S.N.D.T. Women's University

SYLLABUS AND RULES

For the course of

BACHELOR OF PHYSIOTHERAPY

(B.P.T.)

EFFECTIVE FROM: 2008 – 2009

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY

1, Nathibai Thakersey Road, Mumbai – 400 020. INDIA
Tel. : 091 – 022 – 22031879
Email : sndtacademic@yahoo.com
Web Site : http:/www.sndt.edu
http:/ www.sndt.digitaluniversity.ac

S.N.D.T. WOMEN'S UNIVERSITY, MUMBAI.

:INFORMATION / RULES AND REGULATIONS:

UNIVERSITY AT A GLANCE:

The vision of Maharshi Dhondo Karve, in 1916 led to the establishment of the first Women's University in India as Indian Women's University. Recognizing the pioneering work of Dr. Karve, Sir Vithaldas Thackersey made a generous contribution, to commemorate the memory of his mother, Nathibai. In 1920 after the great benefactor's mother, the University was renamed as Shreemati Nathibai Damodar Thackersey Women's University.

In 1936, the headquarters of the University was shifted to Mumbai. The university continued to grow, providing higher education to more and more women. In 1951, the University was granted statutory recognition. The recognition came along with the rare privilege of having a jurisdiction across the country.

Vision:

The vision of Bharat Ratna Dr. D.K. Karve to build a citadel of learning for women is encapsulated in the motto of the University – " Sanskrita Stree Parashakti" (An enlightened woman is a source of infinite strength). For over nine decades, the University has been striving for and growing to newer heights of performing and outreach.

Mission:

Empowerment of women, through education, has been the single-minded mission of this University ever since its establishment. With socio-cultural changes and technological advances, the goals and objectives of the University are being continuously reinterpreted to make them relevant to the needs of women and in the context of prevailing needs of the society. The mission statement of the University is:

"SNDT Women's University" is committed to the cause of women's empowerment through access to education, particularly higher education, through relevant courses in the formal and non formal streams. Further SNDT is committed to provide a wide range of professional and vocational courses for women to meet the changing socio-economic needs, with human values and purposeful social responsibility and to achieve excellence with Quality in every Activity."

Goals:

The goals of the SNDT Women's University emerging from the Vision and Mission are:

- Provide access to higher education for women through formal and non-formal streams including adult and continuing education.
- Provide a wide range of professional and vocational courses for women to meet the socio-economic demands.
- Develop scholarship and research in emerging areas of study, particularly with focus on women's perspectives.
- Inculcate among women positive self-concept, awareness of women's issues and rights with a rational outlook towards society.
- Enhance purposeful education with 'human values' and social responsibility by participating in outreach programmes.
- Achieve excellence in the academic disciplines, research and extension activities through emphasis on 'quality in every activity'.

Special features of the University:

- The first Women's University in India and South-East-Asia.
- All India jurisdictions, presently operational in Gujarat and Maharashtra. Media of instruction in multiple languages - Marathi, Gujarati, Hindi and English.
- Courses in conventional as well as distance learning mode.
- Wide range of under-graduate and post-graduate courses.
- More than 55,000 students with advantage of multi-entry points into the academic structure.
- First University in Maharashtra to be accredited with five star status by NAAC for academic excellence.
- University with Constituent Colleges
- University with four campuses, two in Mumbai & one in Pune and one in Ahmedabad, Gujarat.
- Selected by UGC for export of higher education.
- Affiliated colleges in abroad.

RULES FOR B.P.T. ADMISSION FROM THE ACADEMIC YEAR 2008-09 ONWARDS

Rules for admission to First Semester of Physiotherapy Course prescribed by the SNDT Women's University:

QUALIFYING EXAMINATION

1. Qualifying examination for admission shall be Higher Secondary Certificate examination (Science stream or post basic stream) under the 10+2 education pattern conducted by the Gujarat or any state Higher Secondary Education Board or Central Board of Secondary Education. New Delhi or Council for the Indian School Certificate Examination, New Delhi taking Physics, Chemistry, Biology from any of the recognized institutions or equivalent.

The criteria for reservation of seats will be followed as per norms of University/Government of Gujarat with amendments from time to time.

CRITERIA OF ELIGIBILITY FOR ADMISSION

1. The minimum requirement of aggregate marks is of at least 50% in Physics, Chemistry & Biology in Theory & Practical examination for H.S.C.E. at the qualifying examination for admission to the first year B. Physiotherapy Course.
2. The merit order shall be determined on the following basis by the University:-

2.1. The aggregate marks of at least 50% in Physics, Chemistry & Biology for Higher Secondary certificate Examination at qualifying examination.

2.2 If there are candidates who have secured equal marks in external examination in science subjects, the merit order should be determined by application of criteria as under:

2.2 (a) Candidates whose total aggregate of external marks in theory in science subjects is higher should be placed higher.

2.2 (b) After application of rule2.2(a) if still, the candidates have equal marks the total aggregate external, marks in theory and practical in Science subjects and English should be considered determining merit order between candidates with equal aggregate external marks in theory in science subjects.

2.2 (c) If after application of rule 2.2(b) these are still candidates with equal marks, merit order should be determined on basis of percentage of marks obtained at new S. S. C. examination.

3. Eligible candidates should have completed the age of 17 years on 31st December of the year of her joining the college.

4. The admission of candidates to a Physiotherapy Course shall be decided and granted on the basis of admission criteria by the University.
5. In case of any dispute about admission of candidates to Physiotherapy Course, the interpretation and the decision of the University / college management shall be final.
6. If any of the statements made in the application form or any information/document supplied by the candidate in connection with her application or admission, later on at any time is found to be false or incorrect or misguiding, or if at any time that the candidate has cancelled any information/fact in connection with her application her admission shall be cancelled by the University/College Management without any notice thereof and fees shall be forfeited and she may be expelled and prosecuted.

ADMISSION CRITERIA

The total seats for the Physiotherapy course will be kept as per the decision of the University from time to time.

The admission shall be on the bases of merit list prepared according to following weightage by the University:

Stage (1) H.S.C. / Equivalent examination marks 100 marks

(i.e. Physics, Chemistry & Biology in theory & practical)

Stage (2) Entrance test 100 marks

Note: The Entrance test will be conducted by the University at National level: one question paper of two hours: [In which generally the questions of objective nature from three science subjects of H.S.C. Board of Gujarat and General Knowledge will be set.]

Total: 200 marks

The candidates shall have to bear the travel expenses for the entrance test which is to be conducted at the place decided by the University.

S.N.D.T. WOMEN'S UNIVERSITY, MUMBAI.

TRANSCRIPT HOURS FOR THE COURSE OF BACHELOR OF PHYSIOTHERAPY (B.P.T.)

EFFECTIVE FROM: 2008 – 2009

Sr. No.	Subject	Transcript hours				
		Theory	Practical	Clinical training	Total Hrs.	
FIRST SEMESTER B.P.T.						
BPT-1101/1102	HUMAN ANATOMY – I	64 hrs.	32 hrs.		96 hrs.	SEM-1
BPT-1103/1104	HUMAN PHYSIOLOGY – I	64 hrs.	32 hrs.		96 hrs.	
BPT-1105	FUNDAMENTALS OF BIO-MEDICAL PHYSICS AND ELECTROTHERAPY	64 hrs.			64 hrs.	
BPT-1106/1107	FUNDAMENTALS OF EX.THERAPY & SOFT TISSUE MOBILIZATION	64 hrs.	128 hrs.		192 hrs.	
BPT-1108	ENGLISH AND COMMUNICATION SKILLS	60 hrs.			60 hrs.	
BPT-1109	SOCIOLOGY	63 hrs.			63 hrs.	
	Orientation Classes			10 hrs.	10 hrs.	
FIRST SEMESTER TOTAL HOURS.		**379 hrs.**	**192 hrs.**	**10 hrs.**	**581 hrs.**	
SECOND SEMESTER B.P.T.						
BPT-1201/1202	HUMAN ANATOMY – II	64 hrs.	32 hrs.		96 hrs.	SEM-2
BPT-1203/1204	HUMAN PHYSIOLOGY – II	68 hrs.	32 hrs.		100 hrs.	
BPT-1205/1206	THERAPEUTIC EXERCISE – I	59 hrs.	96 hrs.		155 hrs.	
BPT-1207/1208	BIO MECHANICS	64 hrs.	32 hrs.		96 hrs.	
BPT-1209	BIO-CHEMISTRY	60 hrs.			60 hrs.	
BPT-1210	CLINICAL PSYCHOLOGY	58 hrs.			58 hrs.	
	Visit to Bio-chemistry Laboratory = 10 hours			10 hrs.	10 hrs.	
	Clinical counseling orientation = 10 hours			10 hrs.	10 hrs.	
SECOND SEMESTER TOTAL HOURS.		**373 hrs.**	**192 hrs.**	**20 hrs.**	**585 hrs.**	
THIRD SEMESTER B.P.T.						
BPT-2301/2302	THERAPEUTIC EXERCISE – II	64 hrs.	64 hrs.		128 hrs.	SEM-3
BPT-2303/2304	KINESIOLOGY	60 hrs.	64 hrs.		124 hrs.	
BPT-2305/2306	ELECTROTHERAPY – (H.F.)	64 hrs.	64 hrs.		128 hrs.	
BPT-2307	PATHOLOGY	77 hrs.			77 hrs.	
BPT-2308	MICROBIOLOGY	46 hrs.			46 hrs.	
BPT-2309	PHARMACOLOGY	50 hrs.			50 hrs.	
	VISIT TO MICRO-BIOLOGY LABORATORY = 10 HOURS			10 hrs.	10 hrs.	
	VISIT TO PHARMACOLOGY LABORATORY = 10 HOURS			10 hrs.	10 hrs.	
	VISIT TO PATHOLOGY LABORATORY = 10 HOURS			10 hrs.	10 hrs.	
THIRD SEMESTER TOTAL HOURS.		**361 hrs.**	**192 hrs.**	**30 hrs.**	**583 hrs.**	
FOURTH SEMESTER B.P.T.						
BPT-2401/2402	ADVANCED EXERCISE THERAPEUTICS	56 hrs.	64 hrs.		120 hrs.	SEM-4
BPT-2403/2404	ELECTROTHERAPY – L.F. & M.F.	36 hrs.	64 hrs.		100 hrs.	
BPT-2405	GENERAL MEDICINE	64 hrs.			64 hrs.	
BPT-2406/2407	CLINICAL NEUROLOGY	80 hrs.	32 hrs.		112 hrs.	
BPT-2408	OBSTETRICS & GYNAECOLOGY AND PAEDIATRICS	96 hrs.			96 hrs.	
BPT-2409	PSYCHAITRY	64 hrs.			64 hrs.	
	Hospital Orientation (to which institute is attached) = 15 hours			15 hrs.	15 hrs.	
FOURTH SEMESTER TOTAL HOURS.		**396 hrs.**	**160 hrs.**	**15 hrs.**	**571 hrs.**	

Sr. No	Subject	Transcript hours				
		Theory	Practical	Clinical training	Total Hrs.	
FIFTH SEMESTER B.P.T.						
BPT-3501/3502	PHYSICAL & FUNCTIONAL DIAGNOSIS	88 hrs.	144 hrs.		232 hrs.	
BPT-3503	GENERAL SURGERY	80 hrs.			80 hrs.	
BPT-3504/3505	CLINICAL ORTHOPAEDICS	80 hrs.	48 hrs.		128 hrs.	
BPT-3506	COMMUNITY MEDICINE	60 hrs.			60 hrs.	
BPT-3507	ENVIRONMENTAL STUDIES ,EVOLUTION AND GENETICS	112 hrs.			112 hrs.	SEM-5
BPT-3508	ALTERNATIVE MEDICINE	48 hrs.			48 hrs.	
	Supervised clinical training in OPD = 100 hours			100 hrs.	100 hrs.	
	VISIT TO YOGA CENTRE, AYURVEDIC COLLEGE AND HOSPITAL, NATURE CURE CENTRE, ACUPRESSURE AND ACUPUNCTURE CLINICS			40 hrs.	40 hrs.	
FIFTH SEMESTER TOTAL HOURS.		**468 hrs.**	**192 hrs.**	**140 hrs.**	**800 hrs.**	
SIXTH SEMESTER B.P.T.						
BPT-3601/3602	PAIN MANAGEMENT	36 hrs.	64 hrs.		100 hrs.	
BPT-3603/3604	PHYSIOTHERAPY IN WOMEN'S HEALTH AND GERIATRICS	62 hrs.	32 hrs.		94 hrs.	
BPT-3605/3606	PHYSIOTHERAPY IN MEDICAL & SURGICAL CONDITIONS	78 hrs.	64 hrs.		142 hrs.	
BPT-3607	ALLIED HEALTH SCIENCES (O & P, OT, ST AND N & F)	120 hrs.			120 hrs.	SEM-6
BPT-3608	ETHICS&ADMINSTRATION&RESEARCH METHODOLOGY, BIO-STATISTICS & ELEMENTS OF MATHEMATICS	114 hrs.			114 hrs.	
	Supervised clinical training in Hospital, wards and Visit to Orthotics and Prosthetics lab (10 hrs.) = 200 hours			200 hrs.	200 hrs.	
SIXTH SEMESTER TOTAL HOURS.		**410 hrs.**	**160 hrs.**	**200 hrs.**	**770 hrs.**	
SEVENTH SEMESTER B.P.T.						
BPT-4701/4702	PHYSIOTHERAPY FOR PEDIATRIC NEUROLOGICAL CONDITIONS	74 hrs.	64 hrs.		138 hrs.	
BPT-4703/4704	PHYSIOTHERAPY FOR NON TRAUMATIC ORTHOPEDIC CONDITIONS	71 hrs.	64 hrs.		135 hrs.	
BPT-4705/4706	PHYSIOTHERAPY FOR CARDIOVASCULAR CONDITIONS	79 hrs.	64 hrs.		143 hrs.	SEM-7
BPT-4707/4708	SPORTS PHYSIOTHERAPY	46 hrs.	64 hrs.		110 hrs.	
	Project work -1 25 hrs			25 hrs.	25 hrs	
	Physiotherapy OPD postings =60 hrs			60 hrs	60 hrs	
	INDIAN ASSOCIATION OF PHYSIOTHERAPY NATIONAL / STATE CONFERENCE(6 DAYS)			48 hrs.	48 hrs.	
SEVENTH SEMESTER TOTAL HOURS.		**270 hrs.**	**256 hrs.**	**133 hrs.**	**659 hrs.**	
EIGHTH SEMESTER B.P.T.						
BPT-4801/4802	REHABILITATION	64 hrs.	64 hrs.		128 hrs.	
BPT-4803/4804	PHYSIOTHERAPY FOR TRAUMATIC ORTHOPEDIC CONDITIONS	76 hrs.	64 hrs.		140 hrs.	
BPT-4805/4806	PHYSIOTHERAPY FOR PULMONARY CONDITIONS	76 hrs.	64 hrs.		140 hrs.	SEM-8
BPT-4807/4808	PHYSIOTHERAPY FOR ADULT NEUROLOGICAL CONDITIONS	79 hrs.	64 hrs.		143 hrs.	
	PHYSIOTHERAPY OPD POSTING = 100 HOURS			100 hrs.	100 hrs.	
EIGHTH SEMESTER TOTAL HOURS.		**295 hrs.**	**256 hrs.**	**100 hrs.**	**651 hrs.**	
SKILL ENHANCEMENT PROGRAMMES/ GUEST LECTURES/ WORKSHOPS/ ADVANCED TECHNIQUES TRAINING/ PHYSIOTHERAPY CAMPS/ CBR CAMPS/ CONTINUOUS PHYSIOTHERAPY EDUCATION. (THROUGHOUT COURSE DURATION)				**125 hrs.**	**125 hrs.**	
INTERNSHIP:- Six months rotational program				**1194 hrs.**	**1194 hrs.**	
TOTAL TRANSCRIPT HOURS.		**2952 hrs.**	**1600hrs.**	**1967 hrs.**	**6519 hrs.**	

DURATION OF COURSE:

The total duration of Professional Degree Course in Bachelor of Physiotherapy (B.P.T.) approved by the University only for girl candidate is $4^1/_2$ (Four and half) year including six months' of internship so as to be at par with the recommendation of Indian Association of Physiotherapists (I.A.P.).

MEDIUM OF STUDY:

The medium of Instruction/Study/Books/Examination will be in English language.

AWARD OF A DEGREE OF BACHELOR OF PHYSIOTHERAPY (B.P.T.):

Every candidate who passes an examination for a degree of Bachelor of Physiotherapy (B.P.T.) and after completion of six months' internship as per syllabi shall become eligible for admission to the degree "B.P.T.".

SYLLABUS & TRANSCRIPT HOURS:

Semester system is being introduced from 2008-09 on credit system basis.

COMMENCEMENT OF SEMESTER EXAMINATION:

October and April

WORKING DAYS IN A SEMESTER:

Each semester shall consist of 96 working days i.e. 16 weeks.

VACATION AND LEAVE:

As per the rule of S.N.D.T. Women's University, Mumbai.

ATTENDENCE:

A candidate is required to have minimum 80% of attendance in both theory and practical especially in each subject before appearing to the examination.

TERM WORK EVALUATION:

Two written examinations are conducted in each subject during a semester and averages of marks scored in both examinations are considered.

In subjects having practical, 2 internal practical examinations are conducted during a semester and average of marks scored in both examinations are considered.

STANDARD OF PASSING THE EXAMINATION:

All other provisions / Rules / Resolutions related to the examination of the University should be referred and to be applied at the time of preparing the result of any class by the examination section.

Student must pass separately in theory and practical assessment of each subject

Students will have to acquire minimum 50% marks in each head of passing of respective subjects. In first semester student will have to acquire minimum of 40% in the subject of English and Communication skill.

RETENTION OF THE CANDIDATE

The candidate is allowed to go to the second semester if she clears 4 papers of the first semester.

The candidate is allowed to third semester if she clears 4 papers of second semester.

The candidate is allowed to go to the fourth semester if she clears 5 papers of the third semester.

The candidate is allowed to go to the fifth semester if she clears 5 papers of the fourth semester.

The candidate is allowed to go to sixth semester, if she clears 3 papers of fifth semester.

The candidate is allowed to seventh semester only if she clears all the papers of first, second, third, fourth and fifth semesters and 3 papers of sixth semester.

The candidate is allowed to go to the eighth semester only when she clears all papers of sixth semester and 4 papers of seventh semester.

The candidate is allowed to do internship when she clears all papers of seventh and eight semesters.

PAPER SETTERS / EXAMINERS / MODERATORS

- The panel of question paper setter / Examiner / Moderator are nominated by University through Board of Studies (BOS) on recommendation of the principal of all the affiliated colleges.
- Internal examiners are nominated among the teaching faculty of the Institute / college based on recommendation of the principal of the college.

QUESTION PAPER PATTERN

TERM WORK:

Duration 2 hours **For 50 marks Examination**
Question 1 is compulsory. Answer any 4 from Questions 2 to 7.

Q.1. Multiple Choice Questions:		(1 × 10 = 10)
Q.2. Short Essays:	(2 out of 3)	(5 × 2 = 10)
Q.3. Short Essays:	(2 out of 3)	(5 × 2 = 10)
Q.4. Short Answers:	(5 out of 7)	(2 × 5 = 10)
Q.5. Short Answers	(5 out of 7)	(2 × 5 = 10)
Q.6. Long Essay	(1 out of 2)	(10 × 1 = 10)
Q.7. Long Essay	(1 out of 2)	(10 × 1 = 10)

UNIVERSITY EXAMINATION PATTERN FOR SUBJECTS WITH ONLY THEORY EXAMINATION.

EXTERNAL EXAMINATION: (THEORY)

[A]

Duration 3 hours **TOTAL = 75 marks**
Question 1 is compulsory. Answer any 4 from Questions 2 to 7.

Q.1. Multiple Choice Questions:		(1 × 15 = 15)
Q.2. Short Essays:	(3 out of 5)	(5 × 3 = 15)
Q.3. Short Essays:	(3 out of 5)	(5 × 3 = 15)
Q.4. Short Answers:	(5 out of 7)	(3 × 5 = 15)
Q.5. Short Answers:	(5 out of 7)	(3 × 5 = 15)
Q.6. Long Essay	(1 out of 2)	(15 × 1 = 15)
Q.7. Long Essay	(1 out of 2)	(15 × 1 = 15)

[B]

Duration 3 hours **TOTAL = 100 marks (4 credits)**
Question 1 is compulsory. Answer any 4 from Questions 2 to 7.

Q.1. Multiple Choice Questions:		(1 × 20 = 20)
Q.2. Short Essays:	(5 out of 7)	(4 × 5 = 20)
Q.3. Short Essays:	(5 out of 7)	(4 × 5 = 20)
Q.4. Short Answers:	(10 out of 12)	(2 × 10 = 20)
Q.5. Short Answers:	(10 out of 12)	(2 × 10 = 20)
Q.6. Long Essay	(1 out of 2)	(20 × 1 = 20)
Q.7. Long Essay	(1 out of 2)	(20 × 1 = 20)

UNIVERSITY EXAMINATION PATTERN FOR SUBJECTS WITH THEORY AND PRACTICAL EXAMINATION.

As per the subject specification.

SEMESTER - I

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1101	HUMAN ANATOMY – I	4	-	3	100	25	-	125	4
BPT-1102	HUMAN ANATOMY - I **(PRACTICAL)**	-	2	-	-	25	25	50	1
BPT-1103	HUMAN PHYSIOLOGY – I	4	-	3	100	25	-	125	4
BPT-1104	HUMAN PHYSIOLOGY – I **(PRACTICAL)**	-	2	-	-	25	25	50	1
BPT-1105	FUNDAMENTALS OF BIO-MEDICAL PHYSICS AND ELECTROTHERAPY	4	-	3	100	25	-	125	4
BPT-1106	FUNDAMENTALS OF EX.THERAPY & SOFT TISSUE MOBILIZATION	4	-	3	100	25	-	125	4
BPT-1107	FUNDAMENTALS OF EX.THERAPY & SOFT TISSUE MOBILIZATION **(PRACTICAL)**	-	8	-	-	25	25	50	4
BPT-1108	ENGLISH AND COMMUNICATION SKILLS	4	-	2	75	25	-	100	4
BPT-1109	SOCIOLOGY	4	-	2	75	25	-	100	4
Orientation Classes		-	3	-					
TOTAL		39		-	550	225	75	850	30

L/wk = Lectures per week.
T = Theory.
P/ T = Practical / Tutorials in hours.
D = Duration of Theory Paper for Examination in Hours.
T. P. = Theory Paper – marks.
T.W. = Term Work – marks.
P/V = Practical / Viva – voice.

HUMAN ANATOMY - I

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1101	HUMAN ANATOMY – I	4	-	3	100	25	-	125	4
BPT-1102	HUMAN ANATOMY - I **(PRACTICAL)**	-	2	-	-	25	25	50	1

COURSE DESCRIPTION:

The study of anatomy will include identification of all gross anatomical structures. Particular emphasis will be placed on description of bones, joints, muscles, nervous system and cardio-pulmonary systems.

In addition student must observe dissections of human body to identify various organs and structures.

COURSE OBJECTIVES:

At the end of the course student will be able;

- To identify and describe the structure of musculo-skeletal system.
- To identify bony land marks, muscle contour.

SYLLABUS - HUMAN ANATOMY - I

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage (%)
1	**GENERAL INTRODUCTION:**	**6**	**6.25%**
1.1	Definitions and subdivisions.	1	
1.2	Planes of human body.	1	
1.3	System of human body.	1	
1.4	The cell – the unit of structure and function.	2	
1.5	Histology -Types of connective tissue.	1	
2	**OSTEOLOGY**	**19**	**20%**
2.1	Terminology - Anatomical position, Planes, surface relationship of parts of the body, proximal, distal etc.	5	
2.2	Bones: Type of bones, formation, function, growth and repair, structure of long bone, vertebral column, types of vertebrae, bones of extremities and bony landmarks.	14	
3	**ARTHROLOGY**	**24**	**25%**
3.1	Classification of joints.	2	
3.2	Construction of joints.	3	
3.3	Motions of joints.	2	
3.4	Articulations - Articular Surfaces, types of joints, motions of upper and lower extremities. Trunk, head, Hip.	17	
4	**MYOLOGY**	**47**	**48.75%**
4.1	Types of muscle tissue. Classification of muscles.	5	
4.2	Muscles of (With Origin, Insertion, Nerve Supply & Action)		
	Upper Extremity	14	
	Lower Extremity	14	
	Trunk	4	
	Eye	2	
	Face	5	
4.3	Pelvic floor muscles.	3	
	TOTAL	**96**	

PRACTICAL WORK:.

[A] Dissection:

1. Demonstration of dissection of upper and lower extremities and trunk musculature.

Identification and description of: Musculo - skeletal structures.

Microscopic examination of histology slides.

[B] Surface Anatomy

2. Surface Marking of: Bony Landmarks and muscle contour of the skeletal system.

Text books & Reference Books: - HUMAN ANATOMY - I

1. Human Anatomy by B.D. Chaurasia, Vol. 1,2,3; 3rd edition; CBS publications
2. Textbook of Anatomy by Inderbir Singh; 4th edition; Jaypee Publications
3. Handbook of Osteology by Poddar; 11th edition; Scientific Book Company
4. Principles of anatomy and physiology by tortora ; 8th edition; Harper & Row Publications
5. Cunningham's Manual of Practical Anatomy; 15th edition, Vol:1,2,3; Oxford Publications
6. Clinical Anatomy for Medical Students by Richard Snell, 6th edition, Lippin Cott, Williams & Wilkins
7. Anatomy of Central Nervous System by Poddar, 7th edition, Scientific Book Company
8. Anatomy & Physiology by Ross & Wilsons, 8th edition, Churchill Livingston
9. Grant's atlas of anatomy, Anne MR;10th edition.
10. Textbook of anatomy. Inderbir Singh.
11. Gray's Anatomy

HUMAN PHYSIOLOGY - I

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1103	HUMAN PHYSIOLOGY - I	4	-	3	100	25	-	125	4
BPT-1104	HUMAN PHYSIOLOGY – I **(PRACTICAL)**	-	2	-	-	25	25	50	1

COURSE DESCRIPTION:

This course which runs concurrently with the anatomy course helps the students to understand the basis of normal human functions of various structures with special emphasis to cardiovascular, musculoskeletal and nervous system.

COURSE OBJECTIVES:

At the end of the course, the student will be able;

- To describe the functional classification of muscle, nerve and brain. Regulation of muscle tone, posture, equilibrium, co-ordination, Heart rate, Blood pressure, cardiac functions.
- To demonstrate the skills of assessment of Blood pressure, sensations, Heart rate, superficial and deep reflexes and co-ordination.
- To study various functions of Neuromuscular, Nervous and Cardiovascular systems.
- To study Body fluid and electrolyte imbalance, temperature regulation and Blood – Composition and its functions.

SYLLABUS - HUMAN PHYSIOLOGY – I

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage (%)
1	**INTRODUCTION TO PHYSIOLOGY**	**1**	**1%**
2	**NEURO – MUSCULAR PHYSIOLOGY**	**13**	**13.5%**
2.1	Structure and function of muscle and nerve cells	1	
2.2	Classification of muscle and nerve fibers.	2	
2.3	Cell membranes, ionic transport and action potential and its propagation, factors affecting muscle tension.	2	
2.4	Neuromuscular transmission, motor units, synapse, reflex physiology.	3	
2.5	Degeneration and regeneration of nerve fibers, reaction of degeneration, muscle contraction mechanics.	3	
2.6	Muscle fatigue, Clonus, Tetanus.	2	
3	**NERVOUS SYSTEM**	**33**	**34.5%**
3.1	Types and properties of receptors, types of sensations and muscle spindle.	5	
3.2	Synapse and synaptic transmission, reflexes and properties of reflex.	3	
3.3	Tracts of spinal cord.	4	
3.4	Descending tracts and ascending tracts.	5	
3.5	Hemi section and complete section of spinal cord, Upper and lower motor neuron paralysis.	3	
3.6	Structure, connections and functions of various parts of brain.	8	
3.7	Physiology of muscle tone, posture and equilibrium and co-ordination.	2	
3.8	Functions of Autonomic Nervous system.	2	
3.9	Cerebrospinal fluid and its circulation.	1	
4	**SPECIAL SENSES**	**11**	**11.5%**
4.1	Broad features of eye, errors of refraction, lesions of visual pathways.	5	
4.2	Mechanism of hearing and vestibular apparatus.	4	
4.3	Functions of the skin.	2	
5	**BODY FLUID AND ELECTROLYTE BALANCE AND TEMPERATURE REGULATION**	**4**	**4%**
6	**BLOOD**	**13**	**13.5%**
6.1	Composition of blood, plasma, Protein formation and their functions.	3	
6.2	Structure, formation and functions of R.B.C.	2	
6.3	Structure, formation and function of W.B.C. and Platelets.	3	

6.4	Coagulation and its defects of bleeding, clotting time.	1	
6.5	Blood groups and their significance Rh factor.	1	
6.6	Reticular Endothelial system. Structure and functions of spleen.	1	
6.7	Haemoglobin and E.S.R.	2	
7	**CARDIO – VASCULAR SYSTEM**	**21**	
7.1	Properties of Heart muscle and nerve supply of heart function of arteries, arterioles, capillaries and veins.	3	
7.2	Cardiac cycle and heart sounds.	3	
7.3	Factors affecting Cardiac output and its measurement.	3	**22%**
7.4	Heart rate and its regulation, cardio vascular reflexes.	3	
7.5	Blood pressure, its regulation and Physiological variations, Peripheral resistance, factors controlling blood pressure	5	
7.6	Basics of ECG.	4	
	TOTAL	**96**	

PRACTICAL:

A. Demonstration only.
   1) Haemoglobinometer and total R.B.C. Count.
   2) Total W.B.C. Count.
   3) Preparation and staining of Blood smears, determination of differential W.B.C. Count.
   4) Blood Grouping.
   5) Erythrocyte Sedimentation Rate.
   6) Bleeding and clotting time.

Text books & Reference Books: - HUMAN PHYSIOLOGY - I

1. Textbook of Medical Physiology by Guyton & Hall, 11th Edition; Elsevier Publication
2. Concise Medical Physiology by Chaudhari, 4th Edition; New Central Book Agency
3. Human Physiology, Chatterjee. Vol: 1&2; 10th Edition; Medical & Allied Agency
4. Essentials of Medical Physiology, Mahapatra, 2nd Edition; Current Book International
5. Principles of Anatomy & Physiology, Tortora, 8th Edition; Harper & Row Publication
6. Practical physiology by Vijaya Joshi; Vora Medical Publication
7. Review of Medical Physiology by Ganong 21st Editon, MacGrawHill Publication
8. Human Physiology by Sembulingam.

FUNDAMENTALS OF BIO-MEDICAL PHYSICS AND ELECTROTHERAPY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1105	FUNDAMENTALS OF BIO-MEDICAL PHYSICS AND ELECTROTHERAPY	4	-	3	100	25	-	125	4

COURSE DESCRIPTION:

In this course the students will learn the principles of BIOMEDICAL physics and its application in various electrical modalities used in electrotherapy. Also includes physics related to Biomedical/ Electrotherapeutic equipments, Biomechanics and exercises.

COURSE OBJECTIVES:

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

- Describe all the physical agents and their use in electrotherapy modalities.
- Demonstrate the mechanics related to human body function.
- Orientation to the electrotherapeutic equipments & their production & functions.

SYLLABUS - FUNDAMENTALS OF BIO-MEDICAL PHYSICS AND ELECTROTHERAPY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**GENERAL PHYSICS**	**8**	
1.1	Mechanics - Principles of work, definition, mechanical advantage, levers, pulley and springs.	2	
1.2	Fluid mechanics - Principle of Archimedes, law of floatation, hydrostatic pressure, surface tension, buoyancy flow and turbulent flow, physical properties of water.	2	**13.33%**
1.3	Friction - Static and dynamic friction	1	
1.4	Analysis of forces - Gravity, COG, LOG, BOS, Reaction forces, Newton's law of reaction, equilibrium, Newton's law of inertia, objects in motion, Newton's law of acceleration.	2	
1.5	Elasticity.	1	
2	**HEAT**	**8**	
2.1	Physical properties of heat	2	
2.2	Physiological transmission of heat	2	
2.3	Radiant energy	2	**13.33%**
2.4	Laws governing radiation, Joule's law of heat production,	1	
2.5	Superficial heating agents	1	
3	**SOUND**	**8**	
3.1	Physics of sound	2	
3.2	Resonance and velocity of sound	2	**13.33%**
3.3	Ultrasonic-production and application	2	
3.4	Recording and reproduction of sound	2	
4	**LIGHT**	**8**	
4.1	Physical properties of light	2	
4.2	Electromagnetic Spectrum	2	**13.33%**
4.3	LASER and its application	2	
4.4	Fiber optics	2	
5	**ELECTRICITY**	**8**	
5.1	Static electricity, PD and EMF, current electricity, units of electricity, Farad, Volt, Ampere, Coulomb, Watt, Resistance - Ohm's law, transmission of electrical energy through solids, liquids, gases and vacuum.	4	**13.33%**
5.2	Types of currents- DC, AC, Modified currents, wiring of houses, switches, earth leakage, circuit breaker, fuse, electric shock	4	
6	**MAGNETISM**	**8**	**13.33%**

6.1	Properties of magnets, Electromagnetic induction, Magnetic effect of an electric field	4	
6.2	Moving coil milli ammeter, voltmeter, effects of magnetic field over human body.	4	
7	**ELECTRONICS**	**8**	**13.33%**
7.1	Transformers, choke coil	2	
7.2	Electric and thermionic valves	2	
7.3	Semiconductors	2	
7.4	Metal valve rectifier, rectification of AC currents	1	
7.5	Transistor, amplifier, condensers.	1	
8	**MODERN PHYSICS**	**8**	**13.33%**
8.1	Production and properties of IRR and SWD	2	
8.2	Principles of high frequency currents	2	
8.3	Direct current for the treatment of patients	2	
8.4	Production of modified direct current, Faradic and Sinusoidal apparatus	2	
	TOTAL	**64**	

Text books & Reference Books: - FUNDAMENTALS OF BIO-MEDICAL PHYSICS AND ELECTROTHERAPY

1. Clayton's Electrotherapy- 4th edition; Jaypee Publications
2. Electrotherapy Explained by Low & Reed; 4th edition, Butterworth & Lewis Publication
3. Electricity and magnetism- Brijal and subramanyam.
4. Therapeutic electricity by – Sydney Litch
5. Basis of Electrotherapy- Subhash Khatri 1st edition. Jaypee brothers.

FUNDAMENTALS OF EXERCISE THERAPY & SOFT TISSUE MOBILIZATION

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1106	FUNDAMENTALS OF EX.THERAPY & S.T.M	4	-	3	100	25	-	125	4
BPT-1107	FUNDAMENTALS OF EX.THERAPY & S.T.M **(PRACTICAL)**	-	8	-	-	25	25	50	4

COURSE DESCRIPTION:

In this course the student will learn the application of principles of physics to human movement and simple skills of assessment of skeletal joint movement and general physical exercise on models in the form of 120 hrs of practical.

COURSE OBJECTIVES:

At the end of the course the students will be able;

- To describe body levers and various physical principles and its applications to body movement.
- To identify and describe the various exercise equipment and its uses in exercise therapy practice.
- To demonstrate the different techniques on models and describe their effects.
- To perform and to be master of different massage techniques over models and described their uses, effects and applications.

SYLLABUS - FUNDAMENTALS OF EX.THERAPY & S.T.M

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**INTRODUCTION**	**16**	**8%**
1.1	Introduction to Exercise Therapy	8	
1.2	Physiological, Psychological & Pharmacological Effects of Exercise	8	
2	**BIOMECHANICS**	**27**	**14%**
2.1	Axes, Planes, Body Levers, Equilibrium, Friction, Pendular movements and Physics of Hydrotherapy	11	
2.2	Fundamentals of Starting and Derived Positions, muscle work to maintain particular position	16	
3	**JOINT MOBILITY**	**20**	**10.5%**
3.1	Goniometry – types of Goniometers – Bubble & Gravity Goniometers	10	
3.2	Causes of restriction of ROM – Distinguish between skin, muscles, capsular contracture	10	
4	**THERAPEUTIC GYMNESIUM**	**20**	**10.5%**
4.1	Walking Aids – Introduction to crutches, walkers, tripods, canes, parallel bars, wheel chairs.	10	
4.2	Use of apparatus in Exercise Therapy	10	
5	**CLASSIFICATION OF MOVEMENTS**	**43**	**22.5%**
5.1	Active movements – definition, types, techniques, effects and uses.	9	
5.2	Passive movements – definitions, types, techniques, effects and uses.	9	
5.3	Free exercises – classifications, techniques, effects and uses.	7	
5.4	Resisted exercise	11	
5.5	Group exercise – advantages and disadvantages of group exercise.	7	
6	**Limb length and girth measurement**	**10**	**5%**
7	**POSTURE**	**11**	**6%**
	Definition, Types, Factors influencing Posture	11	
8	**SOFT TISSUE MOBILIZATION**	**45**	**23.5%**
8.1	Introduction – brief history, definition, classification.	9	
8.2	Physiological effects and therapeutics uses, contraindication.	9	
8.3	Preparation of patients, basic points to be considered before and during massage procedure.	6	
8.4	Technique, effects and uses of each manipulation and contraindications.	12	
8.5	Massage for arm, leg, neck and upper back, face.	9	
	TOTAL	**192**	

Text books & Reference Books: - FUNDAMENTALS OF EX.THERAPY & S.T.M

1. Principles of Exercise Therapy by Dena Gaediner, 4th Edition, CBS Publication
2. Practical Exercise Therapy by Margarett Hollis, 4th Edition; Blackwell Sciences Publication
3. Measurement of Joint Motion – a guide to Goniometry by Cynthia Norkins, 2nd Edition; Jaypee Publication
4. Therapeutic Exercise by Kisner & Colby, 4th Edition; Jaypee Publication
5. Therapeutic Exercise by Laxminarayana; 1st edition; Jaypee Publication
6. Therapeutic Exercise by Huber, Elsevier Publication
7. Principles and practices of therapeutic massage – Akhonry Gourang Sinha, Jaypee Publications
8. Therapeutic massage - Margaret Hollis; Blackwell Sciences Publication
9. Handbook of Clinical Massage by Mario & Paul, 2nd Edition, Churchill Livingstone
10. Massage Therapy – Principles and Practice by Susan 2nd Edition, Elsevier Publication
11. Therapeutic Massage by Elizabeth ; Saunders Publication

ENGLISH AND COMMUNICATION SKILLS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1108	ENGLISH AND COMMUNICATION SKILLS	4	-	2	75	25	-	100	4

COURSE DESCRIPTION:

In this course the student will learn knowledge of prefixes and suffixes, medical terminology and the specialized vocabulary of the subjects in physical therapy and development of study skills needed for working and organizing thoughts in English.

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To equip the students to comprehend lectures, text-books and reference materials on subjects in Physiotherapy.
- To equip the students with the knowledge of prefixes and suffixes, which can be used as combining forms in compound words in medical terminology.
- To equip the students with the knowledge of medical terminology and the specialized vocabulary of the subjects in physical therapy.
- To equip the students with the knowledge of the terms used in reporting their observations of the symptoms and reactions of patterns.
- To help the development of study skills needed for working and organizing thoughts in English.
- To help the students to focus on the issues in conversation and documentation and to express themselves in precise terms.
- To widen the students horizons through an exposure to imaginative literature.

SYLLABUS - ENGLISH AND COMMUNICATION SKILLS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**LITERATURE *"NECTAR IN A SIEVE"* BY KAMALA MARKANDEYA** The course in language skills will be of the nature of English for special purpose (E.S.P.) course. The teaching material will have to be specially prepared by the teacher in charge and adapted and revised in the light of experience. Oral comprehension will be an integral part of the course. Short passages (Preferably talks) will be prepared related to topics in the other subjects being taught at the time. The listening texts must provide examples of precise scientific definitions clear and orderly sequence seen in physical therapy procedures, reporting in concise scientific terms of observation of patient's symptoms and reactions. The question asked at the end of the listening text must provide practice in writing under and concise answer. Those questions must draw the student's attention to the main points in the passage and provide practice in note making. The answer to the questions will also provide practice in writing concise summaries of the listening texts. Listening texts can be drawn up to use of classifications lists and sequence of events in a procedure. These can be used both for testing short term memory and report after a week or two to test long term memory. Literature "Nectar in a Sieve" by Kamala Markandeya is the text book used. The students will be required to read the novel by themselves. The teacher will comment on the attitudes and values depicted in it. Discussion of the various events must follow these comments.	**30**	**50%**
2	**COMMUNICATION SKILLS**: Report Writing, Public Speech, Application Writing , Group Discussion, Notices and Instructions, Idioms and Phrases, Letters – Formal and Informal, E-mail Drafting, Expansion of ideas, Drafting a medical & fitness Certificate, Dialogue (Structured Conversation), Leave Note, Narration	**30**	**50%**
	TOTAL	**60**	

Text books & Reference Books: - ENGLISH AND COMMUNICATION SKILLS

1) "Nectar in a Sieve" by Kamala Markandeya
2) Grammer and composition by – Wren and Martin
3) Spoken English by Sashi kumar and Dhannija.

SOCIOLOGY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1109	SOCIOLOGY	4	-	2	75	25	-	100	4

COURSE DESCRIPTION:

The subject will introduce the student to the basic sociological concepts. Principles and social processes, social institutions in relation to the individual. Family and the community and the various social factors affecting the family in rural and urban communities.

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To understand the role of family and community in the development of human behavior.
- To develop a holistic outlook toward the structure of the society and community resources.
- To understand the social and economic aspects of community that influences the health of the people.
- To assess the social problem and participate in social planning.
- To identify social institution and resources.
- To understand the significance of social interaction in the process of rehabilitation.

SYLLABUS - SOCIOLOGY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**Introduction**	**6**	**12%**
1.1	Meaning – Definition and scope of sociology.	1	
1.2	Its relation with anthropology, psychology, social psychology,economics, ethics and in health promotion.	1	
1.3	Methods of sociology – Case study, social survey, questionnaire, interview and opinion poll methods.	2	
1.4	Importance of its study with special reference to health care professionals.	2	
2	**Social factors in Health and Disease**	**5**	**8%**
2.1	The meaning of social factors.	2	
2.2	The role of social factors in health and illness.	3	
3	**Socialization**	**4**	**8%**
3.1	Meaning and nature of socialization	1	
3.2	Primary, secondary and anticipatory socialization.	2	
3.3	Agencies of socialization.	1	
4	**Social groups**	**5**	**8%**
4.1	Concept of social groups, influence of formal and informal groups on health and sickness.	2	
4.2	The role of primary groups and secondary groups in the hospital and rehabilitation settings.	3	
5	**Family**	**8**	**12%**
5.1	The family.	2	
5.2	Meaning and Definition.	1	
5.3	Functions.	1	
5.4	Types.	1	
5.5	Changing family patterns.	2	
5.6	Influence of family on the individuals health, family and nutrition. The effects of sickness on family are psychosomatic disease and their importance to physiotherapy.	1	
6	**Community**	**5**	**8%**
6.1	Rural community – Meaning and features – Health hazards of ruralites.	3	
6.2	Urban community – Meaning and features – Health hazards of Urbanites.	2	
7	**Culture and Health**	**5**	**8%**
7.1	Concept of culture.	1	
7.2	Culture and behavior.	2	
7.3	Cultural meaning of sickness.	1	

7.4	Culture and Health disorders.	1	
8	**Social Change**	**9**	
8.1	Meaning of social changes.	1	
8.2	Factors of social change.	1	
8.3	Human adaptation and social change.	1	
8.4	Social change and stress.	2	**14%**
8.5	Social change and deviance.	1	
8.6	Social change and health program.	1	
8.7	The role of social planning in the improvement of health and in rehabilitation.	2	
9	**Social Problem of Disabled:**	**10**	
	Consequences of the following social problems in relation to sickness and disability. Remedies to prevent these problems. population health.		
9.1	Population explosion.	2	
9.2	Poverty and unemployment. Labour studies	2	
9.3	Beggary.	1	**14%**
9.4	Juvenile delinquency.	1	
9.5	Prostitution.	1	
9.6	Alcoholism.	2	
9.7	Problems of women in employment.	1	
10	**Social Security**	**3**	
	Social security and social legislation in relation to disabled.	3	**4%**
11	**Social Worker**	**3**	
	Meaning of social work. The role of a medical social worker.	3	**4%**
	TOTAL	**63**	

Text books & Reference Books: - SOCIOLOGY

1) An introduction to sociology by - Sachdeva and Bhushan, 32nd Edition, Kitab Mahal Publication

2) Textbook of Sociology for Physiotherapy Students by KP Neeraja, 1st Edition, Jaypee Publication

3) Sociology for Physiotherapists by Dibyendunarayana Bid, 1st edition, Jaypee Publication

4) Textbook of Sociology by Mimkoff, 3rd Edtion, Houghton & Miffiline Company

SEMESTER - II

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1201	HUMAN ANATOMY – II	4	-	3	100	25	-	125	4
BPT-1202	HUMAN ANATOMY – II **(PRACTICAL)**	-	2	-	-	25	25	50	1
BPT-1203	HUMAN PHYSIOLOGY – II	4	-	3	100	25	-	125	4
BPT-1204	HUMAN PHYSIOLOGY – II **(PRACTICAL)**		2	-	-	25	25	50	1
BPT-1205	THERAPEUTIC EXERCISE – I	4	-	3	100	25	-	125	4
BPT-1206	THERAPEUTIC EXERCISE – I **(PRACTICAL)**	-	6	-	-	25	25	50	3
BPT-1207	BIO MECHANICS	4		3	100	25	-	125	4
BPT-1208	BIO MECHANICS **(PRACTICAL)**	-	2	-	-	25	25	50	1
BPT-1209	BIO-CHEMISTRY	4	-	2	75	25	-	100	4
BPT-1210	CLINICAL PSYCHOLOGY	4	-	2	75	25	-	100	4
Visit to Bio-chemistry Laboratory = 10 hours			1						
Clinical counseling orientation = 10 hours			1						
TOTAL		**38**			**550**	**250**	**100**	**900**	**30**

L/wk = Lectures per week.
T = Theory.
P/ T = Practical / Tutorials in hours.
D = Duration of Theory Paper for Examination in Hours.
T. P. = Theory Paper – marks.
T.W. = Term Work – marks.
P/V = Practical / Viva – voice.

HUMAN ANATOMY - II

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1201	HUMAN ANATOMY – II	4	-	3	100	25	-	125	4
BPT-1202	HUMAN ANATOMY – II **(PRACTICAL)**	-	2	-	-	25	25	50	1

COURSE DESCRIPTION:

The study of anatomy will include identification of all gross anatomical structures. Particular emphasis will be placed on description of bones, joints, muscles, nervous system and cardio-pulmonary systems.

In addition student must observe dissections of human body to identify various organs and structures.

COURSE OBJECTIVES:

At the end of the course student will be able;

- To identify and describe the structure of central and peripheral nervous system.
- To identify and describe briefly the cardio vascular and respiratory system, reproductory system. , endocrine system, digestive system.
- To identify bony land marks, muscle contour and major visceral organs.

SYLLABUS - HUMAN ANATOMY – II

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**HISTOLOGY**	**5**	**5%**
	Cell, tissues of the body epithelium, connective tissue, cartilage, bone, blood, lymph, muscles and nerves.		
2	**GENERAL EMBRYOLOGY: (Gross anatomy)**	**5**	**5%**
	Ovum, spermatozoa, fertilization, differentiation, development of musculoskeletal system, central nervous system.		
3	**CARDIOVASCULAR SYSTEM**	**19**	**20%**
3.1	Blood, lymph, tissue fluid – characteristics, composition, function.		
3.2	The heart, main arteries, veins, capillaries.		
3.3	Lymphatic circulation.		
4	**RESPIRATORY SYSTEM:**	**18**	**19%**
4.1	Anatomy of respiratory organs air passages, lungs, bronchial tree.		
4.2	Relation with diaphragm and thoracic cage.		
4.3	Pelvic floor muscles.		
5	**DIGESTIVE SYSTEM:**	**8**	**8.5%**
5.1	Anatomy of digestive organs – oesophagus, stomach, intestine, rectum.		
5.2	The digestive glands.		
6	**NERVOUS SYSTEM:**	**20**	**21%**
6.1	Nerve tissue – neuron, nerve fibers, synapse, end-organs.		
6.2	Spinal cord, Brain – their structures, divisions.		
6.3	Peripheral and cranial nerves and their distribution, special emphasis on nerve supply to voluntary muscles, segmental distribution. 5^{th} and 7^{th} cranial nerves in details.		
6.4	Sensory receptors.		
6.5	Autonomic nervous system – sympathetic, parasympathetic (Gross anatomy.)		
7	**URINARY SYSTEM: (Gross Anatomy)**	**5**	**5%**
	Anatomy of urinary organs – kidneys, ureter, urinary bladder.		
8	**ENDOCRINE SYSTEM**	**5**	**5%**
	Gross anatomy of glands.		
9	**REPRODUCTIVE SYSTEM**	**6**	**6.5%**

	Reproductive system – male and female reproductive organs.		
10	**SPECIAL SENSORY ORGANS AND SENSATIONS**	**5**	**5%**
	Emphasis on skin, ear and eyes, smell and taste.(in brief)		
	TOTAL	**96**	

PRACTICAL WORK:

1. Identification and description of:
   a) Central nervous system and peripheral nervous system.
   b) Major visceral organs.
2. Surface Marking of:

Bony Landmarks and muscle contour of the skeletal system & Thoracic and abdominal viscera.

Textbooks & Reference Books: - HUMAN ANATOMY – II

1. Human Anatomy by B.D. Chaurasia, Vol. 1,2,3; 3rd edition; CBS publications
2. Textbook of Anatomy by Inderbir Singh; 4th edition; Jaypee Publications
3. Handbook of Osteology by Poddar; 11th edition; Scientific Book Company
4. Principles of anatomy and physiology by tortora ; 8th edition; Harper & Row Publications
5. Cunningham's Manual of Practical Anatomy; 15th edition, Vol:1,2,3; Oxford Publications
6. Clinical Anatomy for Medical Students by Richard Snell, 6th edition, Lippin Cott, Williams & Wilkins
7. Anatomy of Central Nervous System by Poddar, 7th edition, Scientific Book Company
8. Anatomy & Physiology by Ross & Wilsons, 8th edition, Churchill Livingston
9. Gray's Anatomy

HUMAN PHYSIOLOGY - II

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1203	HUMAN PHYSIOLOGY – II	4	-	3	100	25	-	125	4
BPT-1204	HUMAN PHYSIOLOGY – II **(PRACTICAL)**		2	-	-	25	25	50	1

COURSE DESCRIPTION:

This course which runs concurrently with the anatomy course helps the students to understand the basis of normal human functions of various structures with special emphasis to cardio-respiratory, musculoskeletal and nervous system.

COURSE OBJECTIVES:

At the end of the course, the student will be able;

- To demonstrate the skills of assessment of Breath sound, Respiratory rate and Pulmonary Function Tests.
- To study the various functions of digestive, respiratory, reproductive, endocrine and excretory system.
- To study the importance of nutrition.

SYLLABUS - HUMAN PHYSIOLOGY – II

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**RESPIRATORY SYSTEM**	**20**	
1.1	Mechanism of respiration	3	
1.2	Intra-pleural and intra pulmonary pressure.	3	
1.3	Lung volumes and capacities, pulmonary function test.	3	
1.4	0_2 and CO_2 carriage and their exchange in tissues and lungs.	3	**20**
1.5	Nervous and chemical regulation of respiration – Respiratory Centers.	5	
1.6	Respiratory status – Anoxia, Asphyxia, Cyanosis, Acclimatization.	3	
2	**DIGESTIVE SYSTEM**	**10**	
2.1	General introduction.	1	
2.2	Composition, function and regulation of salivary, gastric, pancreatic, intestinal and biliary secretion.	7	**10**
2.3	Movements of gastrointestinal tract.	2	
3	**NUTRITION (In brief)**	**10**	
3.1	Digestion, absorption and metabolism of carbohydrates	2	
3.2	Digestion, absorption and metabolism of fats	2	
3.3	Digestion, absorption and metabolism of proteins	2	**10**
3.4	Sources, functions and resources of Vitamins and Minerals.	2	
3.5	Balanced diet in different age groups and occupation.	2	
4	**ENDOCRINE SYSTEM:**	**20**	
	Physiological functions in brief of the following:		
4.1	Anterior Pituitary.	3	
4.2	Post Pituitary and parathyroid.	4	**20**
4.3	Thyroid.	3	
4.4	Adrenal Medulla. Thymus.	4	
4.5	Adrenal Cortex.	3	
4.6	Pancreas and Blood sugar regulation.	3	
5	**REPRODUCTIVE SYSTEM**	**20**	
5.1	Puberty.	5	
5.2	Male sex hormones and their functions, spermatogenesis.	5	**20**
5.3	Female sex hormones and functions, menstrual cycle, ovulation and climacteric and menopause	5	
5.4	Pregnancy, functions of placenta and lactation.	5	
6	**EXCRETORY SYSTEM**	**20**	**20**

6.1	Functions of kidney and renal circulation.	5	
6.2	Mechanism of formation of urine,	5	
6.3	Physiology of micturation.	5	
6.4	Renal function test.	5	
	TOTAL	**100**	

PRACTICAL

A. Demonstration and practice
   1) Artificial Respiration.
   2) Pulmonary function tests.
   3) Breath sounds, respiratory rate and chest expansion.
   4) Blood pressure and pulse rate.

B. Demonstration and practice.
   1) Assessment of superficial ,deep and cortical sensations,
   2) Superficial and deep reflexes.

Textbooks & Reference Books: - HUMAN PHYSIOLOGY – II

1. Textbook of Medical Physiology by Guyton & Hall, 11th Edition; Elsevier Publication
2. Concise Medical Physiology by Chaudhari, 4th Edition; New Central Book Agency
3. Human Physiology, Chatterjee. Vol: 1&2; 10th Edition; Medical & Allied Agency
4. Essentials of Medical Physiology, Mahapatra, 2nd Edition; Current Book International
5. Principles of Anatomy & Physiology, Tortora, 8th Edition; Harper & Row Publication
6. Practical physiology by Vijaya Joshi; Vora Medical Publication
7. Review of Medical Physiology by Ganong 21st Editon, MacGrawHill Publication

THERAPEUTIC EXERCISE – I

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1205	THERAPEUTIC EXERCISE - I	4	-	3	100	25	-	125	4
BPT-1206	THERAPEUTIC EXERCISE – I **(PRACTICAL)**	-	6	-	-	25	25	50	3

COURSE DESCRIPTION:

This course mainly focuses on mechanical principles of physiotherapeutic and learning skills in the same aspect.

COURSE OBJECTIVES:

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

- To analyze musculoskeletal movement in terms of biomechanics and will be able to apply such biomechanical principles to evaluation methods & treatment modes.
- To acquire skill to quantity group and individual muscle strength & power.
- To gain knowledge of Biophysical & Physiological effects; therapeutic uses, merits & demerits & contraindications and skills of application of stretching and traction to improve soft tissue mobility.
- To gain skill to apply modes of therapeutic exercise & tools of therapeutic gymnasium for assessment and treatment of muscle strength mobility.
- To describe Mechanics and Physiology of Breathing.

SYLLABUS - THERAPEUTIC EXERCISE - I

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Bio-physical properties of connective tissue and effects of various types of mechanical loading	**14**	**9%**
2	Stretching; Definition related to stretching, types of contractures and differentiation properties of soft tissues affecting elongation, aims of stretching, manual and mechanical stretching, cyclic mechanical stretching, indications and aims of stretching, principles of stretching and contra- indication.	**17**	**11%**
3	Passive stretching of following muscles: Upper Limb: Pectoralis Major, Biceps Brachii, Triceps Brachii, Long flexors of the fingers Lower Limb: Rectus Femoris, I.T. Band, Gastroc-soleus, Hamstrings, Hip Adductors, Hip Flexors	**17**	**11%**
4	Strengthening; Principles of strengthening, Practice of strengthening of muscles, Various strengthening protocols like DAPRE, PRE, deLormes, Oxford, etc…	**17**	**11%**
5	Mobilization: Causes of restriction of ROM, its prevention, Principles and techniques of mobilization of various joints and its precautions and contra-indications.	**23**	**15%**
6	Relaxation; General Relaxation and Local Relaxation Techniques	**13**	**8%**
7	Co-ordination: Describe in co-ordination, causes of in co-ordination, Co-ordination exercise (Frenkel's Exercises)	**14**	**9%**
8	Breathing Exercise: Mechanics of Normal respiration, , types of breathing exercises (diaphragmatic, segmental, pursed lip breathing etc…)	**18**	**12%**
9	Manual Muscle Testing: Need of MMT, uses of MMT, fundamental principles, anatomical and physiological bases of muscle testing, MRC grading of Individual and Group muscles.	**22**	**14%**
	TOTAL	**155**	

Textbooks & Reference Books: - THERAPEUTIC EXERCISE - I

1. Measurement of Joint Motion – a guide to Goniometry by Cynthia Norkins, 2nd Edition; Jaypee Publication
2. Principles of Exercise Therapy by Dena Gaediner, 4th Edition, CBS Publication
3. Practical Exercise Therapy by Margarett Hollis, 4th Edition; Blackwell Sciences Publication
4. Therapeutic Exercise by Kisner & Colby, 4th Edition; Jaypee Publication
5. Therapeutic Exercise by Laxminarayana; 1st edition; Jaypee Publication
6. Therapeutic Exercise by Huber, Elsevier Publication

BIOMECHANICS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1207	BIO MECHANICS	4		3	100	25	-	125	4
BPT-1208	BIO MECHANICS **(PRACTICAL)**	-	2	-	-	25	25	50	1

COURSE DESCRIPTION:

This course mainly focuses on mechanical principles of physiotherapeutic and learning skills . activity synthesis ,rehab mechanics , biomechanical analysis.

COURSE OBJECTIVES:

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

- To analyze musculoskeletal movement in terms of biomechanics and will be able to apply such biomechanical principles to evaluation methods & treatment modes.
- To study basic concepts of stability, motion and force.
- To study joint mechanics and mechanics of muscular action and movement analysis.

SYLLABUS - BIO MECHANICS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**BASIC CONCEPTS**	**5**	**6%**
	Centre of gravity, planes and axes of motion (mechanical & Anatomical),	5	
2	**PRINCIPLES OF STABILITY**	**18**	**19%**
	Base of support, height of centre of gravity, line of gravity	6	
	Mass of body, impact of forces, friction	6	
	Segmentation, visual factors, psychological factors, physiological factors	6	
3	**PRINCIPLES OF MOTION**	**14**	**15%**
	Cause of motion, kinds of motion, motions experienced by body	7	
	Laws of motion, centripetal and centrifugal forces	7	
4	**MECHANICS OF JOINT MOTION**	**6**	**6%**
	Structure of joint, types of joint, types of movement	6	
5	**MECHANICS OF MUSCULAR ACTION**	**12**	**12%**
	Classification of muscles, line of pull	6	
	types of contractions, role of muscles, tendon action of two joint motion,	6	
6	**MUSCULO-SKELETAL MECHANICS**	**6**	**6%**
	Anatomical levers, anatomical wheel and axle, anatomical pulley	6	
7	**FORCE AND WORK**	**17**	**18%**
	Magnitude of force, point of application, direction of force and resistance arm of lever, perpendicular distance	5	
	Composite effect of two or more forces methods of determining the components of force and work	5	
	Movements of body as a whole, movements of segments of the body in air, water and surface	7	
8	**SKILLED MOVEMENTS**	**12**	**12%**
	Rope climbing, cycling, running, ballistic movements, Volitional movements	12	
9	**IMPETUS**	**6**	**6%**
	Impetus to external objects, receiving impetus	6	
	TOTAL	**96**	

Text books & Reference Books: - BIO MECHANICS

1. Joint structure and function- Cynthia norkins, 4th Edition, Jaypee Publication
2. Clinical kinesiology – Brunnstrom, 5th Edition, Jaypee Publication
3. Biomechanics - Willian Lissner.
4. Kinesiology by K Wells, 6th Edition; Saunders Publication
5. Clinical Kinesiology for Physiotherapy Assistant by Lippert, 3rd edition
6. Bio-mechanics of Musculoskeletal System by Nigg, 2nd Edition, John Wiley Publication
7. Basic Bio-mechanics of musculoskeletal system by Frenkle, 3rd edition, Lippincort Williams & Wilkins

BIOCHEMISTRY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1209	BIO-CHEMISTRY	4	-	2	75	25	-	100	4
Visit to Bio-chemistry Laboratory = 10 hours			1						

COURSE DESCRIPTION:

This course follows the basics of biochemistry in nutrition (carbohydrate, fat, protein, minerals and vitamins) and biochemical reactions

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To acquire knowledge about chemical composition of nutrients.
- To acquire knowledge about various metabolic reactions in the body.

SYLLABUS - BIO-CHEMISTRY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Nutrition – importance of nutrition, nutritional aspects of Carbohydrates. Proteins, Fats and Fibers, Classification of fibers, calorimetry, energy values, respiratory quotient. Its Significance, B.M.R, definition, normal values factors affecting B.M.R. Energy requirements with age.	**4**	**6.25%**
2	Chemical score, digestibility coefficient, Nitrogen balance and significance composition of food, balanced diet, dietary recommendation, nutritional Supplementation, Protein energy malnutrition.	**4**	**6.25%**
3	Carbohydrates – Chemistry – Definition. Metabolism – Digestion and absorption – Glycolysis, aerobic anaerobic Regulation and energetic, Gluconeogenesis. Glycogenesis, Glycogenolysis and their regulation. Role of muscle and Liver Glycogen. Hormonal regulation of sugar. Disorders of Glycogen, Lactose intolerance, Diabetes Mellitus.	**10**	**15.625%**
4	Proteins–Chemistry, Classification of proteins, amino acids, denaturation, coagulation, iso – electric pH and its importance. Metabolism–Digestion and absorption, Decarboxylation, Deamination, transmethylation, transmutation, specialized products of phenylalanine, tyrosine, tryptophan, methionine, Neurotransmitter (nobiosynthesis), Detoxification of ammonia, including urea cycle. Nucleoproteins – D.N.A, R.N.A. Definition – structure and function of D.N.A. Types and functions of R.N.A. Genetic code Catabolism of purines, Gout.	**10**	**15.625%**
5	Enzymes – Definition, Co-enzymes, factors affecting enzyme activity. Mechanism of action of enzyme. Inhibition types – Isoenzymes. Clinical and therapeutic use of enzymes.	**4**	**6.25%**
6	Biologic Oxidation – Oxidative phosphorylation and (in brief)	**10**	**15.625%**
6.1	Cell – Membrane structure, function of in organelles.	1	
6.2	1. Hormones – Definition, classification, mechanism of action, 2nd messenger (cAMP, Ca.IMP) Effects of hormones on various metabolites, metabolites (in brief) 6 Blood buffers, role of Lung and Kidney in acid-base balance.	5	
6.3	2. Clinical Biochemistry – LFT.RFT normal levels	4	

	of blood sugar. Urea, uric acid creatinine Triglycerides, cholesterol, enzymes, proteins, Glycosuria.		
7	Lipids – chemistry, Definition, classification of lipids and fatty acids – with examples essential fatty acids and their importance. Metabolism – Digestion and absorption of fats B-oxidation of saturated fatty acids, its significance and energetics regulation Fatty acid biosynthesis, energetic regulation. Fat metabolism in adipose tissue, Role of Lipoprotein lipase, Cholesterol and its importance only precursor molecule, But no biosynthesis. Ketone body formation and functions. Lipoprotein lipase -separation broad outline of technique Composition and functions. Disorders of lipid metabolism Atherosclerosis, hyperlipidaemia.	**8**	**12.5%**
8	Vitamins – water and fat soluble sources, coenzyme forms, function. RDA transport deficiency and toxicity.	**4**	**6.25%**
9	Minerals – Calcium, phosphorus, iron (in detail) Magnesium, Fluoride, Zinc, Copper, Selenium, Molybdenum, and iodine – functions, RDA, absorption, transport, Excretion and disorders.	**4**	**6.25%**
10	Biochemical events of muscle contraction, biochemistry of connective tissue collagen, its arrangement, Glycoproteins and proteogycans.	**2**	**3.125%**
	TOTAL	**60**	

Text books & Reference Books: - BIO-CHEMISTRY

1) Text book of Medical Bio-Chemistry – Dr. M.N.Chettergee, 5th Edition, Jaypee Publication
2) Fundamental of Bio-Chemistry – Dr.Dr. A.C.Deb, 5th Edition, Central Publication
3) Bio-Chemistry introduction – Mekee, 2nd Edition, MacGrawHill Publication
4) Essentials of Bio-chemistry by U. Satyanarayan, 1st Edtion, Books and Allied Publications

CLINICAL PSYCHOLOGY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-1210	CLINICAL PSYCHOLOGY	4	-	2	75	25	-	100	4
Clinical counseling orientation = 10 hours			1						

COURSE DESCRIPTION:

The aim of the course is to help the student to understand the interpersonal behavior and to enable them to apply the principles of psychology in the practice of physiotherapy.

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To understand the importance of psychology in personal and professional life.
- To know the biological and psychological basis of human behavior.
- To understand the cognitive and affective behavior.
- To develop an understanding of self and others.
- To identify psychological needs of patients.

SYLLABUS - CLINICAL PSYCHOLOGY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	INTRODUCTION ➢ Meaning of psychology. ➢ Development of psychology as a science. ➢ Scope, branches of psychology. ➢ Relationship with other subjects. ➢ Application of psychology in physiotherapy practice. ➢ Importance of psychology in interpersonal behavior. ➢ Significance of individual difference.	**7**	**12%**
2	BIOLOGICAL BASIS OF BEHAVIOR ➢ In-heritance of behavior. ➢ Basic genetic mechanism. ➢ Sensory process – Normal and Abnormal. ➢ Attention and distraction.	6	10.25%
3	COGNITION ➢ Perception ➢ Meaning of perception ➢ Perception of object, depth, distance and motion. ➢ Normal and abnormal perception.	**6**	**10.25%**
4	PERSONALITY ➢ Meaning of personality ➢ Theories of personality. ➢ Adjustment and maladjustment.	6	10.25%
5	MENTAL MECHANISMS AND MENTAL HEALTH ➢ Defense mechanism ➢ Frustration and conflict ➢ Mental hygiene	5	9%
6	MOTIVATION ➢ Meaning and nature of motivation. ➢ Biological and special motives. ➢ Formation of special concepts. ➢ Self – actualization, self – awareness.	6	10.25%
7	EMOTIONS ➢ Meaning of emotions. ➢ Theories of emotions. ➢ Development of emotions ➢ Emotions in sickness. ➢ Handling emotions in self and others.	**8**	**14%**
8	ATTITUDES ➢ Meaning of attitudes.	6	10%

	➢ Role of attitude in health and sickness.		
9	DEVELOPMENTAL PSYCHOLOGY a. Infancy, childhood, adolescence, adulthood and old age. b. Psychological needs of various age groups in health sickness.	8	14%
	TOTAL	**58**	

Textbooks & Reference Books: - CLINICAL PSYCHOLOGY

1) Introduction to psychology by – Morgan and King, 7th Edition, Tata MacGrawHill Edition
2) General psychology by – S.K.Mangal Jaypee publications.
3) Introduction to Psychology by Munns, 5th Edition, AITBS publication

SEMESTER - III

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2301	THERAPEUTIC EXERCISE - II	4	-	3	100	25	-	125	4
BPT-2302	THERAPEUTIC EXERCISE – II **(PRACTICAL)**	-	4	-	-	25	25	50	2
BPT-2303	KINESIOLOGY	4	-	3	100	25	-	125	4
BPT-2304	KINESIOLOGY **(PRACTICAL)**	-	4	-	-	25	25	50	2
BPT-2305	ELECTROTHERAPY – H.F.	4	-	3	100	25	-	125	4
BPT-2306	ELECTROTHERAPY – H.F. **(PRACTICAL)**	-	4	-	-	25	25	50	2
BPT-2307	PATHOLOGY	5	-	2	75	25	-	100	5
BPT-2308	MICROBIOLOGY	3	-	2	75	25	-	100	3
BPT-2309	PHARMACOLOGY	3	-	2	75	25	-	100	3
VISIT TO MICRO-BIOLOGY LABORATORY = 10 HOURS			1						
VISIT TO PHARMACOLOGY LABORATORY = 10 HOURS			1						
VISIT TO PATHOLOGY LABORATORY = 10 HOURS			1						
TOTAL		**38**			**525**	**225**	**75**	**825**	**29**

L/wk = Lectures per week.
T = Theory.
P/ T = Practical / Tutorials in hours.
D = Duration of Theory Paper for Examination in Hours.
T. P. = Theory Paper – marks.
T.W. = Term Work – marks.
P/V = Practical / Viva – voice.

THERAPEUTIC EXERCISE –II

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2301	THERAPEUTIC EXERCISE - II	4	-	3	100	25	-	125	4
BPT-2302	THERAPEUTIC EXERCISE – II **(PRACTICAL)**	-	4	-	-	25	25	50	2

COURSE DESCRIPTION:

- This course mainly focuses on mechanical principles of physiotherapeutic and learning skills and applying the principles of kinesiology and pathokinesiolgy. in the same aspect.

COURSE OBJECTIVES:

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

- To describe Kinesiological aspects of posture, gait and ambulation and various activities of daily living.
- To acquire skill for bronchial hygiene
- To acquire skill to manage a patient in group therapy and designing home exercise programme.

SYLLABUS - THERAPEUTIC EXERCISE - II

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Functional re-education of various activities of daily living and mat exercises	12	9
2.	Postural correction by strengthening of muscles, mobilization of trunk, relaxation, active correction, passive correction, postural awareness.	9	7
3.	Suspension Therapy	10	8
4.	Hydrotherapy	9	7
5.	Postural Drainage	20	16
6.	Traction	11	8
7.	Gait Training	13	10
8.	Balance Training	5	4
9.	Aerobics Training, Exercise physiology .	11	9
10.	Isometric, Isotonic, Isokinetic and Eccentric Exercises	9	7
11.	Educating Patients and Care-givers on Exercise Programme	5	4
12.	Designing Home Exercise Programme	9	7
13.	Group Exercises	5	4
	TOTAL	**128**	

Textbooks & Reference Books: - THERAPEUTIC EXERCISE - II

1. Measurement of Joint Motion – a guide to Goniometry by Cynthia Norkins, 2nd Edition; Jaypee Publication
2. Principles of Exercise Therapy by Dena Gaediner, 4th Edition, CBS Publication
3. Practical Exercise Therapy by Margarett Hollis, 4th Edition; Blackwell Sciences Publication
4. Therapeutic Exercise by Kisner & Colby, 4th Edition; Jaypee Publication
5. Therapeutic Exercise by Laxminarayana; 1st edition; Jaypee Publication
6. Therapeutic Exercise by Huber, Elsevier Publication

KINESIOLOGY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2303	KINESIOLOGY	4	-	3	100	25	-	125	4
BPT-2304	KINESIOLOGY **(PRACTICAL)**	-	4	-	-	25	25	50	2

COURSE DESCRIPTION:

This course mainly focuses on mechanical principles of physiotherapeutic and learning skills in the same aspect.

COURSE OBJECTIVES:

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

- To describe kinesiological aspects of various joints of body.
- Application of knowledge of of biomechnaics its analysis, rehab mechanics ,activity synthesis and movement analysis of each and every joint in relation to its segment and to whole body

SYLLABUS – KINESIOLOGY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Bio-mechanics of Shoulder complex, Elbow, Wrist and Hand Joints	40	32.25
2.	Bio-Mechanics of Thorax	14	11.25
3.	Bio-Mechanics of Vertebral Column	20	16.25
4.	Bio-mechanics of Pelvis Complex	10	8
5.	Bio-mechanics of Hip, Knee, Ankle and Foot Joints	40	32.25
	TOTAL	**124**	

Text books & Reference Books: - KINESIOLOGY

1. Joint structure and function- Cynthia norkins, 4th Edition, Jaypee Publication

2. Clinical kinesiology – Brunnstrom, 5th Edition, Jaypee Publication

3. Biomechanics - Willian Lissner.

4. Kinesiology by K Wells, 6th Edition; Saunders Publication

5. Clinical Kinesiology for Physiotherapy Assistant by Lippert, 3rd edition

6. Bio-mechanics of Musculoskeletal System by Nigg, 2nd Edition, John Wiley Publication

8. Basic Bio-mechanics of musculoskeletal system by Frenkle, 3rd edition, Lippincort Williams & Wilkins

ELECTROTHERAPY - H.F. (High Frequency)

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2305	ELECTROTHERAPY – H.F.	4	-	3	100	25	-	125	4
BPT-2306	ELECTROTHERAPY – H.F. **(PRACTICAL)**	-	4	-	-	25	25	50	2

COURSE DESCRIPTION:

At the end of the course the students will learn the physiological principles, therapeutic uses, indications, contraindications of therapeutic electrical agents / High Frequency currents.

COURSE OBJECTIVES:

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

- List the indications, contraindications of various types of electrical agents / High Frequency currents.
- Demonstrate the different electrotherapeutic technique and be able to describe their effects and uses.

SYLLABUS - ELECTROTHERAPY – H.F.

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	**Electromagnetic Waves:** Electromagnetic Spectrum, Physical properties of electromagnetic radiations – reflection, refraction, absorption, penetration, grothus law, cosine law, inverse square law and its application	11	8.5
2.	**Infra Red Rays:** Production of infra red rays, luminous and non luminous generators, penetration, technique of application, physiological effects and therapeutics uses of infra red rays, duration and frequency of treatment, indications and contra – indications, dangers and precautions.	15	11.75
3.	**Ultra Violet Rays:** Production of U.V.R. mercury vapour lamps (Kromayer Lamp), Fluorescent tubes for U.V.R. production (Alpinesum lamp) Theraktin tunnel and PUVA apparatus, physiological effects of U.V.R. (chemical reactions with skin) Structure of skin, penetration and absorption of U.V.R., Erythema, different degrees of erythema, test dose, technique to find out the test dose and its importance. Technique of application of U.V.R. in local and general irradiation, specific conditions like psoriasis, acne, alopecia, indolent wounds, Technique of applications using accessories. Filters, Sensitizers. Dangers and Contra – indications	12	9.5
4.	**Cold Therapy:** Physiological effects and therapeutic uses of ice therapy Techniques of application, contra – indication of ice treatment.	12	9.5
5.	**High Frequency Current:** **Short Wave Diathermy:** Introduction, Physiological effects and Therapeutic effects of S.W.D. Methods of application (capacitor field method and cable method etc) Technique of Treatment, indications, contra – indications and dangers.	21	16.50
6.	**Pulsed S.W.D.:** Definition, Characteristics, Mechanism of work, Physiological effects and therapeutic effects, Indications, Technique of application, Principles of treatment and contra-indications.	6	4.5

7.	**Microwave Diathermy:** Introduction and characteristics, Physiological effects, Therapeutic effects, techniques of application and principles of treatment, Danger of microwave diathermy.	8	6.25
8.	**LASERS:** Introduction and characteristics, effects on tissue, Therapeutic effects, Principles of application, Indications, Contra – indications and dangers.	11	8.5
9.	**Ultrasonic Therapy:** Introduction and characteristics, U.S. Therapy parameters, Coupling Media, Therapeutic Effects, Indications, contra – indications and dangers, Testing of apparatus, Technique of application and dosage.	21	16.50
10.	**Paraffin Wax Bath:** Structure of the bath, composition of wax and mineral oils, physiological effects and therapeutic uses of wax bath Other Heating Modalities:	11	8.5
	TOTAL	**128**	

Text books & References: - ELECTROTHERAPY – H.F.

1. Practical in Electrotherapy – Joseph Kahn Churchill livingstone.

2. Electrotherapy for Physiotherapy – Virendra Khokhar bharti and prakashan publications. 2nd edition.

3..Clayton's Electrotherapy (theory and practice) – Clayton's Aibs publications.

4. Electrotherapy Explained – John Low and Reed 3rd edition B & H.

5. Basis of Electrotherapy- Subhash Khatri 1st edition. Jaypee brothers.

6. Textbook of electrotherapy Jaypee publications.

PATHOLOGY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2307	PATHOLOGY	5	-	2	75	25	-	100	5
VISIT TO PATHOLOGY LABORATORY = 10 HOURS			1						

COURSE DESCRIPTION:

This subject includes the theoretical aspects in depth, the understanding of pathology of muscle, bone, joints, cardiopulmonary and central nervous system and inflammation, repair and healing. In addition it also includes knowledge in brief of the pathology of other systems of human body.

COURSE OBJECTIVES:

At the end of the course the students will be able;

- To describe the pathology of disease and consequence of injury to the connective tissue in detail.
- To describe in brief regarding the pathology of other systems.

SYLLABUS – PATHOLOGY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Aims and objectives of study of pathology, meaning of the terms, etiology, pathogenesis, lesions and disease	6	7.5
2.	Concepts of Disease, various causes of disease an approach to laboratory study and diagnosis of process of disease classification of lesions.	4	5
3.	Brief outlines of sick cells degeneration, necrosis, gangrene etc.	4	5
4.	Inflammation: Definition, vascular and cellular phenomenon tissue changes, exudates and pus formation difference between acute and chronic inflammation.	6	7.5
5.	Repair (Bone, skin. Nerves and muscles etc.)	5	6.25
6.	Vascular disturbances with emphasis on ischaemia, thrombosis embolism, infarction, Haemorrhage, shock and oedema.	4	5
7.	Brief about : Anemia, Leukemia Haemorrhagic disorders.	4	5
8.	General approach to bacterial and viral infection Emphasis on tuberculosis, syphilis, leprosy; fungal infections and HIV. General approach to immunity and allergy.	6	7.5
9.	Clear concepts about Tumors - definition, classification, Etiology and spread of tumors, Benign versus malignant tumours.	5	6.25
10.	Diseases of a) Central Nervous system – meningitis and Encephalitis brief outline of C.N.S. Tumors and peripheral nerve lesions and Degeneration of CNS. b) Bones and joints – Osteomyelitis, Septic Arthritis, Gout, Rheumatic Arthritis and bone tumors. c) Muscles – Poliomyelitis, myopathies, Volkman's ischemic contracture, Fibromyalgia. d) Skin – Scleroderma, Psoriasis, Autoimmune disorders.	12	15
11.	In Brief about: a) Respiratory diseases – Pneumonia,	8	10

	Bronchitis, Asthma, Emphysema, Lung cancers and occupational lung diseases. b) C.V.S. Rheumatic heart disease, myocardial infection, Atherosclerosis, congenital heart diseases. c) Alimentary system – Peptic ulcer, carcinoma of stomach, ulcerative lesions of intestine d) Liver – Hepatitis, Cirrhosis e) Pancreas–Pancreatitis, carcinoma of pancreas. Diabetes		
12.	General approach to immunity and allergy	2	2.5
13.	Deficiency diseases, Pigments and pigmentation	2	2.5
14.	Medical Genetics	2	2.5
15.	13. In brief about a) Urinary system – Nephrotic syndrome, Nephritis Glomerulonephritis b) Prostate – Prostatitis, BPH Carcinoma of Prostate c) Endocrine – Thyroid, tumors d) Salivary gland – Salivary gland tumors	2	2.5
16.	**Practical** (integrated in theory hours) Demonstrations of slides of muscle diseases, biopsy of nerve and muscle and cardiac muscle.	5	6.25
	TOTAL	**77**	

Text books & References: - PATHOLOGY

1. Pathology by Harsh Mohan. 5th edition. Jaypee.

2 Basic pathology by Kumar. 7th edition. Elsevier.

3. Handbook of clinical pathology by Chakrovorty 4th edition . Academic publications.

4. Pathology of Disease by Naik. 1st edition. Jaypee publications.

MICROBIOLOGY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2308	MICROBIOLOGY	3	-	2	75	25	-	100	3
VISIT TO MICROBIOLOGY LABORATORY = 10 HOURS			1						

COURSE DESCRIPTION:

This course follows the basics of microbiology of common diseases.

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To demonstrate an understanding of the microbiology of common diseases that therapist would encounter in their daily practice.
- To understand how to protect themselves and the patients from Nosocomial infections during their interactions.

SYLLABUS – MICROBIOLOGY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	General Microbiology a) Introduction b) Classification of micro-organisms c) Morphology of Bacteria d) Sterilization and disinfection e) Immunity – Antigen and Antibodies, General overview of antigen – antibody reaction and practical application, natural & acquired immunity.	20	41.66
2.	a) Classification Morphology and physiology of Micro-organisms. Bacteria, Viruses, HIV Protozoa, Spirochetes, Helminthes and Fungi Pathogenesis and Laboratory Diagnosis. b) Disinfection and Sterilization Hospital infection, isolation & sterile techniques .Infection control procedures c) Immunology: Antigen Antibody reaction, Hypersensitivity reaction and auto – immune diseases. d) Immune – prophylaxis e) Hepatitis	26	54.16
	TOTAL	**46**	

REFERENCES AND TEXTBOOKS: - MICROBIOLOGY

1. Textbook of Microbiology by Anantnarayan . 4th edition. Orient Longman
2. Medical Microbiology by Irving. 1st edition. Taylor and Francis.
3. Text Book of Microbiology by Chakrovorthy. 2nd edition. New central books.
4. Textbook of Microbiology by Arora. 2nd edition. CBS publicatiohns.
5. Short text book of Medical Microbiology by – Satish Gupta. Jaypee publications.

PHARMACOLOGY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2309	PHARMACOLOGY	3	-	2	75	25	-	100	3
VISIT TO PHARMACOLOGY LABORATORY = 10 HOURS			1						

COURSE DESCRIPTION:

This subject includes the pharmacological treatment and effects of drugs on various pathological disorders.

COURSE OBJECTIVES:

The student will be able to understand the drug managements for the common diseases that therapists would encounter in their daily practice.

SYLLABUS – PHARMACOLOGY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	General action of drugs.	1	2.08
2.	Routes of drug administration.	2	4.16
3.	Drug Receptors.	1	2.08
4.	Mechanism of drug action	2	4.16
5.	Factor modifying drug effects.	2	4.16
6.	Drugs Toxicity.	3	6.25
7.	Drugs acting on C.N.S.: General Anaesthetics, Alcohols; Sedative and Hypnotics; Anti- convulsive; Narcotics Analgesics Non – Heretic Analgesics and Antipyretics, C.N.S. Stimulant: Psychotherapeutics.	8	16.66
8.	Drug acting on peripheral nervous system Stimulating and inhibiting Cholinergic Drugs.	2	4.16
9.	Drugs acting on muscles – muscle Relaxants, muscle stimulants.	3	6.25
10.	Drug Therapy in Parkinsonism.	1	2.08
11.	Drug acting on C.V.S. Pharmacotherapy in Hypertension, Vasodilator Drug; Pharmacotherapy of cardiac Arrhythmia's Angina pectoris; Shock.	2	4.16
12.	Drug acting on Respiratory system – Bronchodilators and Mucolytic agents	2	4.16
13.	Chemotherapeutic agents.	3	6.25
14.	Thyroid and Antithyroid drugs calcium: phosphorus, magnesium, Vitamins and iron supplements.	3	6.25
15.	Insulin and Oral Antidiabetic drug.	4	8.33
16.	Chemotherapy in malignancy	3	6.25
17.	Locally acting drug: Anodynes, Local anaesthetic drug, Counter irritants, Soothing agents.	4	8.33
18.	Tropical drugs – Tropical analgesics.	4	8.33
	TOTAL	**50**	

REFERENCES AND TEXTBOOKS: - PHARMACOLOGY

1. Pharmacology & Pharmaco-Therapeutics by Satoskar Bhandar 19th edition. Popular .
2. Essentials of Medical Pharmacology- Tripathi 4TH Edition . Jaypee publications.
3. Pharmacology for Physiotherapists : Barbara Elsevier publications.

SEMESTER - IV

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2401	ADVANCED EXERCISE THERAPEUTICS	3	-	3	100	25	-	125	3
BPT-2402	ADVANCED EXERCISE THERAPEUTICS **(PRACTICAL)**	-	4	-	-	25	25	50	2
BPT-2403	ELECTROTHERAPY – L.F. & M.F.	3	-	3	100	25	-	125	3
BPT-2404	ELECTROTHERAPY – L.F. & M.F. **(PRACTICAL)**	-	4	-	-	25	25	50	2
BPT-2405	GENERAL MEDICINE	4	-	3	75	25	-	100	4
BPT-2406	CLINICAL NEUROLOGY	5	-	3	100	25	-	125	5
BPT-2407	CLINICAL NEUROLOGY **(PRACTICAL)**	-	2	-	-	25	25	50	1
BPT-2408	OBSTETRICS & GYNAECOLOGY AND PAEDIATRICS	6	-	2	75	25	-	100	6
BPT-2409	PSYCHIATRY	4	-	2	75	25	-	100	4
Hospital Orientation (to which institute is attached) = 15 hours			1						
TOTAL		**36**			**525**	**225**	**75**	**825**	**30**

L/wk = Lectures per week.
T = Theory.
P/ T = Practical / Tutorials in hours.
D = Duration of Theory Paper for Examination in Hours.
T. P. = Theory Paper – marks.
T.W. = Term Work – marks.
P/V = Practical / Viva – voice.

ADVANCED EXERCISE THERAPEUTICS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2401	ADVANCED EXERCISE THERAPEUTICS	3	-	3	100	25	-	125	3
BPT-2402	ADVANCED EXERCISE THERAPEUTICS **(PRACTICAL)**	-	4	-	-	25	25	50	2

COURSE DESCRIPTION:

This course mainly focuses on mechanical principles of physiotherapeutic and learning skills in the same aspect.

COURSE OBJECTIVES:

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

- To gain basic concepts of manual therapy.
- To gain knowledge ,how to apply principles of exercise physiology and exercise pathophysiology.
- To gain knowledge for exercise planning and prescription.
- To gain knowledge of various exercise equipments

SYLLABUS - ADVANCED EXERCISE THERAPEUTICS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Introduction to Various schools of Manipulations: Maitland, Kaltenborn, Cyriax, Mulligan, McKenzie	28	23
2.	Brief Introduction to Vestibular Exercises, PNF, Post Isometric Relaxation, Positional Release Techniques, Muscle Energy Techniques, Neural Mobilization, Plyometrics, Yoga therapy, Myofascial Release	48	40
3.	Vestibular Ball, Continuous Passive Motion Machine, Treadmill, Bicycle Ergometry, Dynamometer, wheel chair management skills,compression therapaies.	11	9
4.	Isokinetic Devices	6	5
5.	Exercises for Obese	6	5
6.	Inhibitory and Facilitatory Techniques	7	6
7.	Principles of Exercise Planning and Prescription	8	7
8.	Energy Conservation Techniques	6	5
	TOTAL	**120**	

Textbooks & Reference Books: - ADVANCED EXERCISE THERAPEUTICS

1. Therapeutic Exercise by Laxminarayana; 1st edition; Jaypee Publication
2. Measurement of Joint Motion – a guide to Goniometry by Cynthia Norkins, 2nd Edition; Jaypee Publication
3. Principles of Exercise Therapy by Dena Gaediner, 4th Edition, CBS Publication
4. Practical Exercise Therapy by Margarett Hollis, 4th Edition; Blackwell Sciences Publication
5. Therapeutic Exercise by Kisner & Colby, 4th Edition; Jaypee Publication
6. Therapeutic Exercise by Huber, Elsevier Publication

ELECTROTHERAPY -L.F. & M.F. (Low Frequency & Medium Frequency)

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2403	ELECTROTHERAPY – L.F. & M.F.	3	-	3	100	25	-	125	3
BPT-2404	ELECTROTHERAPY – L.F. & M.F. **(PRACTICAL)**	-	4	-	-	25	25	50	2

COURSE DESCRIPTION:

At the end of the course the students will learn the physiological principles, therapeutic uses, indications, contraindications of therapeutic electrical agents.

COURSE OBJECTIVES:

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

- List the indications, contraindications of various types of electrical agents.
- Demonstrate the different electrotherapeutic technique and be able to describe their effects and uses.
- To gain knowledge of modulation of pain at different level.

SYLLABUS - ELECTROTHERAPY – (L.F. & M.F.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	**Low Frequency Currents:** **Nerve Muscle Physiology:** Resting Membrane Potential, Action Potential, Propagation of Action Potential, motor unit, synapse and synaptic transmission of impulses. Effect of negative and positive electrodes on nerve & accommodation	20	17.85
2.	**Faradic Current:** Definition, Characteristics and modified faradic current, sinusoidal current, parameters of faradic stimulation, Physiological and therapeutic effects of faradic stimulation, Indications, contra – indications and precautions, Techniques of stimulation, Group muscle stimulation, faradic foot bath, faradism under pressure and pelvic floor muscle re-education	20	17.85
3.	**Galvanic Current:** Introduction & Characteristics, parameters of stimulation, physiological and therapeutic effects of stimulation, precautions.	15	13.39
4.	**Electro Diagnosis:** F.G. test, S.D. Curve, Chronaxie & Rheobase, Nerve Conduction Velocity, Electromyography (outline only)	15	13.39
5.	**Ionotophoresis:** Definition, Principles of Ionotophoresis, physiological and therapeutic effects, indications, techniques of Ionotophoresis, principles of treatment, contra-indication and dangers.	5	4.45
6.	**TENS:** Definition, pain gate theory, theories of pain modulation, principle of TENS treatment, Techniques of treatment, indications, and contra-indications.	5	4.45
7.	**Medium Frequency Current:** **Interferential Current:** Definition, Characteristics, physiological & therapeutic effects of I.F.current, indications, techniques of application, contra – indications and precautions..	15	13.39
8.	**Bio-Feedback:** Introduction, Principles of Bio-feed back, Therapeutic effects of bio-feedback. Indications and contra-indications, Techniques of treatment.	5	4.45
	TOTAL	**100**	

Text books and references: - ELECTROTHERAPY – (L.F. & M.F.)

1. Practical in Electrotherapy – Joseph Kahn Churchill livingstone.

2. Electrotherapy for Physiotherapy – Virendra Khokhar Bharti and prakashan publications. 2nd edition.

3..Clayton's Electrotherapy (Theory and Practice) – Clayton's Aibs publications.

4. Electrotherapy Explained – John Low and Reed 3rd edition B & H.

5. Basis of Electrotherapy- Subhash Khatri 1st edition. Jaypee brothers.

6. Textbook of electrotherapy Jaypee publications.

GENERAL MEDICINE

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2405	GENERAL MEDICINE	4	-	3	75	25	-	100	4

COURSE DESCRIPTION:

This course follows basic courses on Anatomy, Physiology and Pathology. It covers relevant aspects of general medicine with diseases of various systems of the human body like cardio vascular systems respiratory system, endocrine system etc. and areas of pediatrics, geriatrics dermatology etc. Practical mainly includes bedside demonstration in hospital ward and in Medical OPD , including investigations like radiological evidences,ECG, biochemical , microbiological and pathological evidences for all of the following diseases.

COURSE OBJECTIVES:

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

- To gain knowledge regarding assessment of various general medical conditions, with emphasis on 'Cardiorespiratory' assessment & various diagnostic procedures used.
- To gain knowledge regarding etiology, pathology, clinical features , interpretation of all diagnostic evidences & treatment of various diseases & their resultant functional disabilities.
- To understand the limitations imposed by the diseases on any therapy that may be prescribed.
- To understand about the goals of pharmacological & surgical therapy imparted in the diseases in which physical or occupational therapy will be important component of overall treatment.

SYLLABUS - GENERAL MEDICINE

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Disease of Cardio Vascular system: Ischaemic Heart Disease. Hypertensive Heart Disease, Rheumatic heart disease. Congenital heart disease, thyrotoxic heart disease, syphilitic heart disease, vascular disease, thrombosis embolisms.	13	18.75
2.	Disease of endocrine system: Diabetes mellitus definition, diagnosis, classification and complication brief description of management of diabetes mellitus. Outline of hypothyroidism, goiter, Hyperthyroidism .	8	9.37
3.	Rheumatic Disease – Rheumatic fever, Rheumatoid arthritis disease, collagen disease. Idiopathogenesis, clinical features, complications, diagnosis and brief outline of the management.	14	18.74
4.	Diseases of Respiratory system Disease of lungs; Bronchitis, Bronchial Asthma, Bronchiectasis, pulmonary Embolism, pulmonary Tuberculosis, lung Abscess, Emphysema, pneumonia. Bronchopneumonia, Flubbed lung. Resp. failure pneumothorax, RDS, hydro Pneumothorax. Diseases of pleura: pleurisy, Empyema	13	18.74
5.	Deficiency Diseases : Rickets, Protein deficiency	4	3.1
6.	Obesity-etiology and management	4	3.1
7.	Common Geriatric Disorders and their management	4	3.1
8.	AIDS &Leprosy	4	3.1
9.	**CLINICALS** Student has to undergo outdoor and indoor clinical teaching in General Medicine cases. They have to prepare a clinical record to be submitted at the time of University practical Examination. The student should take minimum five cases of General Medicine conditions and obtain a signature of a teacher time to time.		
	TOTAL	**64**	

Text books and references:- GENERAL MEDICINE

1) Principles and practice of medicine by – Davidson, 20th Edition, Churchill Livingston
2) Practical medicine by – P J Mehta, 16th Edition
3) Prep Manual of Medicine by – Sandip Chatwal, 1st Edition, Jaypee Publications
4) API textbook of medicine by – Siddharth M. Shah, 7th Edition
5) Manual of Practical Medicine by – Algappan, 2nd Edition.

CLINICAL NEUROLOGY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2406	CLINICAL NEUROLOGY	5	-	3	100	25	-	125	5
BPT-2407	CLINICAL NEUROLOGY **(PRACTICAL)**	-	2	-	-	25	25	50	1

COURSE DESCRIPTION:

This course follows basic courses on Anatomy, Physiology and Pathology. It covers relevant aspects of general medicine with diseases of Nervous system. Practical mainly includes bedside demonstration in hospital ward and in Neurology OPD.

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To gain knowledge regarding evaluation and assessment of various neurological conditions and diagnostic procedures like C.T. scan, MRI, Radiography, Electrodiagnostic studies, supporting pathological ,micobiological and biochemical tests.related to all of the following diseases. etc.
- To gain knowledge regarding etiology, pathology, clinical features and management of various neurological conditions, their differential diagnosis and functional disabilities caused by them.
- To understand the goals of pharmacological and surgical interventions used in various neurological conditions in which physiotherapy will be an important component of overall treatment.

SYLLABUS - CLINICAL NEUROLOGY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Circulation of the brain spinal cord- Cerebro-vascular-accidents	17	15
2.	Pyramidal & Extra Pyramidal lesions	12	11
3.	Disorders of Nerve roots & Peripheral nerves	11	10
4.	Disorders & Diseases of muscle	13	12
5.	Disorders of the spinal cord & cauda equine	9	8
6.	Demyelinating diseases	6	5
7.	Infections of the nervous system	3	2.5
8.	Epilepsy	1	1
9.	Tetanus management	1	1
10.	Disorders of higher cortical function	3	2.5
11.	Hereditary & degenerative disorders	7	6.25
12.	Disorders of cerebellar function	5	4.5
13.	Neurological effects of aging- Alziehmer's Disease	5	4.5
14.	Space occupying lesions	3	2.5
15.	Spinal surgeries	4	3.75
16.	Traumatic brain injuries, sequelae of head injury and spinal cord injury	8	7
17.	Surgical management of brain diseases and cerebrovascular accidents	2	1.75
18.	Neurogenic bladder	2	1.75
	TOTAL	**112**	

REFERENCES AND TEXTBOOKS: - CLINICAL NEUROLOGY

1. Neurological examination by Fuller . 3rd edition. Churchill Livingstone.
2. Clinical neurology by David. 5th edition McGraw hill.
3. Principles and practice of medicine by Davidson.20th edition. Churchill livingstone.
4. Neurological examination by Bickerstaff's. 6th edition. Blackwell science.
5. Clinical Neuro-physiology by A.K.Misra, 1st Edition, Elsevier

OBSTETRICS & GYNAECOLOGY AND PAEDIATRICS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2408	OBSTETRICS & GYNAECOLOGY AND PAEDIATRICS	6	-	2	75	25	-	100	6

COURSE DESCRIPTION:

This course follows the basic mechanics and physiological function due to pregnancy and normal neurodevelopment of child with specific reference to locomotion, and medical and surgical condition related to obstetrics, gynecological and pediatric.

COURSE OBJECTIVES:

At the end of the course the student will be able

- To describe altered mechanics and physiological function due to pregnancy, labor and parity in female.
- To acquire comprehensive knowledge on normal human growth development and life span
- To acquire the knowledge of normal neurodevelopment with specific reference to locomotion.
- To acquire knowledge about various gynaecological / obstetrical / pediatric conditions.
- To gain knowledge regarding etiology, pathology, clinical features , interpretation of all diagnostic evidences & treatment of various diseases & their resultant functional disabilities

SYLLABUS - A. OBSTETRICS AND GYNECOLOGY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Normal development & maturation	4	4.16
2.	Puberty & physiology of pregnancy	4	4.16
3.	Applied anatomy of pelvic floor, abdominal wall & pelvic organs	3	3.12
4.	Displacement of uterus including prolapsed	1	1.04
5.	Pelvic inflammatory diseases	4	4.16
6.	Common gynecological & obstetric surgeries including post operative care	4	4.16
7.	Menopause & climacteric	3	3.12
8.	Physiology of menstruation, menstrual disorders & dysmenorrhoea	3	3.12
9.	Ante natal care, intra partum & post partum care	3	3.12
10.	Contraception	1	1.04
11.	Pelvic floor dysfunction	3	3.12
12.	Lactation	1	1.04
	TOTAL OF – A	**34**	

REFERENCES AND TEXTBOOKS: - A. OBSTETRICS AND GYNECOLOGY

1. Obstetrics & gynecology by - Poldan
2. Shaw's textbook of gynecology. 12th edition. VG Padubidri, Daftary. Elsevier publications.
3. Seffcoat's principle of gynecology
4. Gynaecology- VG Padzbidri , Ela Anand – Elsevier publications.
5. Obstetrics & Gynaecology- Brian Magowan 3rd edition. Elsevier publications.
6. MCQ's in OBG. Joan Pitkin, Chris Jenner. WB Saunders publications.
7. Women's health. Sapsfond, Saxton, Markwell. WB Saunders.
8. DC Dutta textbook of obstetrics. 5th edition. New central publications.
9. Pregnancy at risk- Current concepts.4th edition. Usha Krishna, DK Tank, Daftary.Jaypee publications.

SYLLABUS - B. PEDIATRICS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Neurodevelopment, integration of reflexes & milestones	4	4.16
2	CNS involvement in children – tubercular meningitis & other infective conditions	2	2.08
3	Birth trauma/ intrauterine & early infancy conditions Cerebral palsy – types, methods of evaluation – management	4	4.16
4	Mental retardation – etiological factors; types, symptomatology & treatment	1	1.04
5	Childhood obesity & its complications	1	1.04
6	Hereditary neuromuscular disorders – DOWN'S SYNDROME	2	2.08
7	Congenital neuromuscular disorders including spinal dysraphism	5	5.20
8	Peripheral neuromuscular disorders including polio, spinal muscular atrophies, muscular dystrophies, myopathy	9	9.38
9	Malnutrition & vitamin deficiency associated systemic conditions – rickets, skin conditions; deficiency neuromuscular conditions	5	5.20
10	Respiratory conditions; asthma, TB, Bronchiectasis, neuromuscular conditions	6	6.25
11	Acute pediatric respiratory distress syndrome – intensive pediatric care	1	1.04
12	Intensive neonatological & pediatric surgical care	7	7.29
13	Congenital cardiovascular problems – management	7	7.29
14	Cardio - respiratory rehabilitation in children	7	7.29
15	Epileptic disorders	1	1.04
	TOTAL OF – B	**62**	
	TOTAL OF A & B	**96**	

REFERENCES AND TEXTBOOKS: - B. PEDIATRICS

1. Essential pediatrics 5th edition – O.P. Ghai Mehta publications.
2. A hand book of pediatrics. Complied by Avinash G. Desai.
3. Achar's textbook of pediatrics- 3rd edition Orient Longman publishers. J.Yiskidinath AB Desai.
4. Physiotherapy and the growing child. Vronne , R Burns, Julie MacDonald-saunders publications.
5. A Handbook of Pediatrics- Dr AG Desai, Dr Usha Desai.

PSYCHIATRY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-2409	PSYCHIATRY	4	-	2	75	25	-	100	4

COURSE DESCRIPTION:

The course provides a basic understanding of the normal and abnormal human behavior and the principles of psychiatry and also helps the student to manage patients with behavioral changes and psychiatric disease condition in the hospital and the community.

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To know the historical development and trends of psychiatry.
- To understand the concepts of normal and abnormal human behavior.
- To understand the elementary theories and psychodynamics of abnormal behavior.
- To understand the course, symptomatology, investigation, complications, management with various therapeutic modalities of common psychiatric conditions.
- To develop ability to render comprehensive care to patients with various psychiatric conditions and deviant behavior.

SYLLABUS – PSYCHIATRY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	INTRODUCTION History and present trends of psychiatry. Scope and role of mental health care. Concepts and views on normal, abnormal human behavior.	11	17
2.	PSYCHODYNAMICS OF ABNORMAL HUMAN BEHAVIOUR Orientation to 4 basic theories relevant to behavior formation (Sigmund Freud, Eric Erickson, Jean Piaget, Mcklein) Causes of abnormal behavior. Psychiatric disorders and their classification	7	11
3.	Psycho-neurotic disorders Anxiety neurosis, phobic neurosis, hysterical neurosis, obsessive compulsive disorders, hyperchondriac neurosis, post traumatic disorder	5	8
4.	Psychotic disorders Organic psychosis Functional psychosis – Schizoprenia Major affective disorders – depression, mania, maniac depressive psychosis	6	9
5.	Psycho physiological disorders Concepts of psychosomatic conditions and anorexia nervosa, bulimia, obesity	5	8
6.	Personality disorders Paranoid personality disorders Antisocial personality disorders Boderline personality disorders	5	8
7.	Substance abuse disorders Alcoholic abuse, dependence Drug abuse, dependence	4	6
8.	Psychiatric emergencies Suicidal behavior Aggressive behavior Hallucinations, alcohol withdrawal	5	8
9.	CHILD PSYCHOLOGY Habit disorders Childhood schizophrenia Autism Bedwetting, encopresis, hyperkinetic disorder. Stammering / Stuttering	7	11

	Juvenile delinquency. Psychiatric problems in mental retardation Child guidance clinic		
10.	COMMUNITY MENTAL HEALTH ➢ Identification of psychological crisis situation and intervention ➢ Promotion of mental health. ➢ Prevention of potential problems of mental health in community. ➢ Rehabilitation of mentally ill in the community. ➢ Approaches to community mental health in India. ➢ Psychological care of geriatric patients	9	14
	TOTAL	**64**	

REFERENCES AND TEXTBOOKS: - PSYCHIATRY

1) Clinical Psychiatry, mayol – gloss; 3rd Edition, AITBS

2) Psychiatry, James Scully, 4th Edition, Lippinkot Williams & Wilkins

3) A short textbook of psychiatry, Ahuja; 5th Edition – Jaypee

4) Handbook of Psychiatry, Dr. L.P. Shah, 3rd Edition, Uni U.C.B. Pvt. Ltd.

SEMESTER - V

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3501	PHYSICAL & FUNCTIONAL DIAGNOSIS	6	-	3	100	25	-	125	6
BPT-3502	PHYSICAL & FUNCTIONAL DIAGNOSIS **(PRACTICAL)**	-	9	-	-	25	50	75	4
BPT-3503	GENERAL SURGERY	5	-	3	75	25	-	100	5
BPT-3504	CLINICAL ORTHOPAEDICS	5	-	3	100	25	-	125	5
BPT-3505	CLINICAL ORTHOPAEDICS **(PRACTICAL)**	-	3	-	-	25	25	50	1
BPT-3506	COMMUNITY MEDICINE	4	-	2	75	25	-	100	4
BPT-3507	ENVIRONMENTAL STUDIES, EVOLUTION AND GENETICS	4	-	2	75	25	-	100	4
BPT-3508	ALTERNATIVE MEDICINE	3	-	2	75	25	-	100	3
Supervised clinical training in OPD = 100 hours			6						
VISIT TO YOGA CENTRE, AYURVEDIC COLLEGE AND HOSPITAL, NATURE CURE CENTRE, ACUPRESSURE AND ACUPUNCTURE CLINICS			6						
TOTAL		**51**			**500**	**200**	**75**	**775**	**32**

L/wk = Lectures per week.
T = Theory.
P/ T = Practical / Tutorials in hours.
D = Duration of Theory Paper for Examination in Hours.
T. P. = Theory Paper – marks.
T.W. = Term Work – marks.
P/V = Practical / Viva – voice.

PHYSICAL & FUNCTIONAL DIAGNOSIS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3501	PHYSICAL & FUNCTIONAL DIAGNOSIS	6	-	3	100	25	-	125	6
BPT-3502	PHYSICAL & FUNCTIONAL DIAGNOSIS **(PRACTICAL)**	-	9	-	-	25	50	75	4

COURSE DESCRIPTION:

This subject is aimed at developing skills (learned earlier on models) on patients to identify movement dysfunction of the body as a whole and its affect on quality of life, with special emphasis to objective assessment and documentation to inculcate evidence based practice. This subject also aims at continuing skill development of basic movement sciences.

COURSE OBJECTIVES:

At the end of the course the student shall be able to

- Evaluate and objectively assess all the three components (as per ICF) of movement dysfunction and arrive at a functional diagnosis, with biomechanically and physiologically based reasoning.
- Describe the normal human development /maturity and aging process.
- Exercise Tolerance test
- To study therapeutic current for electrodiagnosis.
- To acquire knowledge of assessment of Musculoskeletal, Neurological, Cardiovascular and Pulmonary conditions.

SYLLABUS - PHYSICAL & FUNCTIONAL DIAGNOSIS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Assessment of Pain, ROM, Limb Length Discrepancy, End-Feel, Posture, Neural Tension, Balance, Co-ordination, Gait, Tone, ADL and QOL(Quality of Life), Fatigue	27	11.63
2.	Disability Evaluation, Introduction to ICIDH – 2 and ICF	14	6.03
3.	Chest Auscultation, Chest Expansion, PEFR, PFT, Exercise Tolerance Test	14	6.03
4.	Evaluation of Autonomic Nervous System Dysfunction	9	3.9
5.	Anthropometric Measurements (Skin Fold Thickness and Girth Measurements) and integumentary system evaluation.	16	6.9
6.	Developmental Milestones, Neonatal Reflexes, Developmental Screening	26	11.20
7.	Neuropsychological Tests	7	3
8.	Electro-Diagnosis: Therapeutic Current as Electro-diagnosis, Introduction to EMG, NCV, EP, Normal EMG and NCV, changes in EMG – NCV in Myogenic and Neurogenic Lesions	27	11.63
9.	Important Special Tests for Musculoskeletal, Neurological and Cardio-Pulmonary Conditions	31	13.38
10.	Detailed Assessment of Musculoskeletal (Including Sports Injuries), Neurological (including Pediatric conditions) Cardiovascular and Pulmonary Conditions and integumentary system assessment	61	26.3
	TOTAL	**232**	

Textbooks & Reference Books: - PHYSICAL & FUNCTIONAL DIAGNOSIS

1Clinical orthopedic assessment by David Magee. 4th edition. Jaypee publications.

2. Clinical Neurophysiology for by U k Misra. 1st edition. Elsevier publications.

3. Physical Rehabilitation. O' Sullivan . 4th edition.

4. Cardiopulmonary physical therapy by Donna .4th edition. Mosby.

GENERAL SURGERY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3503	GENERAL SURGERY	5	-	3	75	25	-	100	5

COURSE DESCRIPTION:

This course follows basic courses on Anatomy, Physiology and Pathology. It covers relevant aspects of general surgery with diseases of various systems of the human body.

COURSE OBJECTIVES:

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

- To gain knowledge regarding various surgeries; with emphasis on cardiothoracic surgeries, events accompanying surgeries, anesthesia, blood transfusion etc.
- To gain knowledge regarding the indication of various surgeries, their outcome, post operative complications and treatment.
- To gain knowledge regarding management of sequelae of various conditions like head injury and spinal cord injury; management of complication of following immobilization and bed rest.
- To gain knowledge regarding etiology, pathology, clinical features , interpretation of all diagnostic evidences & treatment of various diseases & their resultant functional disabilities

SYLLABUS - GENERAL SURGERY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage (%)
1.	Descriptions of events frequently accompanying Surgery in general anesthesia. Blood transfusion and Physiological response of the body to Surgery	5	6.25
2.	Common pre and post-operative complications: clinical picture treatment and prevention	5	6.25
3.	Wounds, sinuses and Ulcers: Incisions healing and Principles of treatment.	2	2.5
4.	Abdominal Surgery (major) a) Incisions in abdominal Surgery b) Operations on the Stomach c) Operations on the intestine. d) Appendectomy e) Operation on the abdominal wall Complications in abdominal Surgery and its management	5	6.25
5.	Thoracic Surgery Outline indications, contraindications, site of incision, pre and post operative management and complications of the following: Lobectomy; pneumonectomy, segmentectomy, pleuro-pneumonectomy, Thoracoplasty, Decortication, Tracheotomy. Management of Endotracheal tubes, tracheal suction. Weaning the patient from ventilator. Extubation and post Extubation care	10	12.50
6.	Cardiac Surgery Outline indications, contraindications, site of incisions, pre and post operative management and complications of the following. a) Valvotomy and valve replacement b) Open Heart Surgery Cardiac by pass Surgery c) Surgery on pericardium d) Operation in congenital disorders e) Cardiac pacemaker f) Coronary Angioplasty	10	12.50
7.	Brief about prostatectomy nephrectomy	2	2.5
8.	Surgery of the breast	1	1.25
9.	Neuro Surgery: Briefly outline the clinical features and management of the following. a) Congenital and childhood disorders (1) Hydrocephalus (2) Spina Bifida b) First aid and management of sequelae of head injury	8	10

	and spiral cord injury. c) Peripheral Nerve disorders- Peripheral Nerve injuries Intracranial tumours: Broad classification signs and symptoms		
10.	a) Brief description of Deep Vein Thrombosis and pulmonary b) Vascular Disease Phlebitis etc	1	1.25
11.	Plastic Surgery: Principles of cineplasty tendon transplant Cosmetic Surgery, Types of Grafts, Surgery of hand with emphasis and management on traumatic leprosy & rheumatoid hand	5	6.25
12.	Burns classification early and late complications management and reconstructive Surgery	7	8.75
13.	Plastic surgical procedures-nerves/ tendon repairs in hand & foot skin grafts/ flaps/ micro vascular surgery re-constructive surgeries in facial nerve paralysis & common cosmetic surgeries (in brief)- surgery for obesity	6	7.5
14.	Ophthalmology: Errors of refraction, conjunctivitis, trachoma corneal ulcer, iritic, cataract, retinitis, detachment of retina; Glaucoma	5	6.25
15.	E.N.T. Sinusitis, Rhinitis, Otitismedia, Functional aphonia and deafness	5	6.25
16.	**PRACTICALS** The students have to undergo outdoor and indoor clinical teaching in General Surgery and Orthopedic. They have to prepare a clinical record to be submitted at the University practical examination. The student should take minimum five case of General Surgery and five case of Orthopaedics and obtain a signature of a teacher time to time	3	3.75
	TOTAL	**80**	

Textbooks & Reference Books: - GENERAL SURGERY

1. Handbook of Surgery by Basu, 2nd Edition, Current Books International
2. Manual of Clinical Surgery, S. Das, 6th Edition, S.B. Publications
3. Plastic Surgery by Pramod Kumar, 1st Edition, Paras Publications
4. Textbook of Surgery by Bailley & Love, 25th Edition, Butterworth & Heinmann

CLINICAL ORTHOPAEDICS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3504	CLINICAL ORTHOPAEDICS	5	-	3	100	25	-	125	5
BPT-3505	CLINICAL ORTHOPAEDICS **(PRACTICAL)**	-	3	-	-	25	25	50	1

COURSE DESCRIPTION:

This course follows basic courses on Anatomy, Physiology and Pathology. It covers relevant aspects of surgery with emphasis on Orthopaedics and Plastic surgery.

COURSE OBJECTIVES:

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

- To gain knowledge regarding evaluation and assessment of various orthopaedic conditions and diagnostic procedures which emphasize on radiography and special test.
- To gain knowledge regarding etiology, pathology, clinical features and management of various orthopaedic conditions and their differential diagnosis and functional disabilities caused by them.
- To understand the goals of conservative and surgical treatment of various orthopaedic conditions which physiotherapy will be an important component of overall treatment.

SYLLABUS - CLINICAL ORTHOPAEDICS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Pathology clinical manifestations of trauma & diseases of the bones & soft tissues of the musculoskeletal tissue	8	6.25
2.	Fractures of the spine & extremities- classification / management & complications,	17	13
3	Metabolic & hormonal disorders of the bone tissue- Osteoporosis	8	6.25
4	Peripheral nerve injuries-management / complications	8	6.25
5	Deformities of the spine :- Congenital malformation-spina bifida ,mengiocoele,meningomyelocele.	12	9.5
6	Re-constructive surgeries in Polio or cerebral palsy	7	5.5
7	Inflammatory & infections of the bone & joints T.B./Osteomyelitis	8	6.25
8	Tumors of the Bone	7	5.5
9	Degenerative / Rheumatoid arthritis /	7	5.5
10	Soft tissue injury:- common soft tissue injuries encountered during sports / Overuse	12	9.5
11	Amputation-classification-prosthetic management	12	9.5
12	Hand injuries -management	10	7.5
13	Clinical Radiology in Orthopaedics	12	9.5
	TOTAL	**128**	

Textbooks & Reference Books: - CLINICAL ORTHOPAEDICS

1. Essentials of Orthopaedics by – Maheshwari 3rd edition Mehta publications.
2. Essentials of rehabilitation for orthopaedic surgeons, John Ebnezer, 4th edi., Jaypee
3. Orthopaedics in primary care – Andrew. J. Carr
4. Clinical orthopaedic diagnosis – Sureshwar Pandey
5. Essential orthopaedic and physiotherapy- Jayant Joshi.
6. Plastic surgery – Principles and techniques by – Pramod Kumar.
7. Physiotherapy in orthopedics by Coutts Atkinsons. Churchill livingstone publications.
8. The problem Knee- Malcom 2nd edition. Jaypee publications.

9. Physiotherapy in deformity correction & Pain relief. Iru dayrai . Jaypee publications.
10. Functional fracture bracing- Augusto Sarmiento. Lippincott publications.
11. Current therapy of trauma. Donald Lewis4th edition. Mosby publications.
12. Practical orthopedics-Kakkad- Jaypee publications.
13. Orthopedics- LN Vora Churchill livingstone.
14. Shoulder Pain –Calliet 3rd edition Jaypee.
15. Outline of orthopedics by John Crawford 13th edition Churchill livingstone.
16. Textbook of orthopedics by John Ebnezer 2nd edition. Jaypee.
17. Textbook of orthopedics by Kalava . Paras publications.
18. Cash textbook of orthopedics and physiotherapists by Tidswell. Elsevier .
19. Apley's textbook of orthopedics and fractures by Apleys 7th edition B/H publications.
20. Neuromuscular skeletal examination & assessment Nicola Petty. 3rd edition Elsevier.
21. Orthopedic Musculoskeletal testing and examination. David Magee.5th edition.
22. Foot and ankle pain. Rene Calliet. 2nd edition Jaypee publications.

COMMUNITY MEDICINE

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3506	COMMUNITY MEDICINE	4	-	2	75	25	-	100	4

COURSE DESCRIPTION:

This course follows the basic concept of health and diseases prevailing in the society and various medical professionals in the rehabilitation of patients in community.

COURSE OBJECTIVES:

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

- To gain knowledge regarding concept of health and diseases prevailing in the society.
- To gain knowledge on community based care,prevention,home health and community health.
- To demonstrate an understanding of the influence of social and environmental factors on health of the individual and society.
- To understand the role of various medical professionals in the rehabilitation of patients in community.

SYLLABUS - COMMUNITY MEDICINE

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	General concepts of Health & Diseases / Epidemiology / Anthropology/ Habitat & nutrition	5	8.33
2.	Public Health administration	4	6.67
3.	The nature of Urban & rural societies- The Family	1	1.67
4.	Health problems of vulnerable groups- women, children & Aged	4	6.67
5.	Occupational health hazards- accidents compensation acts	5	8.33
6.	Family planning	2	3.33
7.	Mental health emphasis on community aspects	2	3.33
8.	Communicable disease-prevention/ control	6	10
9.	Introduction to C.B.R.	2	3.33
10.	Design & methodology of an experiment of survey	2	3.33
11.	Sampling & Interpretation of Data	4	6.67
12.	Role of health organization	3	5
13.	Demography & vital statistics	2	3.33
14.	Environmental Hygiene	3	5
15.	Socio-economic behavior	2	3.33
16.	Rehabilitation team approach-Role of Physiotherapy/ Occupational therapy/ speech & hearing / P & O/ social worker / clinical psychologist/ vocational trainer	12	20
17.	Role of Multi- purpose Health worker	1	1.67
	TOTAL	**60**	

Textbooks & Reference Books: - COMMUNITY MEDICINE

1. Principles of Community Medicine by Rao, 4th Edition, AITBS publications
2. Textbook of Preventive and Social Medicine by Gupta, 3rd Edition, Jaypee
3. Synopsis in Preventive & Social Medicine by Vijaya, 4th Edition, National Book Depot

ENVIRONMENTAL STUDIES, EVOLUTION AND GENETICS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3507	ENVIRONMENTAL STUDIES, EVOLUTION AND GENETICS	4	-	2	75	25	-	100	4

COURSE DESCRIPTION:

This course follows the basic principles of environmental sciences and makes the students ready for the upcoming problems the planet earth is facing and going to face in future i.e. waste disposal, deforestation, global warming, ozone depletion and biodiversity. At the end of the course the student will have basic knowledge on natural resources, pollution, ecosystem, biodiversity.

COURSE OBJECTIVES:

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

- To make student well aware of environmental pollution and its harmful effects
- To make use of alternative sources of energy
- To know his/her duties and responsibilities in society
- To make use of bio-degradable substitution

SYLLABUS - A : ENVIRONMENTAL STUDIES

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	**The Multidisciplinary nature of environmental studies** Definition, scope and importance Need for public awareness.	5	7.81
2.	**Renewable and non-renewable resources:** Natural resources and associated problems. a) Forest resources: Use and over- exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people. b) Water resources: Use and over-utiilization of surface and ground water, floods, drought, conflicts over water, dams- benefits and problems. c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. d) Food resources: World food problems, change caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. e) Energy resources: Growing energy needs, renewable and nonrenewable energy sources, use of alternate energy sources. Case studies. f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	10	15.63
3.	**Ecosystems** • Concept of an ecosystem • Structure and function of an ecosystem • Procedures, consumers and decomposers • Energy flow in the ecosystem • Ecological succession • Food chains, food webs and ecological pyramids.	9	14.06

	• Introduction, types, characteristic features, structure and function of the following ecosystem:- a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries)		
4.	**Biodiversity and its conservation** • Introduction- Definition: genetic,species and ecosystem diversity. • Biogeographical classification of India. • Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. • Biodiversity at global, national and local levels. • India as a mega-diversity nation. • Hot-spots of biodiversity. • Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts. • Endangered and endemic species of India. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.	8	12.5
5.	**Environmental Pollution** Definition • Causes, effects and control measures of :- a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards • Solid waste Management: Causes, effects and control measures of urban and industrial wastes. • Role of an individual in prevention of pollution. • Pollution case studies. Disaster management: floods, earthquake, cyclone and landslides.	8	12.5
6.	**Social Issues and the Environment** • From unsustainable to sustainable development • Urban problems related to energy • Water conservation, rain water harvesting, watershed management.	8	12.5

	• Resettlement and rehabilitation of people: its problems and concerns. Case studies. • Environmental ethics; Issues and possible solutions. • Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies. • Wasteland reclamation • Consumerism and waste products. • Environment Protection Act. • Air (Prevention and Control of Pollution) Act. • Water (Prevention and control of Pollution) Act. • Wildlife Protection Act. • Forest Conservation Act. • Issues involved in enforcement of environmental legislation. Public awareness.		
7.	**Human Population and the Environment** • Population growth, variation among nations. • Population explosion- Family Welfare Programme. • Environment and human health. • Human rights. • Value Education. • HIV/AIDS • Women and Child welfare. • Role of information technology in environment and human health. Case studies.	8	12.5
8.	**Field Work** • Visit to a local to document environmental assets river/forest/grassland/hill/mountain. • Visit to a local polluted site-Urban/Rural/Industrial/Agricultural • Study of common plants, insects, birds. Study of simple ecosystems-pond, river, hill slopes,etc.	8	12.5
	TOTAL	**64**	

Textbooks & Reference Books: - ENVIRONMENTAL STUDIES

1. Agarwal, K.C.2001 Environmental Biology, Nidi Publ.Ltd.Bikaner
2. Clark R.S.Marine Pollution, Clanderson Press Oxford
3. Miller T G.Jr Environmental Science, Wadsworth Publishing Co
4. Odum, EP.1971 Fundamentals of Ecology. W B Saunders Co.
5. Townsend C, Harper J and Michael Begon, Essentials of ecology , Blackwell Science.

EVOLUTION : Total hrs. :- 18 hrs.

COURSE DESCRIPTION:

The course "Evolution" has been designed to introduce the student to Embryology and Development of various systems. Course will focus on the Embryology and Development of Musculoskeletal, Nervous and Cardiovascular Systems.

COURSE OBJECTIVES:

- To study the Embryology and Development of Musculoskeletal system
- To study the Embryology and Development of Nervous system
- To study the Embryology and Development of Cardiovascular system

SYLLABUS - B : EVOLUTION

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Embryology and Development of Musculoskeletal system	6	33.33
2.	Embryology and Development of Nervous system	6	33.33
3.	Embryology and Development of Cardiovascular system	6	33.33
	TOTAL	**18**	

GENETICS: 30 Hrs.

COURSE DESCRIPTION:

The course "Genetics" has been designed to introduce the student to nearly all of the fundamental concepts of genetics. Course will focus on the basic principles of classical (Mendelian) genetics, modern discoveries of molecular biology and their applications in today's world. Although the primary function of this course is to prepare the biology major for more advanced course work in genetics, topics will be covered in sufficient detail to provide other science majors with a good understanding of the field of genetics.

COURSE OBJECTIVES:

1. To provide students with a strong background in the principles of Mendelian genetics. Students will become familiar with Mendel's basic postulates and the additional insights that modern genetics has brought to this field.
2. To provide students with the ability to solve problems and think analytically. Genetics, more than any other branch of biology, lends itself to problem solving and analytical thinking. Students will be assigned numerous problems in the text that will allow them to practice these skills. Exam questions will be designed to assess how well these skills have been mastered.
3. To make students aware of the power of DNA technology. Basic concepts of DNA manipulations will be taught and examples of how these manipulations can be used in medicine and industry will be given.
4. To help students become familiar with the language of genetics and the terminology of molecular biology.
5. To prepare students for more advanced course work in cell and molecular biology.

SYLLABUS - C : GENETICS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**History of genetics**	1	3.70
2	**I) MENDELISM** i) Mendel's Laws of inheritance ii) Monohybrid, dihybrid cross and ratio. iii) Incomplete Dominance. iv) Back cross and Test cross.	4	14.81
3	**MULTIPLE ALLELES AND GENES** i) Inheritance of ABO Blood groups in Man. ii) Rh factor and Erythroblastosis foetalis in Man. iii) Multiple genes-Skin pigmentation in Man.	6	22.22
4	**SEX DETERMINATION AND SEX LINKED INHERITANCE**		
	A) Sex determination i) Autosomes and allosomes (sex chromosomes) ii) Chromosomal methods of sex determination – XO, XY (Man), ZZ, ZW. iii) Bridge's ratio theory of Genic Balance.	3	11.11
	B) Sex linked inheritance i) Sex linked inheritance in man – Colourblindness, Haemophilia, Hypertrichosis and Baldness.	3	11.11
5	**MUTATION -** Gene mutations – sickle cell anaemia	4	14.81
6	**HUMAN GENETICS -** i) Syndromes – Turner's, Klinefelter's, Down's and Cat – Cry. ii) In Born errors of metabolism –Phenylketonuria (PKU), Alkaptonuria, and Albinism. iii) Human pedigree analysis with symbols used.	**5**	18.51
7	**Human genome project. -**	**4**	14.8
	TOTALHOURS	**30**	
	TOTAL A + B + C = 64 + 18 + 30 HRS.	**112 HRS.**	

Textbooks & Reference Books: - EVOLUTION AND GENETICS

1. Principles of Genetics by Robert H. Tamarin. Tata-McGraw Hill, Seventh Edition 2002) .
2. Genetics, Principles and Analysis by Daniel Hartl & E.W. Jones. 4th Edition 1998; Jones & Barlett Publication.
3. The science of Genetics by Atherly, A. G. Girton, J. R & MC Donald, J. F. (1999) Saunders College Publications / Harcourt Brace.
4. Genetics – M.W. Strickberger Macmillan Publications New York.
5. A History of Genetics by Sturtevant, A.H (1965) Harper & Row, New York.
6. Gregor Mendel :The First Geneticist by Orel V. (1996) Oxford University Press, New York.
7. A first course in Probability by Ross S (1994) 4th edition Mcmillan, New York,
8. Theory and problems of Genetics - W.D. Stansfield (Schaum's outline series) McGrawHill 2002.

ALTERNATIVE MEDICINE

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4709	ALTERNATIVE MEDICINE	3	-	2	75	25	-	100	3

COURSE DESCRIPTION:

This semester exclusively focuses on developing ability of evidence based clinical practice by applying all the physiotherapeutic skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects based on research methodology and for community oriented practice related to alternative medicine.

COURSE OBJECTIVES:

To enable the student to use principles and techniques of alternative medicine in their treatment technique for a better outcome. Especially knowledge of alternative medicine is used in subsidiary to physiotherapeutic pain relief measures.

SYLLABUS - ALTERNATIVE MEDICINE

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	**Yogasanas & Pranayama** a) Physiological & therapeutic principles of yoga. b) Yogasanas for physical culture, relaxation and meditation. c) Application of Yogasanas in physical fitness, flexibility, cardiac rehabilitation and neuromotor learning. d) Pranayama and respiratory physiology. e) Kriyas and their physiological significance. Therapeutic application of yoga. f) Yoga – a holistic approach	18	37.5
2.	**Acupuncture:** Definition, principles, techniques, physiological effects, indications, contra-indications, dangers & integration of acupuncture with physiotherapy	8	16.67
3.	Introduction to **Magneto therapy**	5	10.42
4.	Introduction to **Naturopathy**	8	16.66
5.	Introduction to **Ayurvedic Medicine**	5	10.42
6.	Introduction to Tai-chi, Reiki and Pranic Healing	4	8.33
	TOTAL	**48**	

Textbooks & Reference Books: - ALTERNATIVE MEDICINE

1. Altenative therapies by swati bhagat. 1st edition.Jaypee publications.
2. Yogic exercises by Datta Ray . 1st edition. Jaypee.
3. accupunture and trigger points by peter. 3rd edition. Elsevier .
4. Accupressure in clinical applications by john . 1st edition. B & H publications.

SEMESTER - VI

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3601	PAIN MANAGEMENT	2	-	3	100	25	-	125	2
BPT-3602	PAIN MANAGEMENT **(PRACTICAL)**	-	4	-	-	25	50	75	2
BPT-3603	PHYSIOTHERAPY IN WOMEN'S HEALTH AND GERIATRICS	3	-	3	100	25	-	125	3
BPT-3604	PHYSIOTHERAPY IN WOMEN'S HEALTH AND GERIATRICS **(PRACTICAL)**	-	2	-	-	25	50	75	1
BPT-3605	PHYSIOTHERAPY IN MEDICAL & SURGICAL CONDITIONS	4		3	100	25	-	125	4
BPT-3606	PHYSIOTHERAPY IN MEDICAL & SURGICAL CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2
BPT-3607	ALLIED HEALTH SCIENCES (O&P, OT, ST, N & F)	4	-	2	75	25	-	100	4
BPT-3608	ETHICS&ADMINSTRATION &RESEARCH METHODOLOGY, BIO-STATISTICS & ELEMENTS OF MATHEMATICS	7	-	2	75	25	-	100	7
Supervised clinical training in Hospital, wards and Visit to Orthotics and Prosthetics lab (10 hrs.) = 200 hours			10						
TOTAL		**40**			**450**	**200**	**150**	**800**	**25**

L/wk = Lectures per week.
T = Theory.
P/ T = Practical / Tutorials in hours.
D = Duration of Theory Paper for Examination in Hours.
T. P. = Theory Paper – marks.
T.W. = Term Work – marks.
P/V = Practical / Viva – voice.

PAIN MANAGEMENT

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4803	PAIN MANAGEMENT	2	-	3	100	25	-	125	2
BPT-4804	PAIN MANAGEMENT **(PRACTICAL)**	-	4	-	-	25	50	75	2

COURSE DESCRIPTION:

This semester exclusively focuses on developing ability of evidence based clinical practice by applying all the physiotherapeutic skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects based on research methodology and for community oriented practice related to pain management.

COURSE OBJECTIVES:

This subject will facilitate the awareness of the multi-dimensional and multi-disciplinary aspects of pain and encourage the clinician to evaluate a variety of evidence based approaches to pain management, with the aim of enhancing clinical practice and patient care in the discipline of Physiotherapy.

- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases

SYLLABUS - PAIN MANAGEMENT

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Physiology of pain, Pain Pathways, Pain transmission, Pain Modulation.	13	13
2.	Theories of Pain (Acute, Chronic)	7	7
3.	Assessment of Pain: Paediatrics and Adult	7	7
4.	Common scales and tools used in Pain Management	7	7
5.	Aetiology, Clinical Presentation and Physiotherapy Management of a. Complex Regional Pain Syndromes b. Neuropathic Pain c. Fibromyalgia d. Psychosomatic Pain e. Phantom Pain Sensation	13	13
6.	Referred Pain	1	1
7	Electrotherapeutic Modalities for Pain Relief	8	8
8.	Techniques & Grades of Manipulation and Mobilization for Pain Relief	8	8
9.	Role of External Appliances for Pain Relief	4	4
10.	Physiotherapy for Cancer Pain	4	4
11.	Physiotherapy Management of Musculoskeletal Pain with clinical Reasoning	4	4
12.	Alternative Medicine for pain relief	4	4
13.	Physiotherapy Management of Incisional Pain in General Surgery, Urosurgery, Plastic and Gynaecological Surgeries.	8	8
14.	Physiotherapy management of Acute, Sub acute and Chronic Pain in general	6	6
15.	Multidisciplinary Approach for Pain Management (including Cognitive and behavioural Introduction)	6	6
	TOTAL	**100**	

Textbooks & Reference Books: - PAIN MANAGEMENT

1. Textbook of Pain Management by Murli Joshi. Paras publications.
2. Pain management by Physiotherapists.2nd edition by Wells. B & H publications.
3. Low back pain by Wiesel. 2nd edition Saunders publications.

PHYSIOTHERAPY IN WOMEN'S HEALTH & GERIATRICS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4807	PHYSIOTHERAPY IN WOMEN'S HEALTH AND GERIATRICS	3	-	3	100	25	-	125	3
BPT-4808	PHYSIOTHERAPY IN WOMEN'S HEALTH AND GERIATRICS **(PRACTICAL)**	-	2	-	-	25	50	75	1

COURSE DESCRIPTION:

This semester exclusively focuses on developing ability of evidence based clinical practice by applying all the physiotherapeutic skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects related to women's health and Geriatrics.

COURSE OBJECTIVES:

- This subject will facilitate the awareness of the multi-dimensional and multi-disciplinary aspects of pain.
- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases
- To evaluate a variety of evidence based approaches to Women's Health and Geriatrics with the aim of enhancing clinical practice and patient care in the discipline of Physiotherapy.

SYLLABUS - PHYSIOTHERAPY IN WOMEN'S HEALTH AND GERIATRICS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Anatomy and functions of Pelvic floor	4	5
2.	Prenatal/ antenatal programme- in specific to breathing exercises/ relaxation/ postural training/ Pelvic floor stretching & strengthening exercises.	15	18.75
3.	Physiotherapy during labor	5	6.25
4.	Post-natal exercise programme after normal labor/ labor with invasive procedures. Maternal and child care	10	12.5
5.	Uro-genital dysfunction (incontinence)- P.T. management	4	5
6.	Common Gynaecological surgeries-role of P.T.	4	5
7.	Aerobic exercise during pregnancy	6	7.5
8.	Physiotherapy for Post-menopausal Women	6	7.5
9.	**Geriatrics** Physiology of Aging / degenerative changes- Musculoskeletal/ Neuromotor/ cardio- respiratory / Metabolic. List of problems in geriatric population in physiotherapy perspective including elderly motor skills. Role of Physiotherapy in Geriatric rehabilitation. Home for the aged	25	19.53
10	Clinical reasoning, Evidence Based Practice (EBP) and Linking Evidence And Practice (LEAP) to all of the above conditions.	15	
	Total	**94**	

Textbooks & Reference Books: - PHYSIOTHERAPY IN WOMEN'S HEALTH AND GERIATRICS

1. Women's health by Markwell, Saxton . WB Saunders.
2. Textbook of Gynaecology and Obstetrics by Madhuri. 1St edition jaypee publications.
3. Physiotherapy in obstetrics and gynaecology by Mantle . B & H Publications.
4. Physical medicine and Rehabilitation by Dellisa 4th edition. Lippincott Williams.
5. Geriatric secrets by Belfus 2nd edition Jaypee.
7. Rehabilitation of older person by Squires 3rd edition. Jaypee.

PHYSIOTHERAPY FOR MEDICAL & SURGICAL CONDITIONS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4707	PHYSIOTHERAPY IN MEDICAL & SURGICAL CONDITIONS	4		3	100	25	-	125	4
BPT-4708	PHYSIOTHERAPY IN MEDICAL & SURGICAL CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2

COURSE DESCRIPTION & OBJECTIVES:

To integrate the knowledge gained in clinical medicine and surgery in the physiotherapy management.

- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases

At the end of this course student should be able to identify the problem,assess ,diagnose, evaluate the general medical and surgical conditions and set goals of treatment using physiotherapeutic skills.

SYLLABUS - PHYSIOTHERAPY IN MEDICAL & SURGICAL CONDITIONS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Physiotherapy management of complications common to all general surgical conditions (Pre operative and post operative)	27	21.26
2.	Physiotherapy management of wound, ulcer, scar	17	13.39
3.	Physiotherapy management of Ear, Nose & Throat conditions facial Palsy, Otitis Media, sinusitis, tonsillectomy, Laryngectomy	10	7.87
4.	Physiotherapy Management in Burns, Skin grafts, re constructive surgeries and tendon transfers	17	13.39
5.	Physiotherapy Management for integumentary and specific Dermatological conditions: Psoriasis, Vitiligo, Acne, Allopecia, Carbuncles and Boils, Leprosy Physiotherapy following mastectomy, hysterectomy, prostatectomy, nephrectomy, appendicitectomy, cholicystectomy, illiostomy, colectomy, hernias	44	34.65
6.	Physiothrerapy management of a psychiatric patients Physiotherapy in cancer (General principles of management)	12	9.44
7	Clinical reasoning, Evidence Based Practice (EBP) and Linking Evidence And Practice (LEAP) to all of the above conditions.	15	
	TOTAL	**142**	

Textbooks & Reference Books: - PHYSIOTHERAPY IN MEDICAL & SURGICAL CONDITIONS

1. Cash text book of Medical and Surgical conditions
2. Tidys Physiotherapy – Elsiever Publication
3. Manual of Physical Therapy by W. B. Saunders

ALLIED HEALTH SCIENCES (ORTHOTICS & PROSTHETICS, OCCUPATIONAL THERAPY, SPEECH THERAPY, NURSING AND FIRST AID)

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3607	ALLIED HEALTH SCIENCES (O&P, OT, ST AND N&F)	4	-	2	75	25	-	100	4

O & P :- Orthotics & Prosthetics

OT:- Occupational Therapy

ST:- Speech Therapy

N & F:- Nursing & First Aid

COURSE DESCRIPTION:

This course follows the basic principles of application and fabrication of variety of aids and appliances used for ambulation, protection and prevention.

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To acquire knowledge about biomechanical principles of application of variety of aids and appliances used for ambulation, protection and prevention.
- To acquire in brief knowledge about various material used for splints / orthoses and prostheses.
- To acquire the skill of fabrication of simple splints made out of low cost material.
- To acquire basic knowledge of Occupational therapy in Physiotherapy.
- To acquire basic knowledge of Speech therapy in Physiotherapy.

ORTHOTICS & PROSTHETICS

SYLLABUS - ORTHOTICS & PROSTHETICS TOTAL HRS. :- 45 HRS.

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Biomechanical principles in designing of appliances & assessment	4	8.88
2.	Classification of Aids & appliances	2	4.44
3.	Differences between prosthesis and orthoses	2	4.44
4.	Prostheses – for Lower limb and upper limb	5	11.11
5.	Introduction to Splints / Orthoses – for spine, upper & lower limb	4	8.88
6.	Upper Limb Orthoses: - Knuckle Bender splint, Cock Up Splint, Opponens splint, finger splints, aero plane splint, wrist hand orthoses	4	8.88
7.	Spinal Orthoses: Head Cervical Orthoses, Cervical, Thoraco-lumbar, Lumbo – sacral Orthoses (Knight brace, Taylors's Brace, Milwaukee Brace, Collars)	10	22.22
8.	Lower Limb Orthoses: HKAFO, KAFO, AFO, Foot Orthoses (Shoe Modification)	10	22.22
9.	Wheel Chair – parts and prescription	4	8.88
	TOTAL	**45**	

Textbooks & Reference Books: - ORTHOTICS & PROSTHETICS

1) Atlas of Orthotics: Biomechanical principles of application by – St.Louis
2) Orthotics in Rehabilitation by – Pat Mckee and leanne Morgan.
3) Amputations and Prosthetics bt – Beela J. May.
4) Textbook of Rehabilitation by Sunder, Jaypee Publications
5) Bradom's Handbook of Rehabilitation
6) Textbook of Rehabilitation by DeLisa

OCCUPATIONAL THERAPY

SYLLABUS – OCCUPATIONAL THERAPY **TOTAL HRS. :- 15 HRS.**

Basics of Occupational therapy for Physiotherapist

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Basics of Occupational therapy for Physiotherapist	15	100
	TOTAL	**15**	

Textbooks & Reference Books: - OCCUPATIONAL THERAPY

1)Pedrettis Occupational Therapy by – Pendleton ; ELSEVIER Publication 6th edition.

2) Introduction to Occupational Therapy ; ELSEVIER Publication 3rd edition.

SPEECH THERAPY

SYLLABUS – SPEECH THERAPY **TOTAL HRS. :- 15 HRS.**

Basics of Speech therapy for Physiotherapist

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Basics of Speech therapy for Physiotherapist	15	100
	TOTAL	**15**	

NURSING AND FIRST AID
Total hrs: 45 hrs.

COURSE DESCRIPTION:-
This course enables the students to have a better understanding and develop skill in giving first aid treatment in emergencies in either the hospital or the community.

COURSE OBJECTIVES:-

- To gain knowledge for first aid.
- To gain skill in giving first aid treatment.
- To gain knowledge about maternal and child care.
- To gain skill in handling of an injured individual
- To gain knowledge of Nursing Care

SYLLABUS – NURSING AND FIRST AID **TOTAL HRS. :- 45 HRS.**

Sr. no.	Topic & Details	No. of Hours assigned	Weightage in Percentage (%)
1.	Introduction		
1.1	Definition and importance of first aid	1	2.22
1.2	Golden rules of first aid	1	2.22
2.	First aid emergencies		
2.1	Burns : causes, degrees of burns, first aid treatment and general treatment	2	4.44
2.2	Haemorrhage : Classification, Signs and symptoms and rules of treatment	2	4.44
2.3	Poisoning : Signs and symptoms, first aid treatment and general treatment	2	4.44
2.4	Bites : Signs and symptoms, first aid and general treatment. a. Dog Bites : Rabies b. Snake Bites : Neurotoxin, bleeding diathesis.	2	4.44
3.	Skeletal injuries		
3.1	Types of fractures	2	4.44
3.2	Causes, signs and symptoms of fractures	2	4.44
3.3	Transportation of patient with first aid measures.	2	4.44
3.4	Bed side activities in musculoskeletal injuries : wound care, positioning, transferring , skin care, personal hygiene	2	4.44
4	Respiratory and Cardiovascular emergencies		
4.1	Asphyxia : Etiology, signs and symptoms, rules of treatment.	2	4.44
4.2	Drowning : Definition and management	1	2.22
4.3	Basic and advanced life support(CPR),self CPR,MINIMALLY INVASIVE CPR.	3	6.66
5.	Community emergencies and its approach		
5.1	Role of first aid in fires, explotions, floods, earthquakes and famine. Disaster management.	2	4.44
5.2	Community resources ; police assistance, voluntary agencies, ambulance services	2	4.44
6.	Nursing care in pregnancy and Child birth		
6.1	Antenatal and Postnatal advices	2	4.44

6.2	High risk pregnancy and complications in childbirth	3	6.66
6.3	Stress management in pregnancy and labor	3	6.66
6.4	Feeding and Handling of a child.	2	4.44
7.	Shock and Unconsciousness		
7.1	Definition, Types of Shock.	2	4.44
7.2	Causes of Shock, Signs and Symptoms of Shock	3	6.66
7.3	General and specialized treatment for established Shock.	2	4.44
	TOTAL	**45**	

Textbooks & Reference Books: - NURSING AND FIRST AID

1)Fundamentals of Nursing by – Potter ; ELSEVIER Publication 7th edition

2) Fundamental Concepts and Skills for Nursing by – Dewit ; ELSEVIER Publication 3rd edition

ETHICS & ADMINISTRATION AND RESEARCH METHODOLOGY, BIO-STATISTICS & ELEMENTS OF MATHEMATICS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4809	ETHICS&ADMINSTRATION &RESEARCH METHODOLOGY, BIO-STATISTICS & ELEMENTS OF MATHEMATICS	7	-	2	75	25	-	100	7

COURSE DESCRIPTION:

This courses aims to provide a basic understanding of Ethics, Management and Research Process in order to develop research attitude in students.

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To acquire the knowledge of ethical code of professional practice as well as its moral and legal aspects and its role WHO and WCPT
- To acquire the knowledge of the basics in managerial and management skills and use of information technology in professional practice.
- To understand the meaning and scope of research.
- To understand and apply the basic concept of research methodology in daily personal & professional practice.
- To understand and apply basic statistics in research.
- To appreciate research findings and apply it in practice where feasible.

SYLLABUS - A. ETHICS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Ethics and Constitution & Physiotherapy by World Confederation of Physical therapists(WCPT) and by Indian Association of Physiotherapists (IAP)	4	3.51
2.	Concepts of morality, ethics and legality – rules of professional conduct and their medico – legal and moral implications.	3	2.63
	TOTAL OF – A	**7**	

SYLLABUS - B. MANAGEMENT

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Basis of administration in institutional, private clinics independent practice private practice in community.	2	1.75
2.	Personal, intra and interdepartmental Relationship.	2	1.75
3.	Documentation	1	1
4.	Performance Analysis.	2	1.75
	TOTAL OF – B	**7**	

SYLLABUS - C. INTRODUCTION TO RESEARCH METHODOLOGY AND BIOSTATISTICS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Meaning of Research ➢ Basic concept of research ➢ Its need and importance in daily personal and professional practice ➢ Scope of research the practice of physiotherapy ➢ Characteristics of research ➢ Ethical consideration in research ➢ Critical appraisal ➢ Qualities of research ➢ Classification of Research Developing an enquiring mind.	11	9.65
2.	Research problem/ Question. ➢ Identification of problems, sources and	9	7.89

	selection of problems. ➢ Statement of the problem and objectives ➢ Library search ➢ Scientific literature review ➢ Meaning and understanding of terms ➢ Variables ➢ Assumptions ➢ Hypothesis ➢ Limitations ➢ Delimitations ➢ Populations		
3.	Sampling Technique ➢ Random Technique Non-Random Techniques	6	5.26
4.	Method of data collection- Tools and Technique a) Technique- Questioning ➢ Interview ➢ Observation b) Tool – Interview Schedule ➢ Questionnaire ➢ Observation Checklist ➢ Retiring scale c) Criteria good tool, reliability and validity d) Pilot study e)Classification and interpretation of findings	11	9.65
5.	Biostatistics ➢ Use of statistics types. ➢ Measures of central tendency – Mean, Median, Mode, ➢ Measures of dispersion – Range, Variance, Standard deviation. ➢ Use of descriptive statistics- Frequency, percentage Use of Tables and Graphs- Histogram, Pie chart, Bar graph, Frequency graph	8	7.02
6.	Writing a research report References, Documentations	5	4.39
	TOTAL OF – C	**50**	

Note: **Student Activity** – Students under take one (1) small project in their clinical area.

SYLLABUS - D. ELEMENTS OF MATHEMATICS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	**Introduction to general mathematics.**	**15**	
	Integers, odd, even, prime, natural, whole numbers	1	
	Fractions –multiply, dividing, adding, substractions of fractions, converting mixed no. into fractions.	2	
	Decimals – adding, subtracting, multiplying, dividing, converting decimal to percentage.	2	
	Exponents-- multiplication with exponents, division with exponents. Associative and Distributive laws.	1	**13.16**
	Data interpretation-line graphs Bar graphs Circle graphs	1	
	Binary system and septal system.	1	
	Brief introduction to calculus trigonometry.	5	
	Most commonly used formulas and laws used in mathematics.	2	
2.	**Arithmetic and Algebra.**	**10**	
	Basic arithmetic concepts	1	
	Fractions and decimals	1	
	Percents	1	
	Ratios and proportions	1	
	Averages	1	**8.77**
	Median, mode, ranges	1	
	Standard deviations	1	
	Factorials	1	
	Permutations and combinations	1	
	Polynomials	1	
3.	**Geometry**	**18**	
	Degrees, lines, and angles. Vertical angles and parallel lines	2	
	Triangles—equilaterals, isosceles, right triangles, angle-side relationships in triangles, perimeter of triangle, area of the triangle, impossible triangles, pythagoras triangle, special triangles	5	**15.79**
	Quadrilaterals and other Polygons Polygons, quadrilateral, rectangle, square, pentagons, hexagons, octagons, decagons, trapezium, parallelogram. Areas perimeters	7	

	Circles Radius, diameters, circumference of circle, area of circle	1	
	Solid geometry	2	
	Co-ordinate geometry	3	
4.	**Counting and Probability**	**5**	
	Counting principles	1	
	Venn diagrams	2	**4.39**
	Probability-laws of probability	2	
	TOTAL OF – D	**50**	
	TOTAL OF – A – B – C – D	**114**	

Textbooks & Reference Books: - ETHICS&ADMINSTRATION&RESEARCH METHODOLOGY, BIO-STATISTICS & ELEMENTS OF MATHEMATICS

1) Hospital management, accounting, planning and control by – Kulkarni G.K.
2) Methods in Bio-statistics by – B.K.Mahajan
3) Research for Physical Therapist by – Carolyn Hicks.
4) Medical ethics by – C.M.Travis.
5) Research Methodology by C R Kothari.
6) Barrons G.R.E. – Golgottia publications
7) Kaplans G.R.E. preparation guide.

SEMESTER - VII

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4701	PHYSIOTHERAPY FOR PEDIATRIC NEUROLOGICAL CONDITIONS	4	-	3	100	25	-	125	4
BPT-4702	PHYSIOTHERAPY FOR PEDIATRIC NEUROLOGICAL CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2
BPT-4703	PHYSIOTHERAPY FOR NON TRAUMATIC ORTHOPEDIC CONDITIONS	4	-	3	100	25	-	125	4
BPT-4704	PHYSIOTHERAPY FOR NON TRAUMATIC ORTHOPEDIC CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2
BPT-4705	PHYSIOTHERAPY FOR CARDIOVASCULAR CONDITIONS	4	-	3	100	25	-	125	4
BPT-4706	PHYSIOTHERAPY FOR CARDIOVASCULAR CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2
BPT-4707	SPORTS PHYSIOTHERAPY	2	-	3	100	25	-	125	2
BPT-4708	SPORTS PHYSIOTHERAPY **(PRACTICAL)**	-	4	-	-	25	50	75	2
Project work -1									
Physiotherapy OPD postings =60 hrs									
INDIAN ASSOCIATION OF PHYSIOTHERAPY NATIONAL / STATE CONFERENCE (6 DAYS)			6						
TOTAL		**30**			**400**	**200**	**200**	**800**	**32**

L/wk = Lectures per week.
T = Theory.
P/ T = Practical / Tutorials in hours.
D = Duration of Theory Paper for Examination in Hours.
T. P. = Theory Paper – marks.
T.W. = Term Work – marks.
P/V = Practical / Viva – voice.

PHYSIOTHERAPY FOR PEDIATRIC NEUROLOGICAL CONDITIONS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4701	PHYSIOTHERAPY FOR PEDIATRIC NEUROLOGICAL CONDITIONS	4	-	3	100	25	-	125	4
BPT-4702	PHYSIOTHERAPY FOR PEDIATRIC NEUROLOGICAL CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2

COURSE DESCRIPTION:

This semester exclusively focuses on developing ability of evidence based clinical practice by applying all the physiotherapeutic skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic year also includes basic skill development of conducting scientific projects based on research methodology and for community oriented practice

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To assess, identify and analyze neuro-motor and psycho-somatic dysfunctions in terms of alteration in muscle tone, power, co-ordination, involuntary movements, sensations, perception etc, correlate the findings with provisional diagnosis and investigations such as EMG/NCV studies and arrive at functional diagnosis with clinical reasoning.
- To acquire the skill of application of PNF techniques on patients.
- To identify the problem , asses assess, diagnose evaluate and treat all the below conditions
- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases
- To plan, prescribe and execute short term and long term treatment with special reference to relief of neuropathic and psycho-somatic pain, mat exercise, functional re-education, gait training and functional training for ADL and ergonomic advice.

To prescribe appropriate orthoses, splints and will be able to fabricate temporary protective and functional splints.

SYLLABUS: - PHYSIOTHERAPY FOR PEDIATRIC NEUROLOGICAL CONDITIONS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Growth & Development	6	4.68
2	Pediatric Nutrition	6	4.68
3	Physiotherapeutic Assessment of Pediatric Conditions	15	11.71
4	Neonatal Intensive Care Unit	10	7.81
5	Introduction to the Techniques used in Pediatric Physical Therapy	20	15.62
6	Aids and Appliances, support system for Pediatric conditions	8	6.25
7	Physiotherapy Management of Cerebral Palsy DMD Spina Bifida Poliomyelitis Meningitis and Encephalitis Infantile Hemiplegia Traumatic Brain Injury Brachial Plexus Injury, Erb's Palsy Torticollis, Athetosis, Chorea, Dystonia Tetanus Epilepsy	40	31.25
8	Approach to a child with Learning Disabilities	8	6.25
9	Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence And Practice (LEAP) to all of the above conditions.	15	
	TOTAL	**138**	

Textbooks & Reference Books: - PHYSIOTHERAPY FOR PEDIATRIC NEUROLOGICAL CONDITIONS

1. Physiotherapy in Neuro-Conditions by Raj, Jaypee Publications
2. Neurology and Neurosurgery Illustrated by Lindsay, Churchill Livingstone
3. Neurology for Physiotherapists, 4th edition, Petricia A. Downie, Jaypee publications
4. Treatment of Cerebral Palsy and Motor Delay by Sophie Levitt, Blackwell Sciences
5. Neurological Physical Therapy, 2nd edition, by Susan Edwards, Elsevier
6. Low Birth Weight Baby by Krishna, Orient Longman
7. Neurological Rehabilitation by Darcy Umphred, 4th edition Mosby Publication

PHYSIOTHERAPY FOR NONTRAUMATIC ORTHOPAEDIC CONDITIONS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4703	PHYSIOTHERAPY FOR NON TRAUMATIC ORTHOPEDIC CONDITIONS	4	-	3	100	25	-	125	4
BPT-4704	PHYSIOTHERAPY FOR NON TRAUMATIC ORTHOPEDIC CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2

COURSE DESCRIPTION:

This semester exclusively focuses on developing ability of evidence based clinical practice by applying all the physiotherapeutic skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic year also includes basic skill development of conducting scientific projects based on research methodology and for community oriented practice

COURSE OBJECTIVES:

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

- To identify, discuss and analyze the musculo-skeletal dysfunction in terms of biomechanical, kinesiological and biophysical bases and correlate the same with the provisional diagnosis, routine radiological and electrophysiological investigations and arrive at appropriate functional diagnosis with clinical reasoning.
- To identify the problem , asses assess, diagnose evaluate and treat all the below conditions
- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases
- To plan and prescribe as well as acquire the skill of executing short and long term physiotherapy treatment by selecting appropriate modes of mobilization/ manipulations, electrotherapy, therapeutic exercises and appropriate ergonomic advices for the relief of pain, restoration, maintenance of function and or rehabilitation for maximum functional independence in ADL at home and work place.

SYLLABUS - PHYSIOTHERAPY FOR NON TRAUMATIC ORTHOPEDIC CONDITIONS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Physiotherapy Management for: Mallet finger, Trigger finger, Dequervains disease, Dupuytren's contracture, Metatarsalgia,hallux valgus.	15	12.5
2.	Physiotherapy Management for Soft tissue Injury: Contusion, Sprains, Strains, Ruptures of muscles and ligaments.	25	20.83
3.	Physiotherapy Management for Rheumatology and arthritis: Bursitis, Capsulitis, Tendinitis, Periarthritis, Tennis elbow, ganglions, tenosynovitis, Causalgia – Synovitis, Osteoarthritis, chondromalacia patellae, Osgood Schlatter's Disease – Patellofemoral pain syndrome Gout, Still's disease, Ankylosing spondylitis, Prolapsed intervertebral disc (PIVD), Mechanical Back Pain spondylosis, Spondylolysthesis, Tuberculosis of spine,	33	27.5
4.	Physiotherapy Management for Congenital Deformities: Torticollis/ Wry neck, Sprengle's shoulder, Mad lung's deformity, Coxa vara, Coxa valga, C.D.H., Kyphosis, lordosis, Spina Bifida, CV Anomalies	30	25
5.	Physiotherapy management for foot conditions- valgus and varus pads	5	4.17
6.	Physiotherapy Management for Pathological changes in inflammation, Oedema, Pyogenic conditions, Osteomyelitis	12	10
7	Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence And Practice (LEAP) to all of the above conditions.	15	
	TOTAL	**135**	

Textbooks & Reference Books: - PHYSIOTHERAPY FOR NON TRAUMATIC ORTHOPEDIC CONDITIONS

1. Essentials of Orthopaedics by – Maheshwari 3rd edition Mehta publications.
2. Textbook of Orthopaedics by John Ebnezer, 2nd Edition, Jaypee
3. Essential orthopaedic and Physiotherapy- Jayant Joshi, 3rd Edition, Jaypee
4. The Problem Knee- Malcom 2nd edition. Jaypee publications.
5. Current Therapy of Trauma. Donald Lewis4th edition. Mosby publications.
6. Shoulder Pain –Calliet 3rd edition Jaypee.
7. Outline of Orthopedics by John Crawford 13th edition Churchill livingstone.
8. Textbook of orthopedics by Kalava, 2nd Edition, Paras publications.
9. Apley's textbook of orthopedics and fractures by Apleys 7th edition B/H publications.
10. Neuromuscular skeletal examination & assessment Nicola Petty. 3rd edition Elsevier.
11. Orthopedic Assessment by David Magee.5th edition, Churchill Livingstone
12. Foot and ankle pain. Rene Calliet. 2nd edition Jaypee publications.

PHYSIOTHERAPY FOR CARDIOVASCULAR CONDITIONS

Subject Code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4705	PHYSIOTHERAPY FOR CARDIOVASCULAR CONDITIONS	4	-	3	100	25	-	125	4
BPT-4706	PHYSIOTHERAPY FOR CARDIOVASCULAR CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2

COURSE DESCRIPTION:

This semester exclusively focuses on developing ability of evidence based clinical practice by applying all the physiotherapeutic skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects based on research methodology and for community oriented practice

COURSE OBJECTIVES:

At the end of the course, the student will be able;

- To identify, discuss and analyze cardio – pulmonary dysfunction based on patho - physiological principles and arrives at the appropriate functional diagnosis.
- To acquire knowledge of rationale of basic investigative approaches in the medical system and surgical intervention regimes related to cardio – pulmonary impairment.
- To identify the problem , asses assess, diagnose evaluate and treat all the below conditions
- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases
- To acquire the skill of evaluation and interpretation of functional capacity using simple exercise tolerance tests such as 6 min. walk test, symptom related test.
- To select strategies for cure, care and prevention, adopt restorative and rehabilitative measure for maximum possible functional independence of a patient at home, work place and in community.
- To execute the effective physiotherapeutic measures (with appropriate clinical reasoning) with special emphasis to breathing retraining, nebulization, humidification, bronchial hygiene, general mobilization and exercise conditioning.
- To acquire knowledge of the overview of patients care at the intensive care area, artificial ventilation, suctioning, positioning for bronchial hygiene and continuous monitoring of the patient at the intensive care area.
- To acquire the skill of basic cardio – pulmonary and cerebral resuscitation.

SYLLABUS - PHYSIOTHERAPY FOR CARDIOVASCULAR CONDITIONS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Interpretation of radiological and biochemical investigation and correlate the same with clinical findings	5	3.90
2	Functional diagnosis of cardio – respiratory dysfunction and related movement dysfunction	10	7.81
3	Planning short / long term goals with clinical reasoning – documentation	10	7.81
4	Prescription of appropriate therapeutic exercise programme for conditioning	10	7.81
5	Prescription of home programme and ergonomic advice	8	6.25
6	Physiotherapy after Common Cardiac Surgeries	15	11.71
7	Physiotherapy in Peripheral Vascular Diseases	15	11.71
8	Physiotherapy after Pediatric cardiovascular Conditions	20	15.62
9	Monitoring Systems	10	7.81
10	Emergency In Respiratory Conditions – CPR, Defibrillator, Resuscitation Procedure	10	7.81
11	CLINICAL 1) Skill to palpate all pulses, rhythm, rate, volume and heart rate / pulse rate discrepancy. 2) Skill to assess Blood pressure at various sites and its physiological variation and to assess ankle – brachial index. 3) Skill of exercise testing a) 6 / 12 min. walk b) Symptom limited. 4) Interpretation of a) Treadmill and ergo cycle test findings. b) ECG, I.H.D and Blocks. c) Biochemical analyses – serum enzymes, C.P.K levels, L.D.H, S.G.O.T., S.G.P.T., troponin T, lipid profile, and electrolyte balance. d) Chest X ray e) P.F.T. – Obstructive / restrictive / reversibility. f) A.B.G. g) R.P.E – Borg's scale. h) Quality of life questionnaire. 5) Evaluation and treatment planning, presentation and documentation of two cases each in; a) Medical respiratory conditions b) Thoracic surgical conditions. c) Cardiac conditions.	15	11.76

12	Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence And Practice (LEAP) to all of the above conditions.	15	
	TOTAL	**143**	

Textbooks & Reference Books: - PHYSIOTHERAPY FOR CARDIOVASCULAR CONDITIONS

1. Physiotherapy for Respiratory and Cardiac problems by Pryor. 3rd edition. Elsevier publications.
2. Cardiovascular and Pulmonary Physical Therapy by Donna.4th edition. Mosby publications.
3. Principles of Cardiopulmonary Physical therapy by Sadowsky. 5th edition. WB saunders.
4. Cash textbook of Chest Heart and Vascular disorders for physiotherapy. Patrica Downie. 4th edition .Jaypee publications.

SPORTS PHYSIOTHERAPY

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4805	SPORTS PHYSIOTHERAPY	2	-	3	100	25	-	125	2
BPT-4806	SPORTS PHYSIOTHERAPY **(PRACTICAL)**	-	4	-	-	25	50	75	2

COURSE DESCRIPTION:

This semester exclusively focuses on developing ability of evidence based clinical practice by applying all the physiotherapeutic skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects based on research methodology and for community oriented practice related to sports physiotherapy.

COURSE OBJECTIVES:

This enables the student to get experience in sports injuries and management and also qualifies them to manage on field rehabilitation. The course recognizes the need to adopt the principles of sports physiotherapy in rehabilitation and management of sports injuries.

- To identify the problem , assess, diagnose evaluate and treat all the below conditions
- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases

SYLLABUS - SPORTS PHYSIOTHERAPY

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Nutrition in athletes	15	15.62
2.	Exercise and Altitude	15	15.62
3.	Overuse Syndromes & their Management	15	15.62
4.	Athletic Conditioning: 1.Warm up, cool down, general stretching, overload principle, specificity of training, aerobic and anaerobic training, FITT principle, off Season Training, DOMS 2. Rehabilitation of sports injuries: Principles and goals of Injury prevention and rehabilitation. Special and sport specific exercisesUse of protective equipment. 3. ONFIELD MANAGEMENT OF ATHELETIC INJURY: Identification of on field injury, emergency care and athletic first aid, managing cardio pulmonary emergency, splinting of specific fractures, PRICE, stretcher use, referral, working in coordination with multidisciplinary team. 4. COMMON SPORTS INJURIES. Management rehabilitation and prevention of Injuries of upper limb, spine and lower limb. tightness, fresher's leg, cramps, avulsion fractures, strain, sprain, overuse syndromes, stress fracture, back pain, fatigue)	50	52.08
5	Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence And Practice (LEAP) to all of the above conditions.	15	
	TOTAL	**110**	

Textbooks & Reference Books: - SPORTS PHYSIOTHERAPY

1. Physical Therapy for sports by Kuprian.2nd edition. WB Saunders.
2. Sports Injuries. Diagnosis and management by Webb.Suanders.
3. Outline of Sports Medicine by Gupta. Jaypee publications.
4. Sports Medicine Secrets by Norris. 2nd edition. Jaypee publications.
5. Athletic Injury Management by Booner.3rdedition.Mosby publications.
6. Physical Therapy for sports by Werner. 2nd edition. WB Saunders.

SEMESTER - VIII

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4801	REHABILITATION	4	-	3	100	25	-	125	4
BPT-4802	REHABILITATION **(PRACTICAL)**	-	4	-	-	25	50	75	2
BPT-4803	PHYSIOTHERAPY FOR TRAUMATIC ORTHOPEDIC CONDITIONS	4	-	3	100	25	-	125	4
BPT-4804	PHYSIOTHERAPY FOR TRAUMATIC ORTHOPEDIC CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2
BPT-4805	PHYSIOTHERAPY FOR PULMONARY CONDITIONS	4	-	3	100	25	-	125	4
BPT-4806	PHYSIOTHERAPY FOR PULMONARY CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2
BPT-4807	PHYSIOTHERAPY FOR ADULT NEUROLOGICAL CONDITIONS	4	-	3	100	25	-	125	4
BPT-4808	PHYSIOTHERAPY FOR ADULT NEUROLOGICAL CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2
PHYSIOTHERAPY OPD POSTING = 100 HOURS			9						
SKILLED ENHANCEMENT PROGRAMMES/ GUEST LECTURES/ WORKSHOPS/ ADVANCED TECHNIQUES TRAINING/ PHYSIOTHERAPY CAMPS/ CBR CAMPS/ CONTINUOUS PHYSIOTHERAPY EDUCATION. (THROUGHOUT COURSE DURATION)									
TOTAL		**42**			**400**	**200**	**200**	**800**	**24**

L/wk = Lectures per week.
T = Theory.
P/ T = Practical / Tutorials in hours.
D = Duration of Theory Paper for Examination in Hours.
T. P. = Theory Paper – marks.
T.W. = Term Work – marks.
P/V = Practical / Viva – voice.

REHABILITATION

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-4801	REHABILITATION	4	-	3	100	25	-	125	4
BPT-4802	REHABILITATION **(PRACTICAL)**	-	4	-	-	25	50	75	2

COURSE DESCRIPTION:

This subject exclusively focuses on developing ability of evidence based clinical practice by applying all the Physiotherapeutic Skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects based on research methodology and for community oriented practice.

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To describe the strategy to assess – prevalence and incidence of various conditions that increase the morbidity, role of physical therapy in improving morbidity, expected functional and clinical recovery; reasons for non-compliance in specific community environment, – solution – strategies of CBR programme, concept of team work – role of PT / OT / Audiologist / P and O / Vocational guide in the CBR programme of the Physically Handicapped – wheel chair management sills, role of physiotherapy assistant ,physiotherapist & multipurpose health worker.
- To describe the general concepts about health and disease – general fitness.
- To describe various national and international health policies – role of IAP to promote physiotherapy as a health delivery system.
- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases
- To attain ability of conducting small survey and collection of anthropometric data collection for morbidity assessment in various conditions – planning and implementation of appropriate physiotherapeutic modes and advise with clinical reasoning at the urban, rural and community level for
  a) Aging population
  b) General fitness
  c) Industrial set-up

SYLLABUS - REHABILITATION

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	The **philosophy and need** of rehabilitation The Principles of Physical Medicine	10	7.81
2.	The **evaluation** Process and Treatment **Planning**	20	15.63
3.	**Principles of Prescription Writing**	15	11.72
4.	**Principles of Rehabilitation** A. **Concept** of Rehabilitation: Definition, Concepts of Impairment, Disability & Handicap: ICIDH, Institutional Based Rehabilitation (IBR), Outreach Based Rehabilitation (OBR), Scope of rehabilitation, Social Implication of rehabilitation. B. Community Based Rehabilitation (CBR) C. **Laws** Related to Rehabilitation: Consumer Law Therapist's Liability, RCI Act, Person with Disability Act, 1995, WHO position on Health and Healthcare	29	22.66
5.	**Ergonomics:** Work capacity analysis, pre – employment screening, Industrial therapy, Examination of postures, Job Task Analysis, Education for prevention of injury, Economic stress management, Principles of work hardening	25	19.52
6.	**Fitness & Health promotion** Acute and Chronic physiological effects of aerobic exercises Principles of Aerobic and Anaerobic training. Principles for training strength, power and endurance. Clinical reasoning for advocating aerobic exercises as preventive measure in Obesity & its related conditions / in cardio- respiratory conditioning / Aging / Deconditioning effect after prolonged bed rest/ Diabetes.	29	22.66
	TOTAL	**128**	

Textbooks & Reference Books: - REHABILITATION

1. Textbook of Rehabilitation by Sunder. 2nd edition. Jaypee.

2. Physical Rehabiliation By Susan & O'Sullivan 4th edition Jaypee.

3. Physiological basis of Rehabilitation Medicine by Downie and Darlings. 3rd edition B/H publications.

4. Physical Medicine and Rehabilitation by Dellisa 4th edition. Lippincott Williams.

5. Geriatric secrets by Belfus 2nd edition Jaypee.

6. Management in Rehabilitation by Charles . Jaypee.

7. Rehabilitation of Older Person by Squires 3rd edition. Jaypee.

PHYSIOTHERAPY FOR TRAUMATIC ORTHOPEDIC CONDITIONS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3601	PHYSIOTHERAPY FOR TRAUMATIC ORTHOPEDIC CONDITIONS	4	-	3	100	25	-	125	4
BPT-3602	PHYSIOTHERAPY FOR TRAUMATIC ORTHOPEDIC CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2

COURSE DESCRIPTION:

This semester exclusively focuses on developing ability of evidence based clinical practice by applying all the Physiotherapeutic skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic year also includes basic skill development of conducting scientific projects based on research methodology and for community oriented practice

COURSE OBJECTIVES:

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

- To identify, discuss and analyze the musculo-skeletal dysfunction in terms of biomechanical, kinesiological and biophysical bases and correlate the same with the provisional diagnosis, routine radiological and electrophysiological investigations and arrive at appropriate functional diagnosis with clinical reasoning.
- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases
- To plan and prescribe as well as acquire the skill of executing short and long term physiotherapy treatment by selecting appropriate modes of mobilization/ manipulations, electrotherapy, therapeutic exercises and appropriate ergonomic advise for the relief of pain, restoration, maintenance of function and or rehabilitation for maximum functional independence in ADL at home and work place.

SYLLABUS - PHYSIOTHERAPY FOR TRAUMATIC ORTHOPEDIC CONDITIONS

Sr. No.	Topic and Details	No. of hrs. Assigned	Weightage in percentage(%)
1.	Physiotherapy Management for Fractures and its complications: Definitions, healing process of fractures, causes, signs and symptoms of fractures, Methods of reduction, means of immobilization, duration of immobilization, fracture in children, epiphyseal injury, principles of physiotherapy in fracture of upper, lower extremity bones, scapula, ribs, vertebrae, spine and pelvis	50	39.06
2.	Physiotherapy Management for Rehabilitation of patients – Arthroplasty: hemiarthroplasty, excision arthroplasty, total hip replacement, total knee replacement, McMurray's Osteotomy,	25	19.53
3.	Physiotherapy Management for Peripheral Nerve Injuries (Conservative and Surgical)	15	11.71
4.	Physiotherapy Management for Dislocation: Causes, types, principles of treatment of shoulder, elbow, wrist, MP, IP. Hip, Knee, Ankle dislocation	15	11.71
5.	Physiotherapy Management for Amputations of lower and upper extremity – Physiotherapy Management, Calipers, Prosthesis and Splints	20	15.62
6.	Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence And Practice (LEAP) to all of the above conditions.	15	
	TOTAL	**140**	

Textbooks & Reference Books: - PHYSIOTHERAPY FOR TRAUMATIC ORTHOPEDIC CONDITIONS

1. Essentials of Orthopaedics by – Maheshwari 3rd edition Mehta publications.
2. Textbook of Orthopaedics by John Ebnezer, 2nd Edition, Jaypee
3. Essential Orthopaedic and Physiotherapy- Jayant Joshi, 3rd Edition, Jaypee
4. The Problem Knee- Malcom 2nd edition. Jaypee publications.
5. Current therapy of Trauma. Donald Lewis4th edition. Mosby publications.
6. Shoulder Pain –Calliet 3rd edition Jaypee.
7. Outline of Orthopedics by John Crawford 13th edition Churchill livingstone.
8. Textbook of orthopedics by John Ebnezer 2nd edition. Jaypee.
9. Apley's textbook of orthopedics and fractures by Apleys 7th edition B/H publications.
10. Neuromuscular Skeletal Examination & Assessment Nicola Petty. 3rd edition Elsevier.
11. Orthopedic Assessment by David Magee.5th edition, Churchill Livingstone
12. Foot and Ankle Pain. Rene Calliet. 2nd edition Jaypee publications.

PHYSIOTHERAPY FOR PULMONARY CONDITIONS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3603	PHYSIOTHERAPY FOR PULMONARY CONDITIONS	4	-	3	100	25	-	125	4
BPT-3604	PHYSIOTHERAPY FOR PULMONARY CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2

COURSE DESCRIPTION:

This semester exclusively focuses on developing ability of evidence based clinical practice by applying all the physiotherapeutic skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic year also includes basic skill development of conducting scientific projects based on research methodology and for community oriented practice

COURSE OBJECTIVES:

At the end of the course, the student will be able;

- To identify, discuss and analyze cardio – pulmonary dysfunction based on patho - physiological principles and arrives at the appropriate functional diagnosis.
- To acquire knowledge of rationale of basic investigative approaches in the medical system and surgical intervention regimes related to cardio – pulmonary impairment.
- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases
- To acquire the skill of evaluation and interpretation of functional capacity using simple exercise tolerance tests such as 6 min. walk test, symptom related test.
- To select strategies for cure, care and prevention, adopt restorative and rehabilitative measure for maximum possible functional independence of a patient at home, work place and in community.
- To execute the effective physiotherapeutic measures (with appropriate clinical reasoning) with special emphasis to breathing retraining, nebulization, humidification, bronchial hygiene, general mobilization and exercise conditioning.
- To acquire knowledge of the overview of patients care at the intensive care area, artificial ventilation, suctioning, positioning for bronchial hygiene and continuous monitoring of the patient at the intensive care area.
- To acquire the skill of basic cardio – pulmonary and cerebral resuscitation.

SYLLABUS - PHYSIOTHERAPY FOR PULMONARY CONDITIONS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Assessment of respiratory and haemodynamics by means of assessment of breath sounds, interpretation of dysfunction by spirometry / exercise tolerance test / assessment of thoracic mobility and breathing pattern	13	10.4
2.	Interpretation of radiological and biochemical investigation and correlate the same with clinical findings	5	4
3.	Functional diagnosis of cardio – respiratory dysfunction and related movement dysfunction	9	7.2
4.	Application of appropriate skills for breathing re-training and bronchial hygiene as preventive (used specifically in pre-operative care) restorative and rehabilitative measures	9	7.2
5.	Prescription of appropriate therapeutic exercise programme for conditioning	7	5.6
6.	Prescription of home programme and ergonomic advice	8	6.4
7.	Airway Clearance Techniques	8	6.4
8.	Physiotherapy in Obstructive Lung Disease	8	6.4
9.	Physiotherapy in Restrictive Lung Disease	8	6.4
10.	Physiotherapy in Intensive Care Unit	8	6.4
11.	Monitoring System	5	4
12.	Emergency In Respiratory Conditions – CPR, Defibrillator, Resuscitation Procedure	8	6.4
13.	Physiotherapy after Common Pulmonary Surgeries	6	4.8
14.	Interpretation of a) Chest X ray b) P.F.T. – Obstructive / restrictive / reversibility. c) A.B.G. d) R.P.E – Borg's scale. e) Quality of life questionnaire	10	8
15.	Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence And Practice (LEAP) to all of the above conditions.	15	
	TOTAL	**140**	

Textbooks & Reference Books: - PHYSIOTHERAPY FOR PULMONARY CONDITIONS

1. Physiotherapy for Respiratory and Cardiac Problems by Pryor. 3rd edition. Elsevier publications.
2. Cardiovascular and Pulmonary Physical Therapy by Donna.4th edition Mosby publications.
3. Principles of Cardiopulmonary Physical Therapy by Sadowsky. 5th edition. WB Saunders.
4. Cash textbook of Chest Heart and Vascular Disorders for Physiotherapy. Patrica Downie. 4th edition .Jaypee publications.

PHYSIOTHERAPY FOR ADULT NEUROLOGICAL CONDITIONS

Subject code	Subjects	L/wk			Marks			Total	Credits
		T	P/T	D	T.P.	T.W.	P/V		
BPT-3605	PHYSIOTHERAPY FOR ADULT NEUROLOGICAL CONDITIONS	4	-	3	100	25	-	125	4
BPT-3606	PHYSIOTHERAPY FOR ADULT NEUROLOGICAL CONDITIONS **(PRACTICAL)**	-	4	-	-	25	50	75	2

COURSE DESCRIPTION:

This semester exclusively focuses on developing ability of evidence based clinical practice by applying all the physiotherapeutic skills (learned on models so far) on patients for evaluation, assessment, arriving at functional diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for restoration / rehabilitation of movement dysfunction affecting quality of life. In addition this academic year also includes basic skill development of conducting scientific projects based on research methodology and for community oriented practice

COURSE OBJECTIVES:

At the end of the course the student will be able;

- To assess, identify and analyze neuro-motor and psycho-somatic dysfunctions in terms of alteration in muscle tone, power, co-ordination, involuntary movements, sensations, perception etc, correlate the findings with provisional diagnosis and investigations such as EMG/NCV studies and arrive at functional diagnosis with clinical reasoning.
- To know about role in inter professional, multidisciplinary and interdisciplinary referrals and consultations of the following diseases
- To acquire the skill of application of PNF techniques on patients.
- To plan, prescribe and execute short term and long term treatment with special reference to relief of neuropathic and psycho-somatic pain, mat exercise, functional re-education, gait training and functional training for ADL and ergonomic advice.

To prescribe appropriate orthoses, splints and will be able to fabricate temporary protective and functional splints.

SYLLABUS - PHYSIOTHERAPY FOR ADULT NEUROLOGICAL CONDITIONS

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Introduction to Techniques used in Neurological Rehabilitation	9	7.03
2.	Physiotherapy Management for Cerebrovascular Disease	18	14.06
3.	Physiotherapy Management for Spinal Cord Diseases	13	10.15
4.	Physiotherapy Management for Head Injuries	14	10.93
5.	Physiotherapy Management for Paraplegia	7	5.46
6.	Physiotherapy Management for Tumours of Brain and Spinal Cord	7	5.46
7.	Physiotherapy Management for Alzheimer's Disease	1	1
8.	Physiotherapy Management for Parkinson's Disease	9	7.03
9.	Physiotherapy Management for Cerebellar Lesions	7	5.46
10.	Physiotherapy Management for Motor Neuron Disease	7	5.46
11.	Physiotherapy Management for Multiple Sclerosis	7	5.46
12.	Physiotherapy Management for Polyneuropathies	7	5.46
13.	Physiotherapy Management for Peripheral Nerve Lesions	7	5.46
14.	Physiotherapy Management for Myasthenia Gravis	1	1
15.	Physiotherapy Management for Myopathies	9	7.03
16	Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence And Practice (LEAP) to all of the above conditions.	15	
	TOTAL	**143**	

Textbooks & Reference Books: - PHYSIOTHERAPY FOR ADULT NEUROLOGICAL CONDITIONS

1. Physical Assessment & Rehabilitation, 5th edition by O' Sullivan, Jaypee
2. Physiotherapy in Neuro-conditions by Raj, Jaypee
3. Handbook of Neuro Rehabilitation by Amit Agrawal, Paras Publications
4. Rehabilitation for Traumatic Brain injury by Campbell, Churchill Livingstone
5. Steps to follow, Patricia M. Davis, Springer
6. Management of Neurological Disorders by Wiles, B M J group
7. Neurological Examination Made Easy, 3rd edition, by fuller, Churchill Livingstone
8. Easy EMG by Wiess, BH Publishers
9. Right in the Middle, Patricia M. Davis, Springer
10. Neurology for Physiotherapists, 4th edition by Patricia Downnie, Jaypee
11. Neurological Differential Diagnosis by Pattern, 2nd edition, Springer
12. Neurological Physiotherapy , Susan Edwards, Elsevier
13. Neurological Rehabilitation by Carr, Elsevier
14. Handbook of Neurological Rating Scales by Herndon, Demos Publishers
15. Neurological Rehabilitation by Darcy and Umphred, 4th edition, Mosby

S.N.D.T. WOMEN'S UNIVERSITY, MUMBAI.

CONTINUING PHYSIOTHERAPY EDUCATIONAL PROGRAMME

Total - 125 hrs.

DURING THE ENTIRE COURSE DURATION AS PER THE REQUIREMENT OF SYLLABUS STUDENTS HAS TO UNDERGO COMPULSORILY THE FOLLOWING PROGRAMS TO UPDATE STUDENTS TO INTERNATIONAL STANDARDS.

1. **SKILL ENHANCEMENT PROGRAMS**
2. **GUEST LECTURES**
3. **WORKSHOPS**
4. **ADVANCED TECHNIQUES TRAINING**
5. **PHYSIOTHERAPY CAMPS**
6. **CBR CAMPS**
7. **SEMINARS**

BY THE RESOURCE PERSONS RENOWNED IN THE FIELD OF PHYSIOTHERAPY AND REHABILITATION.

S.N.D.T. WOMEN'S UNIVERSITY, MUMBAI.

INTERNSHIP PROGRAMM

Total - 1194 hrs.

[A] The Clinical Orientation workshop (3 days X 8 hrs.) - 24 hrs.

[B] Rotational basis clinical training - 1092 hrs.

[C] Physiotherapy practice & Scientific Project including administrative skills.

(3 hrs. per week - not less than 78 hrs.) - 78 hrs.

Rules Governing Internship Training Programme for Final Year pass out B.P.T. Candidates under the Faculty of Medical Health Sciences.

1. This Direction shall be called "Rules Governing Internship Training Programme for Final Year pass out B.P.T. candidates.
2. This Direction shall come into force with effect from the date of its issuance.
3. For the Degree of Bachelor of Physiotherapy, the students after passing the professional examinations as per the syllabi prescribed by the S.N.D.T. Women's University, Mumbai, shall undergo Six months compulsory rotatory internship training programme to develop skill and acquire clinical knowledge with proficiency in managing patient independently.
4. These rules are already implemented by all approved / recognized Physiotherapy colleges affiliated to the S.N.D.T. Women's University, Mumbai, meticulously from the first batch admitted in 2000-2001 to Physiotherapy course. The evaluation of the interns shall be done very carefully by the In-charge, Internship Training Programme and the Head of the concerned department on the basis of the skill, knowledge and ability to handle the cases independently. The Dean / Principal of the college shall have to monitor Internship Training Programme in collaboration with all Heads of the Departments. The In-charge, Internship Training Programme, Heads of the Departments and the Dean / Principal of the institution shall be responsible for the maintenance of standard and records of the interns. Any deviation/alteration in the training programme without the knowledge of the S.N.D.T. Women's University, Mumbai, shall not be permitted under any circumstances.
5. The programme of internship shall be as under.

GENERAL:

Internship is a phase of training where in a candidate is expected to conduct actual Physiotherapy practice, with fair independence in clinical decision making in low risk cases where as to work under supervision at high risk areas; so that at the end of Internship she is capable to practice Physiotherapy independently.

Since Physiotherapy profession does not have a Council to regulate the education, till such Council is formed; the Rules & Regulations recommended by the Indian Association of Physiotherapists [I.A.P.], affiliated to the World Confederation for Physical Therapy, & accepted by the S.N.D.T. Women's University, Mumbai, shall be implemented.

The Internship programme shall mainly focus on acquisition of specific skills listed in the major areas of training by "hands on" experience & also on ability to conduct a scientific project.

1. The Chief of parent institute shall be responsible for implementation of Internship programme & also for the issue of Internship completion certificate.
2. Internship shall commence not later than One week from the day of declaration of results of VIII Semester B.P.T. examination.
3. It shall be binding on the candidate to follow strictly, the code of conduct prescribed by the I.A.P. & accepted by the S.N.D.T. Women's University, Mumbai. Any breach in the conduct / discipline shall disqualify the candidate from pursuing Internship for a period of One week to One month or more depending upon the gravity of breach of conduct.
4. No Stipend shall be paid.
5. Compulsory Internship shall include rotational clinical assignments, administrative skills & a scientific project over a period of 26 weeks. Candidate is however encouraged to extend optional "Hands on" practice for six additional months in the desired areas at the hospitals, attached to a college affiliated to S.N.D.T. Women's University, Mumbai, conducting B.P.T. programme; as per the Rules & Regulations applicable to Internees regarding attendance, attitude, performance & evaluation. Such clinical experience on successful completion & on passing in evaluation, shall be documented in the transcript & shall be strongly recommended for additional credits for higher education or employment.
6. On successful completion of Internship, to the satisfaction of the Head of Physiotherapy Dept & the Chief of the parent institution, the Internship completion certificate shall be issued by the parent institution; and it will be forwarded to the S.N.D.T. Women's University, Mumbai, for the award of B.P.T. Degree.

OBJECTIVES:

At the end of Internship programme, the candidate shall be able to-

1. Detect & evaluate Anatomical, Patho-Physiological & Psycho-Somatic impairments resulting in Dysfunction of MOVEMENT of all the ages, & occupations; as well as epidemiological sectors in the population; & arrive at the appropriate Physical & Functional diagnosis.
2. Understand the rationale & basic investigative approach to the Medical system & Surgical intervention regimens & accordingly, Plan & implement specific Physio therapeutic measures effectively Or make a timely decision for referral to appropriate speciality
3. Select strategies for cure & care; adopt preventive, restorative & Rehabilitative measures for maximum possible independence of a client/ patient, at home, work place & in the community.
4. Help in all types of emergencies medical, surgical, neonatal, & paediatric by appropriate therapeutic procedures & shall be able to implement, as a first level care, the. Cardio Pulmonary resuscitation, providing support to the injured area, splinting etc, in the situation when medical aid is not available
5. Demonstrate skill to promote Health in general as well as competitive level, such as sports, work productivity, Geriatric &, Women's health etc, keeping in mind National Health policies;
6. Develop skill to function as an essential member in co-partnership of the health team organized to deliver the health & family welfare services in existing socio-economic, political & cultural environment
7. Develop communication skill for purpose of transfer of suitable techniques to be used creatively at various stages of treatment, compatible with the psychological status of the beneficiary & skill to motivate the client & his family to religiously carry out prescribed home exercise programme & compliance to follow ergonomic advice given as a preventive / adoptive measure.
8. Demonstrate skill of managing patients attending Physiotherapy services , by developing skills to use appropriate manipulative mobilization methods, Neuro-physiological maneuvers, techniques of Bronchial hygiene, Breathing retraining; application of Electro- therapeutic modalities & Therapeutic exercise; for the purpose of, evaluation, assessment, diagnostic procedures; & for the purpose of treatment as well, bearing in mind their indications & contraindications
9. Develop ability to prescribe, assess [fitting] & use of appropriate orthotic & prosthetic devices; in addition to an ability to fabricate simple splints for extremities, for the purpose of prevention, support & training for ambulation & activities of daily living.
10. Develop ability to do Functional Disability evaluation of Movement; & recommend for rest or alternative work substitution during the period of recovery or in case of permanent disability.
11. Practice professional autonomy & ethical principle with referral as well as first contact client in conformity with ethical code for Physiotherapists.

INTERNSHIP SCHEDULE:

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

The schedule of Internship shall be as follows:

Assignment	Discipline	Duration
Musculo- skeletal Physiotherapy	OPD/Indoor Orthopaedics /Burns/ Surgical amputations	4 weeks
	Hand rehab. /Sports injury /wound & skin care	2 weeks
Neuro-physiotherapy	OPD/ Neurology/ Neurosurgery/	4 weeks
	Paediatrics /EMG	4 weeks
Cardio-pulmonary Physiotherapy	OPD /Medical/surgical	4 weeks
	Intensive care	4 weeks
Community Physiotherapy	* Womens health + Geriatric health at primary health centre or community	4 weeks
	TOTAL	26 weeks

* Clinical Posting in Community P.T can also be conducted at the rural set up with prior permission from the HOD and the Dean/ Principal of the parent institution.

SCIENTIFIC PROJECT:

During the Internship, candidate shall undertake a scientific project of 3 hours per weeks [total duration not less than 78 hours] .Selection of topic & place for the conduct shall be in consultation & with consent of the H.O.D. P.T. dept & the ethical committee of parent institution .Scientific inquiry shall be based on Comparative diagnostic or clinical trials, having a sample size of not less than 20. The candidate shall submit the project not earlier than two weeks & not later than 4 weeks of the last day of internship & the HOD, P.T. dept of parent institution shall sign on the same if the project is up to her /his satisfaction.

Candidate shall then present the project in front of senior Faculty, & if found satisfactory, the evaluators shall offer an appropriate Grade in consultation with each other .Such grade shall appear on the transcript.

EVALUATION:

During the rotational posting, student shall treat not less than 10 patients per day & also undertake skills of maintaining administrative records & Maintenance of equipment. The candidate shall maintain a log book & record all the events of the respective posting she shall be closely monitored by the senior Physiotherapy staff in charge through out the posting & the same shall also sign in the Log book on completion of the assignment

There shall be Formative & summative assessment at the end of each of the 4 postings given in the schedule & score will be given to each by the panel of minimum 3 teachers involved in supervision of the student during the respective assignment. Student shall repeat the respective assignment for a period of 25% of the period allotted to the respective posting, if she fails to score minimum 3 in the average of overall Formative + Summative score obtained during the respective posting.

During the Internship, student MUST CONDUCT following procedures

A. Electro-therapeutic Procedures:

1. Application of Low frequency currents [galvanic/faradic like, rectangular, triangular, surged ,interrupted etc] for- I]-Electro-diagnosis-a]-short-long pulse test, b]- motor points,c]-S.D. curves, d]- sensory threshold, e]-Pain threshold & tolerance, II]-Therapeutic purpose-Iontophoresis of various pharmaco-therapeutic drugs, Cathodal & anodal galvanism, Electrical re-education, TN.S, Interferential current therapy, Beat frequency, medium frequency currents, strong surged faradic stimulations, for pain relief & reduction of swelling etc.
2. Application of Superficial & Deep thermal agents- Cryotherapy, Hot packs, Paraffin wax bath, Infra red radiations, Short wave diathermy.
3. Calculation of appropriate dosage & application of a]-U.V.R[B /C] for wound care, & U.V.A .for skin conditions, b]-Continuous & pulsed Ultrasound of 1 & 3 MHz frequency for direct application, with coupling agents, water bags & phonophoresis .
4. Testing of all the electrical equipment

B. Therapeutic Gymnastic Procedures:

1. Selection & application of appropriate gymnastic tool for the management of dysfunction of mobility, strength, power, endurance, balance, coordination, cardio-pulmonary fitness; & for functional training such as transfers, mat activity, postural correction, gait training with or without aids, ambulation & A.D.L.
2. Group activity procedures-Select & implement group activity by effective & appropriate command & demonstration-such as Jacobson's Relaxation exercises, standard Yoga postures, Mat exercises, transfer exercises, shoulder/ Back class, General fitness/Aerobic exercises. Balancing exercises, Breathing exercises

C. Manipulative Mobilisation Procedures:

a) Massage maneuvers, for extremities, face, neck & back,

b) Assessment of Physiological movements, & end-feel.; identification of target soft tissue to be mobilized, & application of NON-Thrust mobilization techniques of Kaltenborn ,Maitland, Mulligan, Butler, Cyriax, Mckenzie & muscle energy methods, passive sustained stretching on Spine & extremities, , manual traction for cervical & lumbar spine.

D. Therapeutic exercise [including auto stretching exercises.]:

For Home programme, for restoration & maintenance of function , prevention of Dysfunction

E. Neuromotor & Psychosomatic Procedures:

a) Manual muscle testing[group & individual] ,identification of trick movements, muscle imbalance,

b) Assessment of posture[static & dynamic] & its deviations,

c) Assessment of Gait & its deviation; selection of appropriate walking aids, & training, stair climbing;

d) Neuro- developmental & /neurophysiological methods of assessment & treatment [P.N.F, N.D.T., Brunnstrom, Bobath, Butler, Patricia Devis] of voluntary control, spasticity, [Ashworth`s scale], coordination, balance, abnormal movements, functional re- education, standing, gait training, ADL training,

e) Assessment of L.O.C, Tilt table standing for Ca++ balance, passive mobilization for maintenance of paralytic limbs,

f) Assessment of peripheral sensations, dermatomes, superficial & deep reflexes,

F. Cardio-Pulmonary Procedures:

a) Assessment of B.P., R.R., Pulse, body temp. ,Abnormal breath sounds, breathing pattern, chest expansion, exercise tolerance[6 min. walk test] , P.E.F.R.,

b) Selection & application of nebulisation, humidification, positioning for postural drainage, percussion manipulations for bronchial hygiene, coughing–huffing maneuvers, suctioning for tracheaostomized & non-tracheostomized patient, comatose patient, assist in bronchial hygiene in patients with Oxygen support or artificial ventilation;

c) Selection & implementation of appropriate Breathing exercise,[inspiratory/ expiratory /modified inspiratory;]

d) Cardio-pulmonary resuscitation

G. Other Therapeutic Procedures:

a) Fabrication [with plaster of Paris bandages/ thermoplast/similar material-] splints- cock up, knuckle bender, outriggers, opponens splint, soft cervical collar ; posterior guards for gait training,

b) Strapping & Taping of extremities for support, & pain relief

c) Application of elastocrepe bandage for prevention of swelling, shaping of amputated stump,

d) Wound care-application of U.V.R., TNS, etc, dressing ; UVR application for vitiligo, & psoriasis

H. Community Physiotherapy procedures:

a) Collect, analyse, interpret, & present , simple community & hospital based data,
b) Participate as a member in co-partnership in the Rehabilitation work in the community
c) Participate in the programmes in prevention & control of locally prevalent functional disorders,
d) Be capable of conducting survey & employ its findings as a measures towards arriving at a community functional diagnosis
e) Provide health education to an individual / community on-
    i. General fitness, ergonomic alterations for better quality life at home & work place,
    ii. Preventive tools to avoid accidents, in the industrial area
    iii. Skin care in case of loss /impairment of sensations,
    iv. Care of the back,
    v. Antenatal/ post-natal exercises; management of pelvic dysfunction [urinary / anorectal incontinence; per vaginal prolapse
    vi. Specific warming up activities & appropriate maintenance exercises to elderly patients

TO ASSIST IN PROCEDURES:

a) Fabrication of pylon
b) Electromyography,
c) Physiotherapy in Intensive care
d) Disaster management

EVALUATION SCHEME:

Skills during Formative Evaluation shall include following

1. Musculo-skeletal Physiotherapy-relevant Skills mentioned at - A ,B ,C ,D ,& G above
2. Neuro-Physiotherapy- Relevant Skills mentioned at A ,B ,D ,E ,& G above
3. Cardio-pulmonary Physiotherapy – Relevant skills mentioned at B, D, & F above
4. Community Physiotherapy- Relevant Skills mentioned at D,G & H above
5. Overall total marks per evaluation scheme is 10 marks.

LEAVE FOR INTERNS:

An internee shall be entitled for maximum 6 days leave during six months period of internship posting. An internee will not be permitted to avail more than 2 days leave in any department. Period of leave in excess of 2 days in a department will have to be repeated in the same department. Under any circumstances this period will not be condoned by any authority.

Transfer of Internee to other Physiotherapy college:

The student desirous of transfer to another Physiotherapy college for doing internship training programme may apply to the University in the prescribed form along with the fee prescribed by the University from time to time.

A. Colleges affiliated to S.N.D.T. Women's University, Mumbai,:

1. Internee shall be permitted to complete all parts of internship at approved/ recognized Physiotherapy college.
2. The student will have to apply for No Objection Certificate to parent college and also where she wants to get internship transferred.
3. Maximum 5% of total intake capacity of that college (outgoing and incoming) will be entertained for transfer. Out of total transfer 4 % will be kept for regular and 1 % for repeater batch.
4. The parent college will forward the application with No Objection Certificate to S.N.D.T. Women's University, Mumbai and the University authority will finalize the cases strictly on the basis of the merit.
5. The college in which the internee is transferred will have to complete the programme as per the guidelines including skill test/ performance.
6. The parent institution will then receive the Internship Completion Certificate from that college and will forward the same to S.N.D.T. Women's University, Mumbai for the award of degree.

B. Colleges outside the jurisdiction of S.N.D.T. Women's University, Mumbai,:

1. No Objection Certificate from both relieving and receiving colleges shall be obtained by the candidate.
2. The application along with the No Objection Certificate's will be forwarded to S.N.D.T. Women's University, Mumbai for getting permission to allow the internship completion at colleges outside the jurisdiction of this University.
3. The concerned college will issue Internship Attendance Certificate mentioning the quantum of work done department-wise as per proforma of S.N.D.T. Women's University, Mumbai and it will be submitted by the internee to Parent college.
4. The parent college will assess the skills by conducting skill performance tests as per the guidelines of internship.
5. After successful completion of skill tests, internship completion certificate will be issued by the parent college and it will be forwarded to S.N.D.T. Women's University, Mumbai for award of degree.

C. Merit to be considered:

The applications for transfer of internees shall be considered and decided strictly on the basis of merit as follows:

1. Aggregate marks obtained at Final B.P.T. Examination.
2. No. of attempts at Final B.P.T. Examination.
3. 1 % marks will be deducted per attempt from aggregate marks of final B.P.T.
4. In case of tie, combined marks of I, II, III & IV B.P.T. to be considered.
5. Age to be considered.

Issue of Internship completion certificate

Internee will be issued internship completion certificate by the Dean / Principal only after completion of internship training programme satisfactorily.

Start of Internship programme

The programme will commence within 10 days after the declaration of Final B.P.T. result by the University. Before commencement of the Internship Training Programme the Dean/ Principal shall conduct three days Orientation Workshop to orient the internees to get acquainted with the details of Internship Training Programme. The Orientation Workshop should cover orientation to internship programme, CPR basics, Specific Emergency care of Patients, Hands- on, Medico-legal issues, Internal Evaluation Scheme, Mandatory Skills to be acquired, Social and ethical aspects, National Health Policy, Patient Management. It shall be mandatory for the internees to attend the Orientation Workshop. The period of three days shall be included in the period of six months Internship.

This direction shall remain in force until the University makes regulations in this behalf.

Place :

Sd/-

Date : __/___/20__ The Registrar

~ SNDT ~ SNDT ~ SNDT ~ SNDT ~ SNDT ~ SNDT ~ SNDT ~ SNDT ~ SNDT ~

FORMAT OF INTERNSHIP EVALUATION (For office use only) Roll No._______ Year___________

Name:- _____________________________________ duration from ____________ to_____________

Assignment:-____

SUMMATIVE EVALUATION		**FORMATIVE EVALUATION**	
MAXIMUM SCORE	**5 each**	**MAXIMUM SCORE**	**5 each**
Punctuality		Cognitive (Problem solving / clinical decision & reasoning / planning Treatment	
Attitude towards patients & colleagues/ Character		Physical Assessment Skills	
Urge for learning / Initiative		Skills of Treatment maneuvers	
Accountability / Responsibility		Skills of equipment handling	
Administrative ability (records / maintenance of equipment)		Participation in Academic activities	
Total		**Total**	

Minimum Grade required for passing – Average of Over all score obtained from the respective assignment is to be considered. Minimum score for passing shall be

A : Excellent

B : Good

C : Satisfactory

D : Below Satisfactory

(To be repeated)

Signature
Dean/ Principal/ Director
of the College

Signature
Head of the Dept.
Internship in-charge

=+=

~ SNDT ~ SNDT ~ SNDT ~ SNDT ~ SNDT ~ SNDT ~ SNDT ~ SNDT ~ SNDT ~

=+=