that semester.
e) Except for the first semester, registration for the next semester will be done during the 1st wee f the next semester.
f) From the 2nd semester onwards all students have to enrol within specified period at the beginning of a semester student is eligible for enrolment if he has paid all the dues for the semester.
g) The maximum permissible period for completing a programme for which the prescribed programme duration is "n" semesters, shall be (n+4) semester. The entire programme requirement shall have to be completed in (n+4) semester. Under very special circumstances the duration of the total period may further be extended by two semesters with the approval of the Vice Chancellor. This excluded the period of expulsion or suspension by the University/Medical leave.
h) (i) The student may be allowed to "audit" a course (s) not included in the Teaching and Evaluation Scheme, or one of the elective course(s) in the Teaching and Evaluation Scheme, which the student is not opting for as a credit course

   (ii) The University may ask a student to audit one or more courses as prerequisite courses so as to make up any deficiency at the entry level.

   (iii) Such audited course(s) shall be shown in the final grade sheet under a distinct head of "Audited Course(s)" provided the attendance requirement of the course is duly certified to have been met, by the concerned teacher(s). However, a student shall neither be entitled to any

credits for such course(s), nor these shall be considered for the purpose of declaration of results.

V. MINIMUM REQUIREMENT TO CONTINUE IN THE PROGRAMME:

a) A student is required to earn a minimum of 15 credits in the 1st semester and a total of 30 credits at the end of 2nd semester. Thereafter he/she need to maintain a 11 credits per semester without fail.

b) A student in 2nd semester should have a minimum CGPA of 5.5 calculated for the courses successfully completed at the end of each semester, if his/her CGPA continues to be less than 5.5, and/or he/she could not earn 19 credits, his/her name will be struck off.

VI. CANCELLATION OF ADMISSION:

The admission of a student at any stage of study shall be cancelled if-

a) He/she is not found qualified as per the eligibility criteria prescribed by the university

OR

b) He/she is involved in ragging

OR

c) He/she is found involved in creating indiscipline in the Institute or the university

VII. COURSE DURATION:

An academic year shall be of 2 semesters. The academic calendar shall be notified by the university each year before the start of the academic session

The academic break-up of the semesters shall be as follows-

- Theory and practical classes (including mid-term tests) 16-18 weeks
- Semester-end examination including practical 02-4 weeks
- Laboratory examination

VIII. BOARD OF STUDIES:

The constitution of the board of studies of each institute shall be:

a. The Director of the institute (Chairperson)
b. Two professors
c. Two associate professors
d. Two assistant professors

e. Four expert members

IX. ACADEMIC PROGRAMME COMMITTEE

a) There shall be an Academic Programme Committee in the Institute/Department/Constituent Institution of the University
b) All the teachers of an institute of study shall constitute the Academic Committee of which the Director of the Institute shall act as its Chairperson. This Committee shall coordinate the implementation of the courses for optimum utilization of the resources and shall also take care of the coordination of the Institute's programme with the other programme run by different institutes of the University.
c) The Academic Programme Committee shall also perform other tasks as assigned to it by the Board of Studies of the concerned Institute of the University.
d) The Academic Programme Committee shall meet as and when required but at least once every semester. The chairperson of the committee will convene the meeting.

X. ATTENDENCE

i) Teacher should finalize the attendance 3 calendar days before the last instruction day of the course in the semester.
ii) All students are normally expected to have attendance of 100% in each subject (Lecture, tutorials and practical). The attendance can be condoned up to 25% for genuine reasons. The director of the concerned Institute/Programme Coordinator may give further relaxation up to 10% on account of illness and other pre-approved occasions. Vice chancellor may further condone attendance shortage up to 5% on genuine grounds. However under no circumstances, a student of attendance of less than 60% in a subject, shall be allowed to appear in the semester end exam of that subject. Provided that the late admitted students in the 1st semester of any course maintain at least 80% attendance (including medical and other reasons) from the date of their admission.
iii) Director of the institute/programme coordinator shall announce the names of all names of all such students who are not eligible to appear in the subject(s) of year-end exam, at least one week before the start of the semster-end examination and simultaneously intimate the same to the Controller of Examinations.

iv) In case any student appears in the Examination by default, who in fact has been detained by the institute his/her result shall be treated as null and void.

XI. EVALUATION

Examinations of the university shall be open to all regular /re-admitted/ ex-students who have undergone a course of study in the university for a period specified for that programme of study in the Teaching and Evaluation Scheme and are not debarred from appearing in the semester - end examinations as provided in the applicable Ordinance of the University.

a) The overall weight-age of a course in the syllabi shall be determined in the terms of credits assigned to the course.

b) The distribution of weight-age for various components of evaluations shall be defined in the Teaching and Evolution Scheme.

c) Conduct of semester-end examinations

1. All semester-end examinations shall be conducted by the controller of examinations.
2. The schedule of examinations shall be notified by the Controller of Examinations at least 10 days prior to the first day of commencement of semester-end exam.
3. For theory as well as practical examinations and project reports / training reports etc., the concerned subject teacher(s) shall be examiners. In case any external examiners are desired then the same shall be appointed by the Controller of Examinations with the recommendations of the Director of the concerned Institute / programme coordinator.

d) Continuous evaluations:

All courses undertaken by students are evaluated during the semester using internal system of continuous assessment. The students are evaluated on class / tutorial participations, assignment work, lab work, class test, midterm tests, quizzes and end semester examinations, which contribute to the final grade awarded for subjects. Students will be notified at the commencement of each courses about the evaluation methods being used for the courses and weight-ages given to the different assignments and evaluated activities.

In order to make the evaluation system as similar and transparent with any of the globally reputed educational institutions like N.I.Ts,

I.I.Ts, Nationally reputed medical institutions etc. the Bhagwant University Academic council has adopted the grading practices. Here marks obtained in the continuous assessment and end semester examination are added together and a 10- point grading system will be used to award the student with on overall letter grade for the course (subject).

Distribution of marks

-> Courses without practical components

Continuous assessment - 25 Midterm exams -15
End-term exams - 60

Total 100

-> Courses with practical components only

Continuous assessment - 30 Midterm exams -20
End-term exams - 50

Total 100

Letter grading system
Final evaluation of course is carried out on a TEN POINT grading system. Performance grade and grade points are shown below.

Marks	**Grade Value**	**Grade**	**Description**
91 to 100	10	A+	Outstanding
81 to 90	9	A	Excellent
71 to 80	8	B	Very Good
61 to 70	7	C	Good
SI to 60	6	D	Average
41 to 50	5	E	Fair
Less than 41	0	F	Fair

Absent in the University Final Examination	0	I	Incomplete

NOTE: In order to convert the GPA/CGPA into percentage multiply the same with the conversion factor of 9.10

A student who earns a minimum of 5 grade point (E grade) in a course (subject) is declared to have successfully completed the course, and is deemed to have earned the credit assigned to that course. A course successfully completed cannot be repeated.

A student should have appeared for the end semester exam of the prescribed course of study (mere appearance in the continuous assessment test is not sufficient) to be eligible for the award for the degree in the course.

If a student is eligible for but - fails to appeared in the semester end exams, he/she will be awarded a I grade (incomplete) on the grade sheet. For all practical purposes an 'I' grade is treated as an 'F'.

If a student is not eligible to appear in the end semester exam owing to his/ her not fulfilling the minimum attendance requirements he/she may be permitted to re-register for those courses in which he /she had attendance shortage, at the next available opportunity.

Grade point average (GPA) and cumulative grade point average (CGPA)
Each course grade will be converted into a specific no. of points associated with the grade as mentioned in table 1.
Here points are weighed with the no. of credits assigned to a course. The grade point average is the weighted average of grade points awarded to a student. The GPA for each year will be calculated only for course students who have passed all the courses of that semester. The weighted average GPA's of all semester that

the student has completed at any point of time is the Cumulative Grade Point Average (CGPA) at that point of time.
CGPA up to any semester will be calculated only for those students who have passed all the courses up to that semester.

Calculation of GPA and CGPA:

Example- Table 2

Courses	Credits	Letter Grade	Grade Value	Credit Value	Grade Points
Mathematics	3	C	7	3x7	21
Chemistry	3	B	8	3x8	24
Physics	3	A	9	3x9	27
Language Lab	2	B	8	2x8	16
TOTAL	11	-	-	-	**88**

In this case GPA= Total Grade Points =88.= 8.0 Credits n

Suppose the GPAs in 2 successive years are 7.oand 8.0 with 26 and 24 respective course credits, then the CGPA= 7x26+8x24 = 374 = **7.48**
26+24 50

After the results are declared, grade cards will be issued to each student which will contain the list of courses for that semester and the grades obtained by the student, as well as GPA of that academic year. However, a conversion factor '9.1' will be included, enabling students and future employers for transforming CGPA into percentage of marks at par with the existing practices of I.I.Ts, N.I.Ts and A.I.C.T.E

Minimum eligibility requirement in Bhagwant University for proceeding to the next academic year of study commencing from June, 2009.

A 1st yr MPT student of Bhagwant university satisfying the below mentioned requirements is eligible to study in the next academic year.

Sr. no.	Course	Minimum requirement
1.	MPT	Pass with minimum E grade in two theory paj & pass in one laboratory papers in the 1st year

The examiner shall set year-end examination question paper and submit to the controller of examinations at least two weeks before the commencement of year-end exams. Paper will be moderated by the moderation committee approved by the Vice-chancellor. The examiner for the final exam may be one of the subject teachers of the concerned course in that semester

The supervisor/guide shall be faculty member of physiotherapy in any campus of the university. The topic of the dissertation and the name of supervisor/guide be duly approved by the director of the institute of the pharmaceutical sciences. The viva-voce of the synopsis shall be conducted by an external examiner appointed by the university for the purpose. The marks shall be awarded jointly by the external examiner and the internal examiner.

a. The university shall have the right to cal for the complete records of any teacher's evaluation and moderate the teacher's evaluation, if it deems fit.
b. Semesters end practical exams shall be conducted by a board of examiners for each course duly approved by the vice chancellor. The board shall consist of one or more examiners.
c. For any other type of examination, not covered by sub-clause(c) and (g) above, the mode of conduct of examination shall be as specifically provided in the teaching and evaluation scheme, and in the absence of such a provision, it shall be decided by the controller

of examination of the board of studies/academic programme committee concerned, with the approval of vice-chancellor.

d. If a student has missed semester-end exam due to valid reason like illness, injury, death of immediate relative etc.
e. The complete results of a year-end examination (including both the year end-exam and teacher's continuous evaluation) shall be declared by the controller of examination after it is cleared by the examination results and moderation committee, especially constituted by the vice-chancellor for the purpose
f. The award list/mark sheet containing the marks obtained by a student in various courses shall be issued by the controller of examinations at the end of each academic year, after the declaration of the results.
g. Proficiencies:

Extracurricular activities as listed below will be offered to students of BPT programmes. These activities will in both semesters and evaluated. Activities will be graded as Excellent/Veiy Good/ Good/Satisfactoiy/ Unsatisfactory.

The Extra Curricular Activities are sports/cultural-

1. Tennis
2. Badminton
3. Squash
4. Football
5. Basketball
6. Cricket
7. Volleyball
8. Kho-kho
9. Gymnastics
10. Gardening
11. Electronics
12. NSS
13. Music and dramatics
14. Debate

15-Music and dramatics

16. Throwball
17. Organization and management

18. Fine arts and painting
19-Rovering and rangering
20. Model and sculptures
21. Table tennis
22. Chess
23. Any other activity with prior approval,

h.

XII. CRITERIA FOR PASSING COURSES, GRADES AND DVISIONS:

a. Grade system:

As mentioned earlier in depth.

XIII. A) USE OF UNFAIR MEANS

All reported cases for use of unfair means in the examination shall be placed before a Standing 'Unfair Means Hearing Committee' for decision on case basis. The actions under the category of 'Use of Unfair Means' and procedure for dealing with such cases of suspected/ alleged/ reported use of unfair means shall be specified by the Academic Council.

B) STUDENTS GRIEVANCE COMMITTEE

In case of any representation/ complaints received from the students within 7 days after the completion of the examination regarding the setting up of the question paper etc. along with specific recommendations of the course co-ordination and Director of the institute, the same shall be considered by the Students Grievance Committee to be considered by the vice chancellor. The vice-chancellor shall take appropriate decision on the recommendation of the Students Grievance Committee, before the declaration of result(s) of the said information.

XIV. AWARD OF DEGREE

A student shall be awarded a degree if:

i) He/she has registered himself/herself, undergone the course of the studies, completed the project report/dissertation specified in the curriculum of his/her programme within the stipulated time, and secured the minimum credits prescribed for award of the concerned degree/diploma.

ii) There are no dues standing in his/her name of an Institute of the University/ constituent Institution, and

iii) No disciplinary action is pending against him/her.

XV. Subject to the provision of Act, the Statues and the Ordinances such administrative issues as disorderly conduct in examinations, other malpractices, dates for submission of examination forms, issue of duplicate degree/ diplomas, instructions to the examiners, superintendents, invigilators, their remuneration and any other matter connected with the conduct the examinations will be dealt with as per the guidelines approved for the purposes by the Academic Council.

XVI. Notwithstanding anything stated in this Ordinance, for any unforeseen issues arising, and not covered in this ordinance, or in the event of difference of interruption, the Vice Chancellor may take a decision after obtaining, if necessary, the opinion/ advice of a Committee consisting of any or all the Directors of the Institutions. The decision of the Vice Chancellor shall be final.8

BHAGWANT UNIVERSITY
Sikar Road, Ajmer
Rajasthan

Syllabus

BPT Course

BHAGWANT UNIVERSITY

BACHELOR OF PHYSIOTHERAPY

YEAR I

Subject Code	Name of Subject	Teaching Period			Credits
		L	T	p	
01BTP101	Anatomy	3	1	0	4
01BTP102	Physiology	3	1	0	4
01BTP103	Psychology & Sociology	3	L	0	4
01BTP104	Fundamentals of Biomechanics & Exercise Therapy	3	1	0	4
01BTP105	Principles of Bioelectrical Modalities	3	1	0	4
01BTP106	Biochemistry	3	L	0	4
01BTP201	Practical Anatomy	0	0	2	I
01BTP202	Practical Physiology	0	0	2	1
01BTP203	Practical Fundamentals of Biomechanics & Exercise Therapy	0	0	2	I
01BTP301	Discipline & Extra Curricular activities	0	0	4	1
TOTAL		is	6	I0	28

YEAR II

Subject Code	Name of Subject	Teaching Period			Credits
		L	T	P	
02BTP101	Pathology & Microbiology	3		0	4
02BTP102	Pharmacology	3		0	4
02BTP103	Medicine & Paediatrics	3		0	4
02BTP104	General Surgery	3		0	4
02BTP105	Exercise Therapy	3		0	4
02BTP106	Electro Therapy	3		0	4
02BTP201	Practical PT-Clinicals	0	0	2	1
02BTP202	Practical Exercise Therapy	0	0	2	1
02BTP203	Practical Electro Therapy	0	0	2	1
02BTP301	Discipline & Extra Curricular activities	0	0	4	
TOTAL		is	6	10	28

YEAR III

Subject Code	Name of Subject	Teaching Period			Credits
		L	r	P	
03BTP101	Neurology including Psychiatry	3	L	o	4
03BTP102	Orthopaedics	3	L	o	4
03BTP103	Obstetrics & Gynaecology	3	1	o	4
03BTP104	Applied Biomechanics & Kinesiology	3	1	o	4
03BTP105	Physiotherapeutic in Neurology	3	1	o	4
03BTP106	Physiotherapeutic in Orthopaedic	3	1	o	4
03BTP201	Practical PT-Clinicals	0	0	2	I
03BTP202	Practical Physiotherapeutic in Neurology	0	0	2	I
03BTP203	Practical Physiotherapeutic in Orthopaedic	0	0	2	1
03BTP301	Discipline & Extra Curricular activities	0	0	4	1
TOTAL		18	6	IO	28

YEAR IV

Subject Code	Name of Subject	Teaching Period			Credits
		L	T	P	
04BTP101	Community Rehabilitation & Disability Prevention	3		O	4
04BTP102	Research Methodology & Biostatistics	3		O	4
04BTP103	Physiotherapeutic in General & Cardio thoracic	3		O	4
04BTP104	Physiotherapeutic in Sports	3		0	4
04BTP201	Practical PT-Clinicals	0	0	2	1
04BTP202	Practical Physiotherapeutic in General & Cardio thoracic	0	0	2	1
04BTP203	Practical Physiotherapeutic in Sports	0	0	2	1
04BTP204	Project Work		0	16	8
04BTP301	Discipline & Extra Curricular activities	0	0	4	1
TOTAL		12	4	26	28

NOTE: - INTERNSHIP OF SIX MONTH

YEAR I

ANATOMY

Course/Paper: 01BTP101

Course objectives:

- Understanding of gross anatomy of various body parts.
- Application of knowledge of anatomy to learn evaluation and application of physical therapy.
- Major emphasis of learning is towards Musculo-skeletal, cardio-respiratory and nervous system. **Learning**

Outcomes:

Develop a vocabulary of appropriate terminology to effectively communicate information related to anatomy
Recognize the anatomical structures
Use anatomical knowledge to predict physiological consequences, and use knowledge of function to predict the features of anatomical structures.

BPT YEAR I

Course Contents: All sections carry equal weightage

Section - A

General Anatomy:

Introduction to Anatomy, terms and terminology Regions of Body, cavities and Systems outline.
Surface anatomy - musculo-skeletal and cardiopulmonary Cell Structure and function of cell organelles (Brief outline only).
Connective tissue & its modification, tendons, membranes, Special connective tissue.
Bone structure, blood supply, growth, ossification, and classification.
Muscle classification, structure and functional aspect.
Nerve - structure, classification, microscopy with examples.
Neurons, classification with examples. Simple reflex arc.
Parts of a typical spinal curve/Dermatome
Joints - classification, structures of joints, movements, range, limiting factors, stability, blood supply, nerve supply, dislocations and applied anatomy.
Circulatory system - major arteries and veins of the body, structure of blood vessels
Lymphoid system - circulation + function, lymphoid organs- and their structure & functions.

Upper extremity:

Bony architecture
Joints - structure, range of movement
Muscles - origin, insertion, actions, nerve supply
Major nerves - course, branches and implications of nerve injuries
Development of limb bones, muscles and anomalies
Radiographic identification of bone and joints

Section - B

Lower Extremity:

Bony architecture
Joints - structure, range of movement
Muscles - origin, insertion, actions, nerve supply
Major nerves - course, branches and implications of nerve injuries
Development of limb bones, muscles and anomalies
Radiographic identification of bone and joints

Spine:

Back muscles - Superficial layer, Deep muscles of back, their origin, insertion, action and nerve supply.

Vertebral column - Structure & Development, Structure & Joints of vertebra Radiographic identification of bone and joints

Section - C

Thorax:

Thoracic cage

Pleural cavities & pleura

Lungs and respiratory tree

Heart and great vessels

Diaphragm

Head and neck:

Cranium Facial

Muscles

Central nervous system - disposition, parts and functions

Cerebrum

Cerebellum

Midbrain & brain stem

Blood supply & anatomy of strokes

Spinal cord- anatomy, blood supply, nerve

pathways Pyramidal, extra pyramidal system

Thalamus, hypothalamus

Ventricles of brain, CSF circulation

Development of nervous system & defects (Brief Description)

Cranial nerves - special emphasis on V, VII, X, XI, XII (course, distribution and palsies)

Sympathetic nervous system, its parts and components (Brief Description) Parasympathetic nervous system (Brief Description).

- Miscellaneous:
- Embryology in brief covering neuromuscular developmental aspects
- Endocrine - system - Pituitary, Thyroid, parathyroid (Brief Description)
- Special senses (Brief Description): Nerve receptors, Eye, Ear, Labyrinth
- Abdomen and pelvis (Brief descriptions only):
  - Abdominal cavity - divisions
  - Muscles of abdominal wall, pelvic floor, innervations
  - Bony Pelvis
  - Digestive system (Liver & pancreas, Alimentary canal)
  - Urinary system - Kidney, Ureter, bladder, urethra
  - Genital system - male and female

Suggested Readings:

S.No.	Author	Me	Publisher	Fear	9ol.
I	Chaurasia, B D	Human Anatomy: Regional and Applied	CBS, New Delhi	2004	3v
2	Chaurasia, B D	Human Oesteology	CBS, New Delhi	1991	
3	Singh, Inderbir	Text Book of Anatomy: With Color Atlas	Jaypee, New Delhi	1999	3v
4	Singh, Inderbir	Text Book of Neuroanatomy	laypee, New Delhi	1999	
5	Singh, Inderbir	Iext Book of Human Histology	Jaypee, New Delhi	1997	
6	Singh, Inderbir	rext Book of Human Oesteology	laypee, New Delhi	1997	
7	Garg, Krishna	Iext Book Histology	CBS, New Delhi	1997	
8	Singh, Inderbir	Multiple Choice Questions in Anatomy	Jaypee, New Delhi	1989	
9	Datta, A.K.	Essentials of Human Anatomy: Neuroanatomy	Current Book, Calcutta	1997	
10	Datta, A.K.	Essentials of Human Anatomy: rhorax and Abdomen	Current Book, Calcutta	1997	
Ii	Williams, Peter L	Gray's Anatomy: Anatomical Basis of	Churchill Livingston, New Fork	1995	
12	McMinn, M. H.	Colour Atlas of Human Anatomy	Mosby-Wolfe, London	1995	
13	Snell, Richard S	Clinical Anatomy for Medical Students	Little- Brown, Boston	1995	
14	Field, Derek	Anatomy: Palpation and Surface Markings	Butterworth, London	1997	

PHYSIOLOGY

Course/Paper: 01BTP102

BPT YEAR-I

Course objectives:

- To understand the Physiological functions of human body
- To understand the application of physiological functions & physiology of exercise in relation to physical therapy

Major area of learning is cardio-respiratoiy, Musculo-skeletal and nervous system.

Learning Outcomes:

Describe the structure of major human organs and explain their role in the maintenance of healthy individuals.
Explain the interplay between different organ systems and how organs and cells interact to maintain biological equilibria in the face of a variable and changing environment. Explain physiological processes accurately and concisely in journal-style format and orally, using relevant scientific terminology and nomenclature.

Course Contents: All sections carry equal weightage

Section-A

a. General Physiology

b. Cardiovascular System
Dynamics of blood & lymph flow
Anatomical, biophysical consideration of arterial, arteriolar & capillary venous level, Lymphatic circulation
Origin and spread of cardiac excitation Basic idea of Electrocardiogram
Mechanical events of Cardiac cycle, Cardiac output, its regulation Local & systemic regulatory mechanisms of CVS, humeral & neural Cerebral, coronary, splanchnic, skin, Placental & Fetal circulation

c. Respiratory System

d. Cardio respiratory adjustments in health & disease
Exercise, high altitude, deep sea diving Hypoxia, hypercapnia, hypocapnia, oxygen treatment
Asthma, emphysema, artificial respiration

Section - B

- Blood

1. W.B.C., R.B.C., Platelets formation & functions
2. Plasma, Blood Groups
3. Haemostasis, Immunity

- Renal System

1. Glomerular filtration rate, clearance, Tubular function
2. Water excretion, concentration of urine-regulation of Na, Cl, K excretion
3. Physiology of urinary bladder
4. Nerve - Muscle and Synaptic & Junction Transmission
Nerve - General Concept

Nerve cell - structure
Genesis of resting membrane potential & Action potential
Their ionic basis, All or None phenomenon
Ionic basis of nerve conduction
Gassification & types of nerve fibre
Mixed nerves & compound action potential
Concept of nerve injury & Wallerian degeneration
Muscle properties and functions
Electric & Mechanical responses & their basis
Concept of isometric & isotonic muscle contraction
Electrical events in postsynaptic neurons
Inhibition & facilitation at synapses
Chemical transmission of synaptic activity
Principal neurotransmitter system

Neuromuscular junction, structure & events occurring during

excitation Section - C

Digestive System
Digestion & absorption of nutrients Gastrointestinal secretions & their regulation Liver & Exocrine Pancreas

Functions of Nervous system (descriptive)
Reflexes, monosynaptic, polysynaptic, withdrawal reflex Properties of reflexes
Sense organ, receptors, electrical & chemical events in receptors Ionic basis of excitation
Sensory pathways for touch, temperature, pain, proprioception, others Control of tone & posture: Integration at spinal, brain stem, cerebellar, basal ganglion levels, along with their functions & clinical aspects
Autonomic nervous system & Hypothalamus Higher functions of nervous system
Learning & memory, neocortex,
Limbic functions, sexual behaviour, fear & range, motivation

Miscellaneous
Special senses Endocrinology
Male & female reproductive system

S.No.	Author	Title	Publisher	Fear	*Vol.*
	Chatterji, C. C.	Human Physiology	Medical Allied	997	2v
2	Keele, Cyril A	Samson Wright's Applied Physiology	Oxford University Press	1998	
3	Bijlani, R L	Understanding Medical Physiology	Oxford University Press	1998	
4	Guyton, A.C. and Hall, J. E.	rextbook of Medical Physiology	W.B.Saunders, Singapore	1998	

PSYCHOLOGY & SOCIOLOGY

Course/Paper: 01BTP103

BPT YEAR-I

Course Objectives;

This course will enable the student to understand specific psychological factors and effects in physical illness and this will help them to have a holistic approach in their dealings with patients during admission, treatment, rehabilitation and discharge.

Note: This course is to be taught by two teachers (Psychologist & Sociologist / Medical Sociologist). Each part carries equal weightage. External Question Paper for each part shall be set by two relevant subject paper setters The examinees shall use different answer books for the two different parts. And, relevant subject teachers shall evaluate these.

Learning Outcomes:

Use critical thinking skills in a variety of domains;
Think scientifically about behavior, mental processes, and underlying mechanisms;
Apply broad perspectives to behavior from both an individual and cultural point of view.
Appreciate how psychological findings can be used to make informed judgments that strengthen the community and build public policy.

Course Contents: All sections carry equal weightage

PSYCHOLOGY fPART - A)

Section-A

- What is psychology? Fields of application of psychology, influence of heredity and environment on the individual
- Learning - theories & principles learning
- Memoiy, Forgetting, theories of memory and forgetting, thinking & methods to improve memory
- Thinking - process, problem solving, decision making and creative thinking
- Motivation - theories and types of Motivation
- Emotions - theories of Emotions and stress
- Attitudes - theories, attitudes and behaviour, factors in attitude change
- Intelligence - theories of intelligence
- Personality, theories of personality, factors influencing personality
- Development and growth of behavior in infancy and childhood, adolescence, adulthood and old age
- Behavior - normal and abnormal
- Counseling - Definition, Aims and principles
- Psychotherapy - brief introduction to paradigms in psychopathology and therapy

Section - B

Psychological need of children and geriatric
patients Communication - effective and faulty
Emotional and behavioral disorders of childhood and adolescence-
(in brief) Disorders of under and over controlled behavior Eating
disorders Mental deficiency-

Anxiety Disorders -

Phobias, panic disorder,
Generalized Anxiety
disorder

Obsessive Compulsive Disorder,
Post -traumatic Stress Disorder
Somatoform and Dissociate Disorders -
Conversion Disorder,
Somatization Disorder,
Dissociate Amnesia & Dissociate
Fugue Personality Disorder
Patho-physiological Disorders - stress and health Severe
psychological disorders - Mood disorders, psychosis

SOCIOLOGY fPART - B1

Section - C

A-Introduction

- Meaning-Definition and scope of Sociology
- Its relation with Anthropology, Psychology, Social Psychology and ethics.
- Methods of Sociology-case study, Social Survey, Questionnaire, interview and opinion poll methods.
- Importance of its study with special reference to health care professionals.

The meaning of Social Factors. 2. The role of Social factors and illness. C-Socialization:
Meaning and nature of Socialization.
Primary, Secondary, and Anticipatory Socialization.
Agencies of Socialization. D. Social Groups:
Concepts of social groups.
Influence of formal and informal groups on health and sickness.
The roll of primary groups and secondary groups in the hospital and rehabilitation settings.

c. The family - Meaning and definition, Functions
d. Changing family Patterns
e. Influence of family on the individual health, family, and nutrition.
4. The effects of sickness on family and psychosomatic disease and their importance
to Physiotherapy F-Community:
a) Rural community - Meaning and features - Health hazards of rural population
b) Urban community - Meaning and features - Health hazards of urban population

Section - D

G-Culture and Health:
1. Concept of culture
2. Cultures and Behaviour
3. Cultural meaning of sickness
4. Culture and health disorders H-Social change:
Meaning of social changes & Factors of social change. Human adaptation and social change.
Social change and stress.
Social and deviance.
Social change and health Program.
The role of social planning in the improvement of health and in rehabilitation. I-Social problems of disabled:

Consequences of the following social problems in relation to sickness and Disability, remedies to prevent these problems
1. Population explosion.
2. Poverty and unemployment.
3- Beggary.
4. Juvenile delinquency.
5. Prostitution.
6. Alcoholism.
7. Problems of women in employment.

J-Social security: Social security and social legislation in relation to the Disabled.
K-Social worker: Meaning of social work; the role of a medical social worker.

Suggested Readings:

S.No.	Author	Me	Publisher	rear	
I	Morgon, Clifford T	Introduction to Psychology	rata Meg. Hill, Delhi	1999	
2	Famald, L.D.	Introduction to Psychology	AITBS, Delhi	L999	
3	Korchin, Sheldon J.	Modem Clinical Psychology: Principals	CBS, New Delhi	1999	
4	McDavid, J.W. and Harari, H.	Social psychology: Individuals, Groups, Societies	CBS, New Delhi	1999	
5	Davison, G.C. and tfeale, J.M.	Abnormal Psychology	Jhon Wiley, New York	L997	
6	Mehta, Manju	Behavioral Sciences in Medical Practice	Jaypee, New Delhi	1998	
7	Bhusan, Vidya and Sachdeva, D.R.	Introduction to Sociology	Kitab Mahal, New Delhi	**1999**	
8	rumer, J. H.	Structure of Sociological Theoiy	Jaipur Publication	1995	
9	An and Kumar	Indian Society and Culture	^ivek, New Delhi	2000	

FUNDAMENTALS OF BIOMECHANICS & EXERCISE THERAPY

Course/Paper: 01BTP104 BPT YEAR-I

Course Objectives:
This course will enable the student to understand the basic principles of biomechanics & exercise therapy, basic principles and application of soft tissue manipulation **Learning outcomes:**

Integrate knowledge of basic sciences and physical therapy in order to modify treatment approaches that reflect the breadth and scope of physical therapy practice.
Integrate the use of basic principles of research in critical analysis of concepts and findings generated by self and others.
Actively recognize the rights and dignity of individuals in planning and administering programs of care.
Course Contents: All sections carry equal weightage

Section - A

All topics are for a brief description only

1. Mechanics - Definition of mechanics and Biomechanics
2. Force - Definition, diagrammatic representation, classification of forces, concurrent, coplanar and colinear forces, composition and resolution of forces, angle of pulls of muscle

3. Momentum - principles, and practical application
4. Friction
5. Gravity - Definition, line of gravity, Centre of gravity
6. Equilibrium - Supporting base, types, and equilibrium in static and dynamic state
7. Levers - Definition, function, classification and application of levers in physiotherapy & order of levers with example of lever in human body
8. Pulleys - system of pulleys, types and application
9. Elasticity - Definition, stress, strain, HOOKE'S Law
10. Springs - properties of springs, springs in series and parallel, elastic materials in use

Section - B

1. Aims and scope of various biomechanical modalities - shoulder wheel, shoulder ladder, shoulder pulleys, pronator-supinator instrument, static <ycle, rowing machine, ankle exerciser, balancing board, springs, weights
2. Normal Posture - definition & description, static and dynamic, alignments of various joints, centre of gravity, planes & muscular moments, and Analysis of posture
3. Movements - Anatomical definition and description, Movements and exercise as therapeutic modality and their effects, Physiological reaction of exercise
4. Traction - Rationale, Technique, indications & contra-indications

Section - C

1. Normal Gait - definition & description, alignments, centre of gravity during gait cycle, planes & muscle acting mechanisms, pattern, characteristics Normal gait cycle, time & distance parameters, & determinants of Gait
2. Starting positions - Description and muscle work, Importance of fundamental and derived types, Effects and uses of individual positions
3. Soft tissue manipulation - History, definition, types and their rationale, general effects, local effects of individual manipulation (physiological effects) and uses, contra-indications and techniques of application

Suggested Readings:

S.No.	Author	Title	Publisher	5fear	*Vol*
I	Hollis, M. and Cook, P.F.	Practical Exercise Therapy	CBS, New Delhi	1999	
2	Gardiner, Dena	Principles of Exercise Therapy	CBS, New Delhi	1999	
3	Lippert, Lynn	Clinical Kinesiology for Physical Therapy	Jaypee New Delhi	1996	
4	Pagliarulo, MA	Introduction to Physical Therapy	Mosby, London	2001	
5	Tones,	Human Movement Explained	Butterworth Heine	2000	

PRINCIPLES OF BIO-ELECTRICAL MODALITIES

Course/Paper: 01BTP105 BPT YEAR-I

Course Objectives:

This course will enable the student to understand the basic electricity, electronics, equipments and their application in Electrotherapy.

Learning Outcomes:

Describe the basic of Physics which is used in Electrotherapy Modalities,
Explain the electrical supply of Electrotherapy modalities.
Understand the working of different devices used in Electrotherapy Modalities

Course Contents: All sections carry equal weightage. All topics are for a brief description only.

Section - A

Fundamentals of Electricity & Magnetism

1. DC Currents -Modem concept of electricity: fundamental electric charges (proton and electron), bound and free electrons, free electrons and current, static electric charge, charging of an object potential and capacitance, potential difference and
EMF
2. A. C. currents: Sinusoidal wave from, frequency, wavelength, Amplitude and phase of a sine wave, Average & RMS value of a sine wave
3. Quantity of electricity, magnitude of current, conductors and insulators, resistance of conductor and Ohm's law, resistances in series and parallel
4. Capacitors: Electric field around a capacitor, charging and discharging a capacitor, types of capacitor with application of each in Physiotherapy department
5. Rheostat: series and shunt Rheostat with application of each in the Physiotherapy department
6. Effects of electric Current: Thermal effect, chemical effect (ionization) and magnetic effect.
Electric shock, Earth shock, causes and its prevention

7. Magnetism: Magnetic - non-magnetic substances and their properties, properties of magnet, molecular theory, poles of magnet and its properties, magnetic lines of force and their properties, Electromagnetism, magnetic effects of electric current, Electromagnetic induction, Lenz's law, Inductor and Inductance types of inductor, reactance and impedance.

Section - B

1. Thermionic Valves: Thermionic emission, Diode and Triode valves and their characteristics, Construction and application of Cathode Ray Oscilloscope
2. Semiconductor Devices: Intrinsic and extrinsic semiconductors, advantages of diode and transistors devices. Basing of Diode and their characteristics, Light Emitting Diodes, integrated circuits
3. Electronic Circuits: Rectifiers & smoothing circuits, Oscillators - Sinusoidal and non-sinusoidal types
4. A.C. AND D.C. meters: Functions and applications of Ammeter and volt meters, Ohmmeters, Wheat stone bridge
5. Introduction to Therapeutic Energies - Thermal, Mechanical, Electrical, Electromagnetic and magnetic - Definition, description, physiological effects, pathological effects and dangers.

Section - C

1. Medical Instrumentation For Physical Therapy: Brief description of generation, circuit diagrams and testing
2. Low frequency currents, Direct currents, Medium frequency currents
3. Short wave Diathermy-continuous and pulsed
4. Microwave Diathermy
5. Ultrasound
6. Actmo-therapy - Infrared, UVR and lasers

Note: emphasis is given only to generation circuit diagram and testing of the various electrotherapy apparatus.

Suggested Readings:

S.No.	Author	Title	Publisher	*Year*	*VoL*
I	Froster, A. and Palastanga, N.	Clayton's Electrotherapy: rheoiy and Practice	AITBS, Delhi	1999	
2	Ihon, Low and Ann, Reed	Electrotherapy Explained: Principles	Butterworth Heine, Oxford	2000	
3	Nelson, R.M. and Currier, D.P.	Clinical Electrotherapy	Appleton and Lange	1987	
4	Chemeron, M.H.	Physical Agents in Rehabilitation	W B Saunders, London	1999	
5	Michlovitz, S L	rhermal Agents in Rehabilitation	F A Davis, Philadelphia	1996	

BIOCHEMISTRY

Course/Paper: 01BTP106 BPT YEAR-I

Course Objectives:

To understand biochemical basis of life sciences

Note: A brief description of metabolic pathways mentioned herein is indicated. Details and structures are to be avoided.

Learning Outcomes;

Able to demonstrate an understanding of fundamental biochemical principles, such as the structure/function of biomolecules, metabolic pathways, and the regulation of biological/biochemical processes.

Understand and practice the ethics surrounding scientific research.

Able to apply and effectively communicate scientific reasoning and data analysis in both written and oral forums.

Course Contents: All sections cany equal weightage.

Section - A

1. Nutrition: Basic principles of nutrition; Carbohydrates, Proteins and Lipid caloric requirement and balance diet
2. Carbohydrates: Definition, classification with examples and general functions.

Metabolism - Glycolysis, T.C.A Glycogen metabolism, Blood Sugar regulation, Diabetes and diabetic keto-addosis

3. Lipids: Definition, classifications and general functions. Essential fatty adds, cholesterol, Blood lipids. Brief review of lipoproteins. Metabolism-Oxidation of fatty adds, cholesterol synthesis, and fatty liver.
4. Proteins: Definition, classification, and Bio-medical Importance.

Section - B

1. Study of hemoglobin and immunoglobulins with functions.
2. Plasma Proteins and functions. Metabolism: General reactions of amino acids. Formation and fate of ammonia - Urea cycle.
3. Tissue chemistry: Chemistry of connective tissue, bone and teeth. Composition function and chemical mediators of nerve structure of muscle tissue. General Biochemistry of muscle contraction and relaxation.

Section - C

Enzymes: Definition, classification with examples. Factors affecting enzyme action. Brief study of enzyme inhibition. Clinical importance of enzymes.

Vitamins: Definition, classification and functions. Dietaiy source, Daily requirement and defidency disorders.

Water and Electrolyte Balance: General outline of fluid compartments of the body with their water and electrolyte content and balance, Dehydration.

Suggested Readings:

S.No.	Author	Me	Publisher	Fear	Vol.
1	Ahuja, Lakshmi	CBS Quick Review in Biochemistry	CBS, New Delhi	1999	

2	Chatteiji, M N	Text Book of Medical Biochemistry	Jaypee, Bangalore	1999	
3	Deb, A.C.	Fundamentals of Biochemistry	CBA, Calcutta	1999	
4	Lehninger, A.L.	Principles of Biochemistry	CBS,Delhi	1984	

PRACTICAL ANATOMY

Course/Paper: 01BTP201

BPT YEAR-I

Learning of surface landmarks with special emphasis on bones, joints, muscles, and nerves. The learning of anatomy is by demonstration only through dissected parts, slides, models, charts, etc.

Demonstration of dissected parts (upper extremity, lower extremity, thoracic& abdominal viscera, face and brain)

Demonstration of skeleton articulated and disarticulated.

During the training more emphasis will be given on the study of bones, muscles, joints, nerve supply of the limbs.

Students will by viva only based upon learning in theory, demonstration of bones, and joints, muscles, nerves and major viscera.

PRACTICAL PHYSIOLOGY

Course/Paper: 01BTP202 BPT YEAR-I

Examination of pulse, B.P., respiratory rate, & measure study the effect of posture & exercise.

Spirometery to measure various lung capacities & volumes, Respiratory rate, tidal volume, VC, timed VC, IRV, IC, ERV, EC on Spirometery (demonstration only)

Estimate of Haemoglobin, T.R.B.C., T.W.B.C. count (demonstration only)

Blood indices, Blood grouping, Bleeding & Clotting time (demonstration only)

Students will be assessed by viva based upon learning in theory. Demonstration of measurements of pulse, BP.

PRACTICAL FUNDAMENTALS OF BIOMECHANICS & EXERCISE THERAPY

Course/Paper: 01BTP203

BPT YEAR-I

Demonstration of Biomechanical principles

Study of structure, function and application of various Biomechanical modalities - shoulder wheel, shoulder ladder, shoulder pulleys, pronator - supinator instrument, static cycle, rowing machine, ankle exerciser, balancing board, springs, weights, etc. Study of structure, function and application of suspensions, Demonstration and practice of

- soft tissue manipulative techniques
- normal gait and posture

- starting and derived positions
- spinal mechanical traction

Students will be assessed by viva based upon learning in theory, demonstrations of various biomechanical modalities, suspensions, and manipulative techniques learned.

YEAR II

PATHOLOGY & MICROBIOLOGY

Course/Paper: 02BTP101

BPTYEAR-H

Course objectives:
Rationale for understanding of the subject for Physiotherapy students Brief concept of pathological basis of disease and infectious disease prevention

Learning Outcomes:

Explain within multiple microbiology disciplines the core theories and practices;
Explain the processes used by microorganisms for their replication, survival, and interaction with their environment, hosts, and host populations;
Explain the theoretical basis of the tools, technologies and methods common to microbiologys

Course Contents: All sections carry equal weightage

PATHOLOGY

Section - A

a) Inflammation, injury and repair
b) Oncology: Classification, gross pathological state, cancer pain syndrome (Brief description)
c) Skin: Etio-pathogenesis, gross pathology of commonly occurring skin Diseases, Bums, Pressure ulcers (Brief description)
d) Cardiovascular system: Etio-pathogenesis, gross pathology of conditions- aging, IHD, MI, CCF, HT, RHD, Congenital heart disease, Arteriosclerosis, Thrombo-angitis, Vasomotor-Raynaud's, venous thrombosis, Gangrene, Lymph edema
e) Haematology: (Brief description) - Etio-pathogenesis, gross pathology of conditions-anaemia, polycythaemia, leukaemia, haemolytic disease, and haemophilia
f) Respiratory system: Etio-pathogenesis, gross pathology of conditions - aging, Pneumonia, Pulmonary TB, Bronchiectasis, COPD, Bronchial Asthma, Restrictive Lung disease, Occupational lung disease

Section - B

a) Musculoskeletal system: Etio-pathogenesis, gross pathology of conditions - osteomalacia, Osteoporosis, Osteomyelitis, Osteoarthritis, rheumatoid arthritis, Gout, spondyloarthropathy, Osteonecrosis, Myofascial pain syndrome. Biological responses to trauma, bone and soft tissue immobilization
b) CNS AND PNS: Etio-pathogenesis, gross pathology of conditions - Aging, Meningitis, Encephalitis, Parkinson's, Amyotrophic lateral sclerosis, Ataxias, Multiple Sclerosis, stroke, Neuropathies (Carcoat Marie Tooth's disease, Compression and entrapments, diabetic, G.B syndrome), Poliomyelitis and post-polio syndrome, Myasthenia Gravis

MICROBIOLOGY

Section - C

a) Immunology: Brief description of immune system, immunity, immune responses & immune deficiency Immunology, Hypersensitivity disorders

b) Infectious diseases: Brief description of classification of microorganisms, identification, Sterilization and disinfections with special reference to principles of antisepsis and prevention of communicable diseases in clinical practice

c) Brief description of identification of infectious diseases; principles of prevention of infectious diseases caused by common pathogens - streptococci, staphylococci, gonococci, Meningococci, salmonella, V. cholerae, E. coli, shigella, tetanus, Diphtheria,

M. leprae, M. tuberculosis, Poliomyelitis, Rabies, Malaria, Amoebiasis, Helminthiasis, Scabies, ringworm, candidiasis

S.No.	Author	Me	Publisher	Fear	Pol.
1	Chakraborty, P.	Textbook of Microbiology	NCB, Calcutta	L999	
2	Ananth Narayan, R.	Text Book of Microbiology	Orient Longman, Madras	1.986	
3	Chatteijee, K. D.	Parasitology: Protozoology and helminthology	Chatteijee, Calcutta	1965	
4	Cotran, Ramzi S	Pathologic Basis of Disease	W. B. Saunders, Singapore	L999	
5	'Imay Kumar	Basic Pathology	Harcourt	1997	
6	Nagalotimath, S J.	Textbook of Pathology	CBS, New Delhi	1998	
7	ralib.V.H.	Essential Parasitology	Mehta, New Delhi	2001	

PHARMACOLOGY

Course/Paper: 02BTP102

BPTYEAR-H

Course Objectives:

b) To understand pharmaco kinetics, pharmaco dynamics.
c) Usage of common drugs with (indications, contraindications, side effects).
d) To understand the drug actions that may affect the physical therapy treatment.
e) Course is not prescription oriented.

I.earning Outcomes:

To understand the fiindamental scientific principles of drug action and the various mechanisms by which drugs can mediate their pharmacological effect

To understand the fundamental principles of pharmacokinetics that underly the absorption, distribution, metabolism and elimination of drugs in the body and thereby affect drug effectiveness

To understand the biochemical reactions that result in the metabolism of drugs within the body

Course Contents: All sections carry equal weightage

Section - A

1. General Pharmacology (brief description only): Introduction & general concepts
   Pharmacokinetics (routes of administration, metabolism & elimination) Pharmacodynamics (mechanism of drug action, therapeutic & side effects, toxicity)
2. Autonomic Nervous System:

3. Central Nervous System:
   Anaesthetic agents- uses, side effects and interaction with physical therapy Sedatives and hypnotics - uses, side effects and interaction with physical therapy Anti epileptic drugs- uses, side effects and interaction with physical therapy Analgesics - uses, side effects and interaction with physical therapy Anti inflammatory drugs- uses, side effects and interaction with physical therapy Psychotherapeutic agents- uses, side effects and interaction with physical therapy Alcoholism and drug dependence and interaction with physical therapy
   Therapeutic agents used for movement disorders- uses, side effects and interaction with physical therapy

Section - B

1. Cardio-vascular System:
   Therapeutic agents (classification, effects on cardio vascular system, uses & adverse reactions)

   Drugs used in cardiac failure, hypertension & arrhythmias and interaction with physical therapy

   Drug therapy in vascular disease & ischaemia and interaction with physical therapy

2. Respiratory system:
Therapeutic agents - uses, side effects and interaction with physical therapy

Section - C

6. Gastrointestinal system:
Therapeutic agents in Peptic ulcer, Diarrhoea- uses, side effects and interaction with physical therapy
a. Endocrinal hormones: Thyroid, adrenal, parathyroid hormones - uses, side effects and interaction with physical therapy
b. Diabetes mellitus;

Drug therapy and its interaction with physical therapy 9. Geriatrics:
Pharmacological challenges in geriatric age group and its effects on physical therapy
Suggested Readings:

S.No.	Author	ritle	Publisher	fear	Vol.
1	Tripathi, KD.	Essential of Medical Pharmacology	New Delhi,	1985	
2	Laurence, D.R.	Clinical Pharmacology	ELBS, London	975	
3	Eddy, Lynne	Physical Therapy pharmacology	Mosby, London	1992	
4	Barbar, F.S.K.	Essential. Of Pharmacotherapeutics	S. Chand, New Delhi	2000	

MEDICINE & PAEDIATRICS

Course/Paper: 02BPT01103 BPTYEAR-O

Course Objectives:

a. To understand the subject of medicine, the medical patient & implications of medical condition in physical therapy

b. To understand a Paediatrics patient and its special needs in relation to physical therapy

Learning Outcomes:

Demonstrate a systematic, integrated and effective evidence-based approach to problem solving in the diagnosis and management of diseases and disorders.
Health maintenance and preventive care for children, including age-related issues in nutrition, safety, vaccination and risk factor identification and modification

Course Contents: All sections carry equal weightage

MEDICINE

Section - A

1. Introduction: Brief outline of subject of medicine, a medical patient, common signs & symptoms of disease
2. Infectious Diseases: Brief description of concept of infection, types, classification & common clinical manifestation of infection and general principle of management (No specific infections)
3. Nutritional & Metabolic Diseases: Brief description of following diseases along with outline of management: Diabetes Mellitus, Vitamins (A, B, C, D & K) and Minerals (iron, calcium phosphorus, iodine) deficiencies, and Obesity
4. Alimentary tract: Brief description of manifestations of alimentary tract disease & general principle of diagnosis & outline of management of following diseases: Peptic ulcer disease, common infections of small & large intestine
5. Brief description of liver diseases along with outline of management: Hepatitis, & Jaundice
6. Diseases of the blood: Brief description of manifestations along with outline of management of common blood diseases - Anaemia, Leukaemia, Coagulopathy
7. Diseases of connective tissues: Brief description of manifestations along with outline of management of - SLE, polymyositis
8. Diseases of skin: Brief description of manifestations along with outline of management of common skin diseases - scabies, pediculosis, taeniasis, impetigo & psoriasis
9. Geriatrics- physiology of ageing, manifestations of diseases in old people and general principles of management. Implications of aging in physical therapy, lung disease, Pleurisy & Pulmonary embolism
10. First Aid in common Medical Emergencies

Section - B

Cardio-vascular System: Manifestations of heart & vascular disease & general principle of diagnosis. Brief description of following diseases along with outline of management: Cardiac failure, Ischaemic heart disease, hypertension, atherosclerosis, Deep vein thrombosis

Respiratory System: Manifestations of respiratory disease & general principle of diagnosis. Brief description of following diseases along with outline of management: Obstructive Pulmonary diseases (Bronchial Asthma, COPD), pulmonary infections (Pneumonia, Bronchitis, Lung abscess, Tuberculosis), Respiratory failure, occupational

PAEDIATRICS

Section - C

- Normal Growth and development of child - motor, mental, language and social
- Pathological presentations of growth and development disorders
- Common infectious diseases in children: Brief description of following infectious diseases along with outline of management: Tetanus, diphtheria, Mycobacterial, measles, chicken pox, gastroenteritis, HIV, and Malaria
- Immunization programmes - WHO schedule, different vaccinations, rationale; special consideration to various disease eradication programmes like Pulse-Polio
- Child and nutrition - Nutritional requirements, malnutrition syndrome, Vitamins (A, B, C, D & K) and Minerals (iron, calcium phosphorus, iodine) deficiencies in children and management in brief
- Clinical presentation, management & prevention of the following: - Cerebral palsy, Poliomyelitis, Muscular dystrophy
- Childhood rheumatism-types, clinical presentation, & management in brief
- Acute CNS infections: clinical presentation, complications and management of bacterial and tubercular infections in brief
- Clinical presentation, management & prevention of the following respiratory conditions: URI, LRI, bronchiolitis, asthma, TB (in brief)
- Clinical presentation, management & prevention of the following cardiac conditions: Rheumatic heart disease, SABE, Congenital heart disease - ASD, VSD, PDA (in brief)

S.No.	\uthor	Title	Publisher	fear	Vol.
I	Chemberlin, E.N. and Ogjlvie, C.	Symptoms and signs in Clinical Medicine	Ihon Wright	1974	
2	Swash, Michael	Hutchison's Clinical Methods	W B Saunders, London	2000	
3	3hai, 0. P.	Essential Pediatrics	tnterprint, New Delhi	1987	
4	Haslett, C.	Davidson's Principal and Practice of Medicine	Churchill Livingstone, London	1999	
5	Golwalla, Aspi F.	Medicine For Student	NBD, Mumbai	2003	
6	Behrman, R.	Nelson's Text Book of Pediatrics	W B Saunders, London	2001	2V
7	Kasper, D.L	Harrison's Principles of Internal Medicine	Mc-Graw Hill, New York	2005	2V

GENERAL SURGERY

Course/Paper: 02BTP104

BPTYEAR-n

Course Objectives:

- To understand common surgical conditions & surgical procedures.
- To understand implication of surgical conditions, procedures on physical therapy.

Learning Outcomes:

Demonstrate knowledge and understanding of common surgical problems Understand the indications for, and the limitations of, essential diagnostic studies used to evaluate patients with surgical problems

Demonstrate an understanding of surgical treatments, and alternatives to surgical treatment

Course Contents: All sections carry equal weightage

Section - A

- Introduction to Surgeiy, surgical patient, principles of surgical examination (Brief description)
- Anesthesia: Brief description of events of General Anesthesia, potential complications & outline of management
- Common types of wounds, scars, ulcers, boils - clinical feature and out line of treatment
- Bums: causes, classification, complications, conservative management of patients. Management of hums & wound scars
- Brief outline of nutritional support, pain relief of a surgical patient
- Abdominal wall: brief surgical anatomy
- Brief description of various types of abdominal incisions, external opening of abdominal viscera (colostomy) resultant potential complications and management
- Brief description of causes, clinical presentation and management of various types of hernias
- General principles of plastic surgery and postoperative management Section - B

Cranium:

Head injuries - classification, clinical features, complications & management Intra-cranial disorders - clinical features, complications & management of brain abscess, space occupying lesion, hydrocephalus, vascular malformation (brief)

Nerve injuries - causes, clinical features of Cranial (V, VII) & peripheral nerve injuries (major nerves), complications & management

Vertebral column injuries - classification, clinical features, complications & management

Section - C

- Vascular Disorders: clinical features, complication & management of Arterial occlusion, dilatations, arteritis, small vessel abnormalities

Gangrene - classification, brief clinical features & management Amputations - causes & types

Superficial & deep vein thrombosis - pathogenesis, prevention & management.

Lymph edema - brief outline of causes, clinical features & management Thorax:

a. Chest injuries - classification, causes, clinical features, complications & management Pulmonary resection - causes, outline of surgical management, pneumothorax, haemo - pneumothorax
b. Heart: - brief description of various surgical heart diseases with respect to clinical presentation, complications and management - valvular heart disease, congenital heart disease -e.g., ASD, VSD, PDA, Ischaemic heart disease. Outline of postoperative complications in cardiac surgery and their management
• Brief description of first aid principles of cardio-pulmonary resuscitation and trauma

S.No.	Author	ride	Publisher	Fear	IToL
1	Russell, R.C.G.	Short practice In Surgeiy	Arnold, London	2000	
2	Gupta, R. L.	rext Book of Surgery	laypee, New Delhi	1996	

EXERCISE THERAPY

Course/Paper: 02BTP105

BPTYEAR-n

Course Objectives:

To understand the principles of exercise therapy and its application as a treatment modality

Learning outcomes:

Integrate knowledge of basic sciences and physical therapy in order to modify treatment approaches that reflect the breadth and scope of physical therapy practice.
Integrate the use of basic principles of research in critical analysis of concepts and findings generated by self and others.
Actively recognize the rights and dignity of individuals in planning and administering programs of care.

Course Contents: All sections cany equal weightage

Section - A

Manual Muscle Testing:
Concept, introduction, significance and limitations.
Grade systems
Techniques of Muscle testing.
Emphasis on skills to grade upper, lower limb, neck and trunk muscles including trick movements.
Goniometry

Passive movements:
Definition
Relaxed, forced and stretching type.

Indications, contraindications, advantages and Techniques of various passive movements. Active

movements:

Free, assisted and resisted
Indication, contraindications, advantages and techniques of various types of active exercises.

Special emphasis on: Shoulder abductors & flexors, Triceps brachii, Hip abductors & flexors, quadriceps femoris, Abdominal and back extensors.
Clinical methods of strengthening of various muscle groups.

Section - B

Muscle Stretching:
Stretching - definition, effects and uses of stretching, indications, contra indications, general techniques & group stretching techniques
Special emphasis on stretching of: Pectoral major, biceps brachii, triceps brachii, and long flexors of fingers. Rectus femoris, Ilio-tibial band, gastrocnemius-soleus, hamstrings, hip abductors, ilio-psoas. Stemocleidomstoid Relaxation:

- Joint Mobility:
  Joint range, stiffness, range and limitations
  Accessory movements- glides, traction and approximation
  Mobilization of peripheral, spinal joints, techniques and grading in detail.

1. Re-education of muscles:
   Concept, technique, spatial and temporal summation.
   Various reduction techniques and facilitating methods.
   Progressive strengthening of various muscle groups in Grade-I-Grade IV.
   Muscle strengthening technique - PNF - Principles of PNF, indications, contra indications, techniques, limb patterns
2. Co-ordination:
   Balance - static and Dynamic
   Discoordination: LMNL & UMNL, cerebellar lesion, loss of kinesthetic sense (Tabes- dorsalis, leprosy, syringomyelia)
   Reeducation of balance and coordination: PNF and Frenkel's exercises.

Section - C

Crutch Walking:

Hydrostatics and Hydrodynamics:
History
Properties of water, Specific gravity, Hydrostatic pressure Archimedes principle, Buoyancy-law of floatation Effect of buoyancy on movements performed in water Equilibrium of a floating body, Bernoulli's theorem Physiological effects of exercise in water Hydrotherapy:

Suspension Therapy:
Principles of suspension & types Components
Effects and uses & therapeutic application

Yogasanas and Pranayama:
Physiology and therapeutic principles of yoga,
Yogas an a for physical culture, relaxation and medication. Application of yogasana in physical fitness, flexibility. Therapeutic application of yoga. Yoga a holistic approach

Suggested Readings:

S. No.	Author	Title	Publisher	Year	VoL
1	Hollis, M. and Cook, P.F.	Practical Exercise Therapy	Blackwell, Oxford	1999	
2	Gardiner, Dena M.	Principles of Exercise Therapy	CBS, New Delhi	1999	
3	Lippert, Lynn	Clinical Kinesiology for Physical Therapy	Jaypee, New Delhi	1996	
4	Paliarulo, M. A.	Introduction to Physical Therapy	Mosby, London	2001	
5	Jones and Barker,	Human Movement Explained	Butter worth- Heine	2000	
6	Thomson, Ann	Tidy's Physiotherapy	Varghese, Mumbai	1991	
7	Hislop, H.J. and Montgomery, J.	Daniels and Worthingham's Muscle Testing: Techniques of Manual Examination	W.B.Saunders, Philadelphia	2002	
8	Norkin	Measurement of Joint Motion			
9	Kisner, C. and Kolby, LA.	Therapeutic Exercise Foundation and Technique	Jaypee, New Delhi	1996	
10	Holey, E. and Cook, E.	Therapeutic Massage	Harcourt, Singapore	1998	
11	Bates, Andrea and Hanson, Norm	Aquatic Exercise Therapy	W.B.Saunders, Philedelphia	1996	
12	Kendal, F.P.	Muscles Testing and Function	Lippincott, New York	1993	
13	Campion, M. R.	Hydrotherapy: principles and Practice	Butterworih, Oxford	2000	
14	Perry, Jan F	Kinesiology Workbook	F A Davis, Philadelphia	1996	
15	Adler, S.S.	PNF in Practice	Springer, New York	2003	

ELECTROTHERAPY

Course/Paper: 02BTP106

BPT YEAR-II

Course Objectives:

- To list indications and contraindications of various Modalities.
- To understand different techniques of applications, their justification and effects.
- Demonstration of individual techniques of applications of various modalities.

Learning Outcomes:

Describe the basic of Physics which is used in Electrotherapy Modalities,
Explain the electrical supply of Electrotherapy modalities.
Understand the working of different devices used in Electrotherapy Modalities

Course Contents: All sections carry equal weightage

Section - A

- LOW FREQUENCY CURRENTS: Nerve Muscle Physiology: brief outline Faradic current: Indications, contraindications, Techniques, parameters, Group muscle stimulation. Faradic footbath, Faradism under pressure and muscle re-education. Dosimetry
- Indications, contraindications, precautions and therapeutic effects of stimulation.
- Techniques, parameters, Dosimetry

1. S. D. Curve, Reaction of degeneration, Chronaxie & Rheobase
2. Outline of EMG & Nerve conduction velocity

- Definition and principles & factors

■ Indications, effects, techniques, contraindications, precautions and Potential harmful effects.

TENS therapy

Principle of therapy, Parameters and therapeutic uses.
Theories of pain and pain control.
Indications and contra-indications, Dosimetry

B.MEDIUM FREQUENCY CURRENTS:
Definitions, effects, indications, techniques of application, contraindications Interferential therapy:

- Physiological, therapeutic effects & dangers, Indications & contra indications
- Technique and method of applications, Dosimetry.

Section - B

- THERMAL THERAPY MODALITIES:
  Infrared Therapy:
- Therapeutic effects and uses, Techniques of application.
- Indications, contraindications precautions and Potential harmful effects.

- Therapeutic effects and uses, Techniques and applications
- Indications, contraindications, precautions and Potential harmful effects of various heat modalities:

Paraffin wax bath therapy, Hydro collator packs, Whirlpool and moist heat Heating pads, Hot air chambers.

Cold-therapy:
Indications, contraindications and therapeutic effects.
Technique, precautions and Potential harmful effects of treatment, Dosimetry

D.HIGH FREQUENCY CURRENTS:
Short wave Diathermy: Continuous & Pulsed

i. Indications, contraindications and therapeutic effects.
ii. Methods of application-capacitor and induction electrode, precautions and Potential harmful effects of treatment, Dosimetry.

Microwave Diathermy:
Characteristics and therapeutic effects.
Application techniques, indications, contraindications, precautions and potential harmful effects, Dosimetry.

Section - C

ii. ULTRASONIC THERAPY:

iff. AdTNOTHERAFY:
Laser:
Introduction, effects and potential harmful effects.
Indication, contraindications, precautions, method of application, dosimetry Ultraviolet therapy:
Physiological and therapeutic effects- photosensitization Indications and contraindications and Potential harmful effects.
Methods of application, Sensitizes, Filters, Dosage, wavelength, penetration, tolerance, Treatment / Application condition wise
Comparison between UVR & IR Therapy
- Advanced electrotherapy:
Computerization of modalities Programming of parameter.
Selection and combination of parameters.
Combined therapy-U.S.+TENS-Principles, uses, indications etc. Principles of Bio-feed back, indications & uses.
- Traction instruments:
Rationale, technique, indications, contraindications, precautions of electric traction equipments

S.No.	Author	Title	Publisher	Year	Vol.
I	Froster, A. and Palastanga, N.	Clayton's Electrotherapy Theory and Practice	AITBS, Delhi	1999	
2	Jhon, Low and Ann, Reed	Electrotherapy Explained: Principles	Butterworth Heine, Oxford	2000	
3	Nelson, R.M. and Currier, D.P.	Clinical Electrotherapy	Appleton and Lange	1987	
4	Chemeron, M.H.	Physical Agents in Rehabilitation	W B Saunders, London	1999	
5	Michlovitz, S L	Thermal Agents in Rehabilitation	F A Davis, Philadelphia	1996	

PRACTICAL PT - CUNICALS

Course/Paper: 02BTP201

BPTYEAR-H

The student will learn - Approach to patient, collection of demographic data, art of history taking and bedside / OPD manners in relation to patient

The student will be posted in the department of Physiotherapy & he/she will do the assessment of patients visiting the department.

There will be no university examination. The students will be awarded marks on the basis of his/her attendance & performance during clinical postings in the department of Physiotherapy.

PRACTICAL EXERCISE THERAPY **Course/Paper: 02BTP202 BPTYEAR-H**

Demonstration and learning of active & passive movements of Limbs and spine Demonstration and practice of Manual Muscle testing, Goniometry Demonstration and practice of muscle stretching techniques Demonstration and practice of muscle strengthening techniques Demonstration and practice of muscle reeducation techniques Demonstration and practice of coordination exercises (Frankel's) Demonstration and practice of relaxation techniques Demonstration and practice of mobilization of peripheral joints practice of crutch gaits Demonstration and practice of mechanical spinal traction Demonstration and practice of suspension techniques

Students will be assessed by viva & practical demonstrations based upon learning in theory & practical classes.

PRACTICAL ELECTROTHERAPY **Course/Paper: 02BTP203** BPTYEAR-n

Demonstration of Electrical Modalities functioning & Usage. Demonstration and practice of various motor point stimulations. Demonstration and practice of therapeutic application of different low frequency currents. Demonstration and practice of Reaction of degeneration, SD curves plotting. Demonstration and practice of therapeutic application of the following modalities: Short-wave diathermy, Ultrasound, Infra red, Wax bath, Hydro collator, Electric muscle stimulator, Interferential currents, TENS, Ultraviolet, Microwave, Lasers, and Electrical Traction.

Students will be assessed by viva & practical demonstrations based upon learning in Theory and Practical.

YEAR III

NEUROLOGY INCLUDING PSYCHIATRY

Course/Paper: 03BTP101

BPTYEAR-m

Course Objectives:

a. To understand clinical manifestations of Neurological and Psychological disorders b. The rationale and implications of psychological disorders on disability c. To understand the management of neural & psychological disorders

Learning Objectives:

o Recognize symptoms that may signify neurologic disease (including disturbances of consciousness, cognition, language, vision, hearing, equilibrium, motor function, somatic sensation, and autonomic fhnction) o Demonstrate awareness of the use and interpretation of common tests used in diagnosing neurologic disease
o Apply the principles underlying a systematic approach to the management of common neurologic diseases (including the recognition and management of situations that are potential emergencies) o Integrate basic science information (neurophysiology, neuroanatomy, neuropharmacology, and neuropathology) to clinical correlates, o Describe key aspect of brain, spinal cord, peripheral nerves and muscle diseases clinical, pharmacologic, anatomical, pathology, causes, prognosis and management

Course Contents: All sections carry equal weightage

Section - A (Neurology)

a. Nervous system: Disorders of Neurological functions in the light of Anatomy and Physiology (Brief description only) - Cerebrum, Cerebellum, Spinal Cord, Major Nerve Tracts, Motor System, Sensory System, Autonomic System, Reflexes, Communication &
CSF
b. Clinical examination of a neurological patient
c. General manifestations of nervous system disease & principles of diagnosis & management
d. Brief Description of Headache, migraine, raised intra-cranial pressure
e. Cranial Nerves and special senses with major emphasis on V, VII, X, XI, & XII
f. Inflammatory conditions (brief description) - meningitis (bacterial, tubercular), viral encephalitis, syphilis, rabies
g. Disorders of cerebral circulation - ischaemia, haemorrhages (CVA), HT encephalopathy
h. Demyelinating diseases (brief description) - acute disseminated encephalomyelitis, multiple sclerosis
i. Extra pyramidal syndromes - Parkinson's disease, Chorea, Athetosis, Dystonia, Hemi- ballismus, Spasmodic Torticollis
j. Convulsive disorders (brief description) - epilepsy (GM, PM, Psychomotor), tetany
k. Developmental and degenerative syndromes - cerebral palsy, kemicterus, hereditary ataxias, motor neuron disease, Peroneal muscular atrophy

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Section - B

1. Disorders of Spinal cord and Cauda Equina- spinal cord injury, paraplegia, quadriplegia, spina- bifida, transverse myelitis, Neurogenic bladder and bowel
2. Metabolic and intoxication disorders (brief description) - Alcoholism, Drug addiction, heavy metals poisoning (lead, mercury, copper), Organo-phosphorous poisoning, electric shock, tetanus, botulism
3. Peripheral nerve disorders - traumatic/ compression or entrapment neuropathy, polyneuritis, GB syndrome, diabetic polyneuropathy and spinal radiculopathies. Special emphasis on brachial and lumbosacral plexuses and major nerves - radial, ulnar, median, femoral, and sciatic nerve
4. Muscle disorders - Progressive muscular dystrophy, polymyositis, myasthenia gravis, floppy infant syndrome
5. Autonomic nervous system (brief description)- clinical features of autonomic disorders, autonomic dysreflexia, autonomic nervous system and pain

Section - C (Psychiatry)
(Brief outline only)

1. Principles of psychiatric examination
1. Modalities of psychiatric treatment
34 Psychiatric illness and physical therapy link
-
Brief description of Etio-pathogenesis, manifestations, and management of psychiatric illnesses

Anxiety neurosis

Obsessive compulsive neurosis Psychosis
Maniac-depressive psychosis Drug induced psychosis Post-traumatic stress disorder
Psychosomatic reactions: Stress and Health, theories of Stress - Illness Link

5. Brief description of Etio-pathogenesis, manifestations, and management of psychiatric illnesses-
Organic brain syndrome Dementia
Drug dependence and alcoholism
Somatoform and Dissociate Disorders - conversion reactions, Somatization, Dissociate Amnesia, and Dissociate Fugue
Multiple Personality & Depersonalization disorder
6. Child psychiatry: Brief descriptions of manifestations, and management of childhood disorders - attention deficit syndrome, and behavioral disorders
7. Geriatric Psychiatry
8. Mental deficiency- (descriptive)
Mental retardation,
Learning
disabilities Autistic
behavior

Suggested Readings:

S. No.	Author	rifle	Publisher	Year	K>I.
I	Bannister, R.	Brain and Bannister Clinical Neurology	Oxford university press, oxford	2002	
2	Chamberlain, E.N.	Symptoms and Signs in Clinical Medicine	John Wright, Bristol	1974	
3	Friedman, H.H.	Problem-Oriented Medical Diagnosis	Little Browne, Boston	1979	JV
4	Swash, Michael	Hutchison's Clinical Method	W B Saunders, London	2000	
5	Rees, Lingford	New Short Text Book Of isychiatry	Arnold, New Delhi	1988	
6	Walton, John	Brain's Disease of the Nervous System	Oxford university press, Delhi	1998	
7	Haerer, A.F.	Neurological Examination	Lippincott, Philedelphia	L999	
8	Ahuja, Neeraj	Short Text Book Of psychiatry	Jaypee, New Delhi	1999	
9	Haslett, C.	Davidson's Principal and Practice of Medicine	Churchill Living stone, London	L999	
10	Kasper, D.L	Harrison's Principles of Internal Medicine	Mc-Graw Hill, New Fork	2005	2V

ORTHOPAEDICS

Course/Paper: 03BTP102

BPTYEAR-m

Course objectives:

1. To understand an orthopaedic patient, common orthopaedic conditions and procedures
2. To understand applications of physical therapy in various orthopaedic conditions
3. To understand the implications of various orthopaedic conditions, and procedures on physical therapy

Learning Objectives:

Gain in depth knowledge of surgical techniques for variety of joints. Ie shoulder, hip, knee, ankle observation.
Consolidate knowledge of basic orthopaedic procedures and their normal post op physio protocol.
Develop knowledge of initial assessment and differential diagnosis. Spend time observing consultants for a variety of joints.

Course Contents: All sections carry equal weightage

Section - A

1. Introduction to Orthopaedics: An Orthopaedic patient, history taking, clinical features, clinical examination, and investigation
2. Fracture healing (Normal & pathological)

3. Congenital malformations:

Brief descriptions of following congenital conditions along with the outline of treatment: Congenital Hip Displasia, Congenital Talipes Equinovarus / Calcaniovalgus, Arthrogryposis Multiplex Congenita, Congenital Torticolis, Acromelia, phocomelia, Amelia, Spina Bifida: all types, clinical presentation, sequel & management

4. Development diseases of skeleton: (Brief description only)

Osteogenesis imperfecta, heterotopic ossification, Osteochondritis, Perthes' disease 5. Neuromuscular diseases: Volkmann's Ischaemic contracture, obstetrical paralysis, and peroneal muscular atrophy

Poliomyelitis - orthopaedic aspects and treatment of deformities

1. Spinal deformities: clinical features, diagnosis & Conservative management of Scoliosis, Kyphosis, and traumatic deformities
2. Infections of Musculoskeletal system with conservative management (in brief):
   - Bacterial infections
   - Tubercular infections
   - Leprosy, Pott's
   - paraplegia
3. Neuro-vascular Diseases (Brief Description): orthopaedic aspects and treatment of - Nerve injuries (major nerves), Plexus injuries

Section - B

Arthritis & Rheumatic Diseases: Clinical features, evaluation & conservative management of various categories of arthritis

- Rheumatoid arthritis, Juvenile Ch. Arthritis, Reiter's disease
- Polymyalgia rheumatica,
- Gout,
- Osteoarthritis,
- Ankylosing spondylitis,
- Neuropathic- joints, haemophilic arthropathy,
- Avascular necrosis.

Bony & Soft tissue injuries: Injury & repair, Clinical presentation, evaluation & general principles of rehabilitation management (Brief Description)

Upper Limbs: Clinical presentation, evaluation & conservative management of rotator cuff injuries, adhesive capsulitis, bursitis, biceps tendonitis, shoulder dislocation, snapping & winged scapula, tennis and golfer elbow, olecranon bursitis, soft tissue injuries, sprains and strains, Arthritic conditions, tenosynovitis,

Carpal tunnel syndrome, deformities Dupnytren's contracture, VIC, reflex sympathetic dystrophy, common fractures and dislocations

Section - C

Lower Limb: Clinical presentation, evaluation and conservative management of Arthritic conditions, soft tissue injuries, sprains and strains, achillis tendonitis, bursitis, plantar fascitis, deformities, reflex sympathetic dystrophy, neuropathic Joints, common fractures and dislocations

Spine: clinical presentation, evaluation and conservative management of - disc prolapse, cord compression, spondylosis, Ankylosing spondylosis, Spondylyolisthesis and Spinal Fractures

Amputations - Justification, outline of surgical approaches, incisions, procedures, indications, contraindications, complications & management.

S.No.	Author	Title	Publisher	¥ear	Vol.
1	Joshi, J. and Kotwal, P.	Essential Of Orthopedics and Applied Physiotherapy	Elsevier, New Delhi	2004	
2	rerke, Samual L.	Orthopedics: principles and their application	Lippencott, New York	2000	2V
3	Magee, David J.	Orthopedic and Physical Assessment	Saunders, Philadelphia	2002	
4	Maheshwari, J	Essential Orthopedics			
5	Solomon, Louis	Aple/s Systems of Orthopedics and Fracture	Arnold, London	2001	
6	McRae, R. and Esser, Max	Practical Fracture freatment	Churchill Living stone, London	2002	

OBSTETRICS AND GYNECOLOGY

Course/Paper: 03BTP103 BPTYEAR-III

Course objectives:

To understand common gynaecological conditions and procedures (in brief) To understand implications of gynaecological conditions and procedures on physical therapy **Learning objectives:**

Perform the medical interview and physical examination of women incorporating ethical, social, and diversity perspectives to provide culturally competent health care Analyze the impact of genetics, medical conditions, and environmental factors on maternal health and fetal development

Distinguish between normal and abnormal physiologic changes during pregnancy

Course Contents:

1. Brief Anatomy and physiology of female reproductive system
2. Basic principles of clinical examination, investigation, diagnosis, prognosis of female reproductive system disorders Menstruation and its disorders
3. Physiological changes during pregnancy
4. Labour, stages of labour & delivery
5. Musculo-skeletal problems in an obstetric patient, management

6. Prenatal and post-natal care
7. Pelvic inflammatory diseases
8. Prolapse uterus, urinary incontinence, causes & management
9. Abortion and birth control
10. Tumor of the reproductive systems, management
11. Surgical consideration in obstetrics and gynecology

S.No.	Author	[We	Publisher	*Year*	Vol.
1	Howkins, John	Shaw's Textbook of Gynecology	Drient-Longman, Bangalore	1971	
2	Datta, D.C.	rextbook of Obstetrics	NCBA, Calcutta	2000	
3	Mudaliar, A.L.	Clinical Obstetrics	Orient-Long main, Bangalore	1972	
4	Percival, Robert	Manual of Obstetrics	ELBS, London	1973	

APPLIED BIO MECHANICS & KINESIOLOGY

Course/Paper: 03BTP104 BPT YEAR-HI

Course objectives:

To understand the Musculoskeletal surgical anatomy normal and pathological deviations

Learning Outcomes:

Apply knowledge of the underlying principles and concepts of Exercise and Sport Science. Including the core areas of: Human Physiology, Anatomy, Functional Anatomy, Exercise Physiology, Biomechanics, Motor Learning and Control, Exercise Metabolism and Nutrition, and Psychology.
Utilise core instrumentation and equipment for the monitoring and assessment of exercise clients.
Review, analyse and interpret information, and independently generate conclusions

Course Contents: All sections carry equal weightage

Section - A

1. Joint structure and function
   - types of joints Joint functions
2. Kinesiology:
   Origin of human movement and its significances Analysis of movement - kinetics and kinematics Body links and motion parts
3. General effects of injury and disease on joint functioning
   Brief surgical anatomy (structural components, and alignment)
   Joint range of motion, axis and plane of motion
   Joint movements, mobility and stability, restrictions and limitations, end feels Abnormal deviations in joints in disease and injury Of the following joint complexes: Shoulder joint complex Elbow joint complex

Section - B

- General effects of injuiy and disease on joint functioning
  Brief surgical anatomy (structural components, and alignment)
  Joint range of motion, axis and plane of motion
  Joint movements, mobility and stability, restrictions and limitations, end feels Abnormal deviations in joints in disease and injuiy Weight distribution (lower limb joints)

Of the following joint complexes:
Wrist and hand complex Hip joint complex
Knee joint complex: Ankle-foot complex: Vertebral column

Section - C

- Abnormal Posture: Definition and description.
  Analysis of postures (anterior, lateral and posterior), alignment of joints in different postural deviations.
  Abnormal postures - biomechanical analysis and effects.
  Principles of Postural correction
- Pathological Gait:
  - Phases of gait - biomechanical analysis,
  - Time and distance parameters - biomechanical significance,
  - Joint motion - chains of movement
  - Effects of pain, deformity, weakness in pathological gaits
  - Management of pathological gaits.

Suggested Readings:

S. No.	Author	Title	Publisher	^ear	VoL
1	Norkin, C.C. and Levangie P.K.	Joint Structure and Function: Comprehensive Ara	Jaypee, New Delhi	1998	
2	Magee, David J.	Orthopedic and Physical Assessment	Saunders, Philadelphia	2002	
3	Donatelli, R.A.	Biomechanics of the Foot and Ankle	Davis, Philadelphia	1996	
4	Mow, Van C. and Hayes, W.C.	Basic Orthopedic Biomechanics	Lippincott, New Fork	1997	
5	Norkin, C.C. and White, J.	Measurement of Joint Motion	Jaypee, New Delhi	1995	
6	Kapandgi, I.A.	Physiology of Joints	Churchill-Livingstone	1998	3v
7	rritschler, Kathleen	Practical Measurement and Assessment	Lippincott, New York	2000	
8	Leveau	Biomechanics of Human Motion			

PHYSIOTHERAPEUTIC IN NEUROLOGY

Course/Paper: 03BTP105

BPT YEAR-m

Course objectives:

1. To identify various neurological dysfunction clinically
2. To set goals and apply therapeutic skills in different neurological conditions.

Learning outcomes;

Advanced clinical skills and techniques applicable to relevant physiotherapy areas, including assessment techniques, clinical reasoning and decision-making skills in developing treatment plans and comprehensive patient management.

A capacity to undertake detailed searching, analysis and interpretation of computerised medical literature databases.

An ability to promote evidence-based practice in physiotherapy

Course Contents: All sections cany equal weightage

Section-A

a. Review of basic Neuro-Anatomy and Physiology
b. Physiotherapy evaluation of a neurological patient, electro diagnostic procedures, interpretations and prognosis in different neurological conditions
c. Spinal cord injury: review of anatomy and physiology
   Physiotherapy Assessment of Spinal cord injury
   Principles of Physiotherapy at various stages of Spinal cord injury
   Rehabilitation goals and ADL training

Section - B

e. Assessment and principles of therapeutic management of following neurological conditions:

   Stroke, meningitis, encephalitis, Parkinson's disease, Cerebral palsy, Ataxia, Brain tumors
   Motor neuron disease, Disseminated sclerosis, transverse myelitis, tumors, polio, syringomyelia, spina bifida,
   Neuropathies, neuromuscular junction disorders and myopathies
f. Developmental physiotherapy programs, reeducation and retraining techniques in neurological conditions, approaches like: Bobath's, Rood's, PNF, Vojta techniques, biofeedback, Brunnstorm, Motor Relearning programming

Section - C

a. Peripheral nerve injuries, surgical resection &
   repair: Classification & types
   Functional assessment, investigation, diagnosis &
   prognosis Physiotherapeutic management
b. Traumatic brain injury:
   Types and Mechanisms of head injury Clinical features, potential complications
   Physiotherapy principles of immediate and postoperative therapeutic management
c. Neurosurgery: Post surgical Physical therapy in neurosurgical procedures - craniotomy, shunts, SOL resection, surgical treatment of spasticity, cervical cord decompression

Suggested Readings:

S. No.	Author	ritle	Publisher	Vear	*Vol*
I	Hislop, H.J. and Montgomery, J.	Daniels and Worthingham's Muscle resting: Techniques of Manual Examination	W.B.Saunders, Philadelphia	2002	
2	Bobath, Berta	Adult Hemiplegia: Evaluation andtreatment	Butterworth, Oxford	1990	
3	Shepherd, R.B.	Physiotherapy in Paediatrics	Butterworth- Heinemann, Oxford	1995	
4	Downie, PA.	Cash's Textbook of Neurology for Physiotherapy	Jaypee, New Deli	1993	
5	Swaner, ICA. and LaVigne,J.M.	Brunnstom's Movement rherapy in Hemi	Lippincott, New York	1992	
6	Bums, Y.R. and Macdonald J.	Physiotherapy and the Growing Child	Harcourt, Singapore	1998	
7	Bromley, Ida	Ietraplegia and Paraplegia	Churchill-Livingston, London	1998	
8	Voss, Dorothy	Proprioceptive Neuromuscular Facilitation	Lippincott, New York	1989	
9	Adler, S.S.	PNF in Practice	Springer, New York	2003	
10	Carr, J.H. and Shepherd, R.B.	Stroke Rehabilitation	Butterworth- Heinemann, Singapore	2003	
II	Carr, J.H. and Shepherd, R.B	Neurological Rehabilitation	Butterworth, Oxford	1998	
12	Kottke, F.J. and Lehman J.F.	Handbook of Physical, Medicine and Rehabilitation	*W* B Saunders, London	1990	
13	Umphred, Dracy A	Neurological Rehabilitation	Mosby, London	2001	

PHYSIOTHERAPEUTIC IN ORTHOPAEDIC

Course/Paper: 03BTP106 BPT01 YEAR-in

Course Objectives:

1. To identify various Musculo skeletal dysfunction clinically
2. To set goals and apply therapeutic skills in different orthopaedic conditions.

Learning Outcomes:

Describe the epidemiology of Musculoskeletal Disorders at all ages, and apply this when developing a differential diagnosis.

Assess mechanism of injury when considering diagnosis.

Distinguish inflammatory from non-inflammatory conditions.

Assess the possibility that musculoskeletal symptoms can be due to psychological causes (somatisation).

Describe when blood tests and imaging methods are required for diagnosis, how to interpret them and how they influence management

Course Contents: All sections cany equal weightage

Section - A

a) Physiotherapy evaluation of an orthopaedic patient

b) Manipulation therapy - general assessment, indications, contra indications, brief introduction to schools of manual therapy (Maitland, Kaltenbome, Cyriax, Mulligan, Mackenzie)

c) Spinal stabilization, scoliosis correction

d) Assessment, management and treatment goals of:
   - Osteoarthritis,
   - Spondylosis, spondylolisthesis
   - Proplapse intervertebral disc, Lumbar cord decompression
   - Adhesive capsulitis, rotator cuff lesions of shoulder
   - Tuberculosis of the spine, bone and major joints Avascular bony necrosis at hip joint

Section - B

d) Assessment, management and treatment goals
   - of: Rheumatoid arthritis Ankylosing Spondylitis
   - Deformities: - Torticollis, thoracic outlet syndrome, CT'EV, pes cavus, pes planus, Scoliosis, kyphosis, lordosis, coxa vara, genu valgum-varum-recurvatum

e) General principles of physiotherapy in fracture management including complications at different stages

f) General principles of physiotherapy in dislocations management including complications

g) Post fracture - assessment and PT management of: various fractures of upper limb, lower limb, vertebral column

Section - C

1) Assessment and therapeutic management of: Soft tissue injuries - Sprains, strains, ligament and cartilage tear/rupture
2) Orthopaedic surgery: General principles of assessment, physiotherapy management in surgical conditions like - osteotomy, joint replacements, ORIF, arthodesis, Illizarov's technique

3) Tendon transfers, soft tissue releases & soft tissue repair
4) Surgeries in C.P. & Polio
5) Amputation - pre & postoperative evaluation & principles of management Pre & post prosthetic assessment & principles of management

Suggested Readings:

S. No.	Author	ritle	Publisher	Year	(ToL
I	Smith, Laura K	Brunn strom's Clinical Kinesiology	Jaypee, New Delhi	1996	
2	Buckley, John	Exercise on Prescription	Butte rworth-Heinemann, Boston	1997	
3	Downie, Patricia A.	Cash's Textbook of Orthopedics and Rheumatology	Jaypee, New Delhi	1993	
4	Donatelli, R. A. and Wooden, M.J.	Orthopedic Physical Therapy	Churchill- Livingstone, New York	2001	
5	ridswell, Marian	Orthopedic Physiotherapy	Mosby, London	2001	
6	Tones and Barker,	Human Movement Explained	Butter worth- Heine	2000	
7	Jacobs, Karen	Ergonomics For Therapist	Butter worth- Heine, Boston	1999	
8	Maitland, G.D.	Maitland's Vertebral Manipulation	Butter worth- Heine, Oxford	2001	
9	Nachemson, A.L. and Jonsson,, E.	Neck and Back pain: Scientific Evidence	Lippincott, New York	2000	
10	Donatelli, R.A.	Physical Therapy of Shoulder	Churchill, New York	1997	
II	Walker, J.M. and Helewa, A.	Physical Therapy in Arthritis	W B Saunders, London	1996	
12	Engstrom,B. and VandeVenC.	rherapy for Amputees	Churchill, London	2001	
13	Calliet, Rene	Knee Pain and Disability	Jaypee, New Delhi	1992	
14	Calliet, Rene	Shoulder Pain	Jaypee, New Delhi	L992	
15	Calliet, Rene	Low Back pain syndrome	Jaypee, New Delhi	1992	
16	Calliet, Rene	Neck and arm pain	Jaypee, New Delhi	1991	
17	Calliet, Rene	Foot and Ankle Pain	Jaypee, New Delhi	1992	
18	Calliet, Rene	Soft tissue Pain and Usability	Jaypee, New Delhi	1988	

PRACTICAL PT - CL1NICALS

Course/Paper: 03BTP201

BPT01 YEAR-in

Course Objective: Approach to patient, collection of demographic data, art of history taking and bedside / OPD manners in relation to patient, general assessment of patient from therapeutic point of view, reaching to provisional diagnosis, and testing of therapeutic skill learned

The student will be posted in the department of Physiotherapy & he/she will learn the assessment, diagnosis, & physiotherapy treatment of patients visiting the department.

There will be no university examination. The students will be awarded marks on the basis of his/her attendance & performance during clinical postings in the department of Physiotherapy, etc.

PRACTICAL PHYSIOTHERAPEUTIC IN NEUROLOGY

Course/Paper: 03BTP202 BPT01YEAR-IO

Practical demonstration of basic principles of physiotherapy assessment, functional assessment and application of physical therapy in treatment of neurological conditions

Students will be assessed by viva & practical demonstration of application of Physical therapy based upon learning in theory.

PRACTICAL PHYSIOTHERAPEUTIC IN ORTHOPAEDIC

Course/Paper: 03BTP203 BPT01 YEAR-in

Practical demonstration of basic principles of application of physiotherapy assessment, functional assessment and application of physical therapy treatment of orthopaedic conditions

Students will be assessed by viva & practical demonstration of application of Physical therapy based upon learning in theory.

YEAR IV

COMMUNITY REHABILITATION & DISABILITY PREVENTION

Course/Paper: 04BTP101 BPT YEAR-IV

Course objectives:

4) To understand the concept of Rehabilitation and team approach.
5) Principles of Physiotherapy in Rehabilitation.
6) Disability evaluation & management.
7) Application of Physiotherapy at community level.

Course Contents: All sections carry equal weightage

REHABILITATION

Section - A

1. Introduction of Rehabilitation & History
2. Epidemiology of disability (Impairment, disability, phases of disability process, etc.).
3. Principles of Rehabilitation & concept of team approach with rolls of each individual participant.
4. Organization of Rehabilitation unit
5. Disability prevention evaluation & principles of Rehabilitation Management
6. Role of Physiotherapy in Rehabilitation (Preventive, treatment & restoration)

Section - B

1. Brief outline of Communication disorder & its implications on Rehabilitation process.
2. Brief outline of psychosocial & vocational aspects of Rehabilitation.
3. Introduction to Occupational therapy.
4. Activities of daily living, functional assessment & training for functional independence.
5. Brief outline of basic community medicine with special reference to community based Rehabilitation, infrastructure and role of CBR
6. Assessment of disability in rural & urban setups. Health care delivery system & preventive measures with specific reference to disabling conditions. Community education programme.
7. Application of Physiotherapy skills at community level with special reference to the need at rural level.

BIO-MEDICAL ENGINEERING

Section - C

1. Introduction to surgical anatomy and various pathological deviations with respect to brace fitting (brief outline only).
2. Rationale of prescribing Prosthetic and Orthotic devices.
3. Types of Prosthetic and Orthotic devices: Spinal, Lower limb, and Upper limb.
4. Checkout, usage advice, precautions, and follow-up.
5. Walking aids and wheel chairs: prescription, usage advice, and follow-up.

S. No.	Author	Title	Publisher	Fear	*Vol.*
1	Park, J.E.	Text Book of Preventive and Social Medicine	Banarsidas, Jabalpur	1987	
2	Pedretti, L.W.	Occupational Therapy: Practice skill	Harcourt-Brace, New Fork	1990	
3	Sunder, S.	Rehabilitation Medicine	Jaypee, New Delhi	L999	
4	Bates, Barbara	Physical Examination and History Taking	I.B.Iippincott, Philedelphia	1995	
5	Mackee, Pat	Drthotics in Rehabilitation	Jaypee, New Delhi	1998	
6	W.H.O.	Disability Prevention and rehabilitation In primary Health Care: Guide for District Health and Rehabilitation Managers	W.H.O	1995	
7	Lusardi, M.M. and Nielsen, C.C.	Drthotics and Prosthetics In Rehabilitation	Butter worth- Heine, Woburn	2000	
8	Delisa, Joel A.	Rehabilitaion Medicine: Principal and Practice	I.B.Iippincott, New Fork	1998	
9	Brad do m, Randall L.	Physical Medicine and Rehabilitation	W B Saunders, New Fork	2000	
10	Sharwan Kumar	Multidisciplinary Approach to Rehabilitation	Butter worth- Heine, New York	2000	
11	W.H.O.	Community- Based Rehabilitation and The Health Care Referral Services: Guide for Programme managers	W.H.O.	1994	
12	Kottke, and Lehmann	Handbook of Physical Medicine and Rehabilitation	W B Saunders, London	L990	

RESEARCH METHODOLOGY & BIO-STATISTICS

Course/Paper: 04BTP102 BPT YEAR-IV

Course Contents: All sections carry equal weightage

T -earning outcomes

Select from, use and interpret results of, descriptive statistical methods effectively; Demonstrate an understanding of the central concepts of modem statistical theory and their probabilistic foundation;

Select from, use, and interpret results of, the principal methods of statistical inference and design;

Communicate the results of statistical analyses accurately and effectively

SECTION-A (BIOSTATISTICS')

1. Definition - Statistics, Biostatistics
2. Applications of Biostatistics
3. Data collection from experiments & surveys.
4. Variable - Qualitative & Quantitative, Discrete and continuous.
5. Presentation of Data: -
1. Tabular Presentation of Data - Statistical Table, Format of a Table.
2. Frequency Distribution - construction of Frequency Distribution, cumulative and relative frequency distribution, Exclusive and inclusive method of classification of Data.

3. Diagrammatic Presentation of Data: -
Bar Diagrams, Pie Diagram, Line Diagram, Pictogram, Cartogram or Statistical map.

4. Graphical representation of a Frequency distribution - Histogram, Frequency Polygon, Frequency curve, ogives or cumulative frequency curves.
6. Measures of central tendency or measures of Location - Mean, Median Mode in ungrouped & grouped series. Partition Values - Quartiles, Deciles, Percentiles in ungrouped & grouped series. Graphical Determination of Median, Mode & partition values.

7. Measures of Dispersion or Variation - Range, Mean Deviation, Standard Deviation.
8. Measures of Skew ness - Pearson's and Rowley's coefficient of Skew ness.
9. Probability - Random experiment, sample space, events, probability of an event, addition & multiplication laws of probability, use of permutations & combinations in calculation of probabilities, random variable, probability distribution of a random variable, Binomial Distribution.

10. Normal Distribution & Characteristics of Normal curve.

SECTION-B (BIO STATISTICS)

1 Correlation - Bivariate distribution, scatter diagram, coefficient of correlation, calculation & interpretation of correlation coefficient
2 Regression - Lines of regression, calculation of Regression coefficient.
3 Sampling - Methods of Sampling.
4 Sampling Variability & significance - Sampling Distribution, Standard error, null hypothesis, alternative hypothesis, Type I & Type II errors, tests of significance, acceptance 7 rejection of null hypothesis, level of significance, Z test, t test (paired & unpaired), chi-square test.

5 Estimation of confidence limits & intervals.
6 Vital Statistics
Rates & ratios of vital events.
Measures of Mortality: - Crude Death Rate, Specific Death Rate, Age Specific Death Rate, Standardized Death Rates, Infant Mortality Rate.
Measures of Fertility: - Crude Birth Rate, General Fertility Rate, Specific Fertility Rate, Age Specific Fertility Rate, And Total Fertility Rate.

A) Measurement of Population Growth: - Crude Rate of Natural Increase & Pearli's Vital Index, Gross Reproduction Rate, Net Reproduction Rate.
B) Measures of Morbidity: - Morbidity Incidence Rate, Morbidity Prevalence Rate.
C) Life Tables or Mortality Table.

SECTION-C (RESEARCH METHODOLOGY!

Objectives:
b) To develop skills of critical thinking and selection of research strategy.
c) To acquire skills to review literature, formulate problems, research writing and publishing.
Clinical Research for physiotherapist:
Why? How? And When?

1. Research in physiotherapy:
Introduction
Research - types, concept, definition.
Selection of aim and objectives.
Principles of methodology, analysis and report writing.
2. Concepts of Measurements:
Direct and indirect measurement variables.

Reliability and validity.
Application of physiotherapeutic tests and measurements.

3. Research Design:
Principles of designing.
Methods - Descriptive, Exploratory, single subject,
others. Design models utilized in physiotherapy.
Design of model for fundamental and clinical research.

4. Interpretation of experimental findings:
Collection and interpretation data theory.
Data review.
Interpretation of fundamental and clinical research.

Suggested Readings:

S. No.	Author	ride	Publisher	*Year*	*Vol*
1	Armstrong, H.B.	Critical Moments in Quantitative Research	Butter worth- Heine., Oxford	2001	
2	Hollis, M. and Cook, P.F.	Practical Exercise Therapy	CBS, New Delhi	1999	
3	Gardiner, Dena	Principles of Exercise Pherapy	CBS, New Delhi	1999	
4	lippert, Lynn	Clinical Kinesiology for Physical Therapy	Jaypee New Delhi	1996	
5	Pagliarulo, MA	Introduction to Physical Pherapy	Mosby, London	2001	
6	Tones,	Human Movement Explained	Butterworth Heine	2000	

PHYSIOTHERAPEUTIC IN GENERAL & CARDIOTHORACIC

Course/Paper: 04BTP103 BPT YEAR-IV

Course Contents: All sections carry equal weightage

SECTION-A (GENERALI

- Principle of post surgical physical therapy management under following: 1 Chest physiotherapy
2 Abdominal wall care
3 Scar management
4 Pelvic Floor Care
- Dermatology: Physical therapy in:

Chronic Ulcers,
Leprosy (including N euro-muscular complications)
Other dermatological conditions: Psoriasis, Vitiligo, acne, bums and skin grafting

- ENT: Physiotherapy management in- Maxillary Sinusitis, otitis media, rhinorrhoea
- Obs. & Gynaecology: Principles of physical therapy management in an Obs. Gynae

patient: Incontinence, Prolapse Uterus, Pelvic Inflammatory disease,
Muscular-skeletal and other problems associated with pregnancy & labour, caesarean section.
Anti natal preparatory and post natal care

SECTION-B rCTVS)

Review of basic cardio-thoracic anatomy and physiology
Clinical examination including lung function tests in various pulmonary conditions
Principles of physiotherapeutic treatment in following conditions:
Bronchitis, asthma & bronchiectasis
Pulmonary embolism, tuberculosis, emphysema, pleural effusion, atelectasis, pneumothorax, haemothorax, broncho-pulmonary fistula, empyema,
Pulmonary rehabilitation - aims & objectives, principles, techniques including biofeedback. SECTION-C rcivsi

Clinical examination in cardiovascular conditions
Principles of physiotherapeutic treatment in following conditions:
CHF, MI, PDA, HT
Endocarditis, valve anomalies, congenital heart disorders, thrombosis, phlebitis, thrombosis, Thrombo angitis obliterans, varicose veins, ulcers Cardio-thoracic trauma/surgery:
Principles, techniques of physical therapy management in traumatic and other surgical conditions of chest, lung, pleura, heart and mediastinum

Principles of chest physiotherapy in ICU & ICCU.
Physiotherapy care during bed-rest
Physiotherapy in cancer and AIDS (General principles of management)

Suggested Readings:

s. No.	Author	Title	Publisher	Fear	Vol.
I	Chemeron, M.H.	Physical Agents in Rehabilitation	W B Saunders, London	1999	
2	Polden, Margaret	Physiotherapy In Obstetrics and Gynecology	Jaypee, New Delhi	1990	
3	Downie, PA.	Cash's Textbook Of Chest, Heart and Vascular Disorder's for Physiotherapists	Jaypee, New Delhi	1993	
4	Smith, H. and Ball, V.	Cardiovascular Respiratory Physiotherapy			
5	Frownfelter, D.	Principal and Practice of Cardiopulmonary Physiotherapy	Mosby, London	1996	
6	Irwin, S. and recklin, J.S.	Cardiopulmonary Physical rherapy	Mosby, Philedelphia	1995	
7	Froelicher, V.F. and Myers, J.N.	Exercise and the Heart	W.B.Saunders, London	2000	
8	Aua, Ruth S.	Women's Health: Text Book for Physiotherapy	Harcourt, Singapore	1998	
9	Michlovitz, S.L.	rhermal Agents in Rehabilitation	F A Davis, Philedelphia	1996	

PHYSIOTHERAPEUTIC IN SPORTS

Course/Paper: 04BTP104 BPT01YEAR-IV

Course Objectives:
To acquire concepts of evaluation of sports and sports injuries

To learn concepts of sports training and physiotherapy for prevention and rehabilitation

Course Contents: All sections carry equal weightage

Section - A

- Pre-exercise evaluation
- Diet and nutrition
- Measurement of fitness components and sports skills Measurement of muscular strength Measurement of muscular endurance Measurement of flexibility Determination exercise endurance
- Physiological effects of exercise on body systems Muscular system Endocrine system Cardiorespiratory system Nervous system

Section - B

I. Sports injuries
Spine - PIVD, Kissing spine, cervical whiplash injuries, facet joint syndrome, SI joint dysfunction
Hip - muscle strain, piriformis syndrome, ITB syndrome, osteitis pubis
Knee - menisci, cruciate, collateral, osteochondritis, chondromalacia patellae, biceps femoris tendonitis, swimmers knee, patello-femoral pain syndrome
Leg & ankle - shin splint, achillis tendonitis & rupture, TA bursitis, ankle sprain, plantar fascitis, turf toe syndrome
Head & face - maxillo-fadal injuries, helmet compression syndrome

Section - C

5. Sports injuries
i. Shoulder - instability, rotator cuff injury, biceps tendonitis and rupture, pectoralis major rupture, scapular dysldnesis and acromio-clavicular joint injuries
ii. Elbow - tennis elbow, golfer's elbow
iii. Wrist and hand - carpal tunnel syndrome, gamekeeper's thumb
6. Principles of injury prevention
7. Principles of training & Rehabilitation in sports injuries
8. Sports in Special age groups:
i. Female athletic triad
ii. Younger athlete- Musculo-skeletal problems, management, children with chronic illness and nutrition
iii. Older athlete- Physiological changes with aging, benefits, risks of exercise in elderly, exercise prescription guidelines for elderly

Suggested Readings:

S.No.	Author	ritle	Publisher	Fear	*Vol.*
1	Maheshwari, J	Essential Orthopedics			
2	Solomon, Louis	Apley's Systems of Orthopedics and Fracture	Arnold, London	2001	
3	Kolt, G.S and Madder S.	Physical Therapies in Sports and Exercise	Livingston, London	2003	
4	Starkey, and Ryan,	Evaluation of Orthopedic and Athletic	F A Davis, Philedelphia	2002	

5	Mclatchie, and Lennox	Soft Tissues: Trauma and sports Injury	Butterworth Heine, Oxford	1993	
6	Norris, C.M.	Sports Injuries: Diagnosis and Management	Butterworth Heine, Oxford	2001	
7	Garrick, J.G.	Sports Injuries: Diagnosis and Management	W.B.Saunders, Philadelphia	1999	
8	Guten, Gray N.	Running Injuries	W.B.Saunders, London	1997	
9	lames E.Z.	Athletic Injuries and Rehabilitation			
10	Fu, and Stone,	Sport Injuries	Lippincott, New York	2001	
II	Anderson, M.K.	Fundamentals of Sport Injuries and management	Lippincott, Philedelphia	2002	

PRACTICAL PT - CT JNTCAT.S

Course/Paper: 04BPT01201
BPT YEAR-IV

Assessment diagnosis, goal formulation, treatment plan formulation, and execution of therapeutic skills

The student will be posted in the department of Physiotherapy &he/she will learn the assessment, diagnosis, & physiotherapy treatment of patients visiting the department

There will be no university examination. The students will be awarded marks on the basis of his/her attendance & performance during clinical postings in the department of Physiotherapy, etc

PRACTICAL PHYSIOTHERAPEUTIC IN GENERAL & CARDIOTHORACIC

Course/Paper: 04BPT01202

BPT YEAR-IV

Practical demonstration of basic principles of application of physiotherapy assessment, functional assessment and application of physical therapy of general & cardio thoracic conditions

Students will be assessed by viva & practical demonstration of application of Physical therapy based upon learning in theory.

PRACTICAL PHYSIOTHERAPEUTIC IN SPORTS **Course/Paper: 04BPT01203 BPT YEAR-IV**

Practical demonstration of basic principles of physiotherapy assessment, functional assessment and application of sports physiotherapy

Students will be assessed by viva based upon learning in theory

PROJECT WORK

Course/Paper: 04BPT01204 BPT YEAR-IV

The student will be doing specific case studies allotted by their teacher/guide. Subject is for Case Presentations and evaluations.

Minimum 5-10 cases are to be documented for discussion.

There will be no university examination. Students will be assessed on the basis of Viva on his/her project work and the awards so secured by them will be sent to University.

INTERNSHIP GUIDELINES (AMENDED^

1. Candidates seeking entiy to the internship period must have passed all examinations in all subjects (i.e. He/She must have secured total credits of the Programme).
2. Duration: 6 months inclusive of posting in rural setup/CBR/similar setup.
3. During the internship candidate shall have to work full time average 7 hours per day (each working day) for 6 Calendar months (total Credit hours - 1260).
4. Each candidate is allowed maximum of 6 holidays during entire Internship Programme and in case of any exigencies during which the candidate remains absent for a period more than 6 days, he/she will have to work for the extra days during which the candidate has remained absent.
5. Assessment: The intems/candidate shall maintain the record of work, which will be verified and certified by the Head of the Department under whom he/she works. Apart from scrutiny of the record of work, the Head of the Department shall undertake assessment and evaluation of training in attendance, discipline, knowledge, skills and attitude for the duration of training. The assessment report of the candidate shall be sent to the Parent institution.
6. Based on the record of work and date of evaluation the Director/Principal shall issue 'Certificate of Satisfactory Completion' of training following which the University shall award the Bachelor of Physiotherapy Degree or declare the candidate eligible for the same.
7. In the event of unsatisfactory report, the said intern shall have to repeat the internship for the period to be decided by the Head of the Institution concerned.
8. Intern will abide by all the rules & regulations of Institution/Hospital where they are posted.
9. Intern shall be responsible for proper use of equipments of the Institute/Hospital where they are posted. He/She shall be liable to pay for damages caused to the equipments resulting from improper use by him/her.
10. Internship duration can be extended by the Principal / Director on the grounds:

iv. Remaining absent in excess of the permitted 6 days leave period, which is due: An intern will compensate by working extra for each day leave taken.

v. Unsatisfactory performance during the period: If there are unsatisfactory reports in terms of performance of the intern, submitted by the Department In-charge, the said intern shall have to repeat the internship for a period at least two months further.

vi. Case of indiscipline at any level: A Discipline and Action Committee will be formed in the college / Institution convened by Internship coordinator/HOD PT & headed by Director/Principal. In case of any lack of discipline, breach of trust or indulgence in any criminal activity on the part of the interns when reported by the concerned departments of

Hospitals/Institutions where the interns have been posted, the defaulting Intern shall be called hack immediately and subjected to disciplinary proceedings by the Disciplinary Action Committee.

vii. Punishments:

b) Suspension of Internship for a period of 3-4 weeks for the reasons to be recorded. Following this disciplinary suspension, internship can be resumed only after submission of an appropriate undertaking/guarantee/surety. Period of suspension shall be considered as Break in Internship. Disciplinary Action Committee shall decide the period of suspension and resumption of Internship for a specified period.

c) Rustication & Termination: In case of a serious complaint of indiscipline or breach of trust against intern or any criminal activity done by intern according to the law of the country, he/she may be rusticated along with termination of Internship.

d) w.e.f. Academic Session 20o6-07Hon'ble Court of Law can resume the Internship in this case only on the abrogation of criminal charges against him.

e) Institution shall have to satisfy themselves that satisfactory infrastructure facilities of Physiotherapy exist in the Institute / Hospital where the internship training has to be undertaken. Following parameters / guidelines have been suggested:

f) It is mandatory for the Institution conducting BPT01 Programme to have its own Physiotherapy clinic fully furnished with all the necessary equipments as per the curriculum of the Programme.

g) The Institutes 8c the Hospitals should have the Physiotherapy section with all the necessary infrastructure facilities.

h) Senior Physiotherapist with sufficient clinical experience should manage the physiotherapy departments in the Institutes/Hospitals.

i) Institute Director / principal can at his discretion grant NOC to the students to do the Internship at the place of his choice provided, the concerned Hospital fully satisfies the above criteria. For the purpose of granting NOC the candidate shall have to submit to the Institution the status of Physiotherapy Services available at the place where he intend to do his Internship.