BACHELOR OF PHYSIOTHERAPY

(BPT SEMESTER PATTERN)

REGULATIONS, 2019

For the students admitted from the academic year 2019-2020

FACULTY OF MEDICINE AND HEALTH SCIENCES
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
(Deemed to be University u/s 3 of UGCAct, 1956)
SRM NAGAR, KATTANKULATHUR,
KANCHEEPURAM DISTRICT-603203

1. SHORT TITLE & COMMENCEMENT:

The regulation of Bachelor of Physiotherapy, BPT in short form are in compliance with Model curriculum Handbook Physiotherapy published by Ministry of Health and Family Welfare for Allied Health Section 2015-2016 and by the By-laws of SRM Institute of Science and Technology passed in the dated 20/03/2019,40th Academic Council of the SRM IST hereby makes the following regulations.

This regulation shall come into force for the candidates admitted from the academic year 2019 – 2020.
These regulations are subject to modifications as may be approved by the academic council SRMIST from time to time.

Bachelor of Physiotherapy program shall run on Choice Based Credit System (CBCS). It is an instructional package developed to suit the needs of students to keep pace with the developments in higher education and the quality assurance expected of it in the light of liberalization and globalization in higher education. UGC, subsequently, in its notification UGC No.F.1-1/2015 (Sec.) dated 10/4/15 has provided a set of Model curricula and syllabi for CBCS programs.

2. ELIGIBILITY FOR ADMISSION

2.1 A pass in the 10+2 (Higher Secondary) examination or any other equivalent examination from a recognized board or Pre university in India or Abroad, with a minimum 50% aggregate of marks in Physics, Chemistry and Biology to be specified by the Admissions Committee, English as one of the Subject

2.2 A candidate shall, at the time of admission, submit to the Head of the Institution, a Certificate of Medical Fitness from an authorized Medical Officer certifying that the candidate is fit to undergo the academic course.

2.3. Age limit for admission: A candidate should have completed the age of 17 years at the time of admission or would complete the age on or before 31st December of the year of admission to the B.P.T. program.

3. REGISTRATION

A candidate admitted to the course shall register with this SRM IST by remitting the prescribed fee along with the application form for registration duly filled in and forwarded to the SRM IST through the Head of the Institution.

4. DURATION OF THE COURSE

The duration of the program shall be 4 academic years comprising of 8 semesters, and 6 months of compulsory rotatory internship. However a student may complete the program at a slower pace of taking more time but in any case not more than 8 years including internship from the dateof admission.

5. COMMENCEMENT OF COURSE

The course will be commenced on 1st week of July in the everyacademic year.

6. MEDIUM OF INSTRUCTION

The medium of instruction for all subjects shall be in English, includes Teaching, Evaluation and Courseware.

7. WORKING DAYS IN EACH SEMESTER

Each semester shall consist of not less than 100 working days with span of 15 - 20 working weeks.

8. SEMESTER:

8.1. 1st semester will commence from 1st week of July and 3rd ,5th ,7th (Odd) semesters from June in every academicyear.

8.2. The2nd,4th,6th,8th (Even)semestersshallcommencefromDecember in every academic year.

9. COURSE

Each Course (subject) shall be designed under lectures / laboratory or field work / seminar / practical training /outreach activities / Assignments / Term paper or Report writing or a combination of some of these to meet effective teaching and learning needs.

10. TYPES OF COURSES

Courses ina programmemay beofthreekinds:

Core Course
Elective Course
Ability Enhancement Course (Foundation Courses)

10.1. **Core Course**: A course, whichshould compulsorily be studied by a candidate as a core requirement is termed as a Core course. There may be a **Core Course** in every semester. This is the course which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.

10.2. **Elective Course**: Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/ subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain which nurtures the candidate's proficiency/skill is called an Elective Course.

10.2.1 **Discipline Specific Elective (DSE) Course**: Elective courses offered by the main discipline/subject of study are referred to as Discipline Specific Elective. The University / Institute may also offer discipline related Elective courses of interdisciplinary nature. An elective may be **"Discipline Specific Electives (DSE)"** focusing on those courses which add generic proficiency to the students.

10.2.2 **Dissertation / Project**: An Elective/Core course designed to acquire special / advanced knowledge, such as supplement study / support study to a project work, and a candidate

studies such a course on his own with an advisory support by a teacher / faculty member is called dissertation / project.

10.2.3 **Generic Elective (GE) Course**: An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.

10.4. **Ability Enhancement Courses (AEC):** The Ability Enhancement (AE) Courses may be of two kinds: Ability Enhancement Compulsory Courses (AECC) and Skill Enhancement Courses (SEC).

AECC courses are the courses based upon the content that leads to Knowledge enhancement such as (i) Environmental Science and (ii) English/MIL Communication. These are mandatory for the program.

Skill Enhancement Courses (SEC): SEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, Indian and foreign languages etc. These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge.

10.5. The students may choose Two online courses (SWAYAM, NPTEL, Etc), one during 7^{th} & one during 8^{th} Semester.

11. CREDITS:

11.1. Credit defines the quantum of contents/syllabus prescribed for a course and determines the number of hours of instruction required per week. Thus, normally in each of the courses, credits will be assigned on the basis of the number of lectures/ tutorial laboratory work and other forms of learning required, to complete the course contents in a 15-20 week schedule:

1 credit = 1 hour of lecture per week (1 Credit course = 15 hours of lectures per semester)

3 credits = 3 hours of instruction per week (3 Credit course = 45 hours of lectures per semester)

11.2. Credits will be assigned on the basis of the lectures (L) / tutorials (T) / Clinical Training (CT) / laboratory work (P) / Research Project (RP) and other forms of learning in a 15-20 week schedule

L - **One credit** for **one hour** lecture per week (1 credit course = 15 hours)
T – **One credit** for **one hour** tutorial per week (1 credit course = 15 hours)
P/T- **One credit** forevery **twohours** oflaboratoryorpractical (1 credit course = 30 hours)
CT - **One credit** for every **three hours** of Clinical training/Clinicalrotation/posting (1creditcourse =45hours)
RP - **One credit** for every **two hours** of Research Project per week
(1 credit course = 30 hours)

- All core courses should be restricted to a maximum of 4 credits
- All electives should be restricted to a maximum of 3 credits
- All ability enhancement course should be restricted to a maximum of 2 credits

12. ATTENDANCE REQUIRED FOR ADMISSION TO EXAMINATIONS

12.1 Candidate is required to have a minimum of 80% of attendance in each course before admission to the examination.

12.2 A candidate lacking in the prescribed attendance in any one course in the first appearance shall not be permitted for admission to the entire examinations of thesemester.

13. CONDONATION OF LACK OF ATTENDANCE

Condonation of shortage of attendance up to a maximum of 10% in the prescribed eligible attendance for admission to the University examination rests with the discretionary power of the Vice-Chancellor. For valid reasons, a candidate lacking in attendance may submit an application in the prescribed form and remit the stipulated fee 15 days prior to the commencement of the theory examination. Head of the Institution should satisfy themselves on the reasonableness of the candidate's request while forwarding the application with their endorsements to the Controller of Examination who would obtain the Vice-Chancellor's approval for admission of the candidate to the University examination.

14. COMMENCEMENT OF EXAMINATION

Semester	Month of Examination
1st Semester & 2nd Semester	November / May
3rd ,5th &7th Semester	October
,4th , 6th & 8th Semester	April

15. CONTINUOUS INTERNAL ASSESSMENT (CIA)MARKS

15.1 The Internal Assessment marks for 2,3 and 4 credits theory courses shall be awarded as per the scheme given below

15.1 A The internal mark will be calculated based on written test and Assignments / Seminar

Internal Assessment (IA)	Internal mark		Internal marks (Max.)	Total marks (Maximum)
	Written	Assign/Seminar		
First IA	10	5	15	30
Second IA	10	5	15	

15.2 The Internal Assessment marks for 1 and 2 credits theory courses (Internal Examination Course) shall be awarded as per the scheme given below

15.2 A The internal mark will be calculated based on written test and Assignments / Seminar

Internal Assessment (IA)	Internal mark		Internal marks (Max.)	Total	Final Exam	Total marks (Maximum)	
	Written	Assign/Seminar				Pass Min	Max Mark
First IA	15	10	25	50	50	50	100
Second IA	15	10	25				

15.3 The Internal Assessment marks for 4 credits practical courses shall be awarded as per the scheme givenbelow

15.3 A The internal marks will be calculated based on practical and Records / Log Note.

Internal Assessment (IA)	Internal mark		Internal marks (Max.)	Total marks (Maximum)
	Practical	Record / Log note		
First IA	10	5	15	30
Second IA	10	5	15	

15.4. The Internal Assessment marks for 2 credits practical courses shall be awarded as per the scheme given below

15.4 A The internal mark for will be calculated based on practical and Records / Log Note .

Internal Assessment (IA)	Internal mark		Internal marks (Max.)	Total marks (Maximum)
	Practical	Record / Log Note		
First IA	15	10	25	50
Second IA	15	10	25	

15.5. The Internal Assessment marks for 1,2 and 3 credits practical courses (Internal Examination course) shall be awarded as per the scheme given below

15.5 A The internal mark will be calculated based on written test, practical and Assignments / Seminar, Log note, Records.

Internal Assessment (IA)	Internal mark		Internal marks (Max.)	Total	Final Exam	Total marks (Maximum)	
	Prac	Rec / Log				Pass min	Max Mark
First IA	15	10	25	50	50	50	100
Second IA	15	10	25				

15.6. A failed candidate in any course in University examinations shall be provided an opportunity to improve his internal marks by conducting a minimum of two Improvement Mark Examinations.

15.7. If a failed candidate does not appear for any "Improvement Mark Examinations" in the failed course(s) the internal marks awarded for the previous examination shall be carried over for his / her subsequent appearance(s).

15.8. The internal assessment marks should be submitted to the University endorsed by the Head of the institution prior to the commencement of the theoryexaminations.

15.9. A candidate failed in any course in the University examination due to low internal assessment marks shall be provided an opportunity to improve his / her internal assessment marks by conducting internal assessment as per clause 15.1, 15.2, 15.3 and 15.4 in theory and practical separately with proper approval obtained from the Universityofficials.

16. EVALUATION OF UNIVERSITY EXAMINATIONS

16.1. Examiners Eligibility:

An internal examiner should have minimum 2 years of experiences after completion of Post-Graduation, and an external examiner should have minimum 4 years of experience after completion of Post – Graduation.

16.2. Theory Evaluation: Single valuation externalexaminer.

16.3. Practical Evaluation: Two examiner **(**one internal and one external examiner)

16.4. Clinical Training: Two examiner (Both are Internal Examiners)

16.5. Dissertation / Project Evaluation:

1. **Research Project – I :** The students has to present their research proposal and get approval from internal review committee
2. **Research Project – II :** Two Examiners (one Internal and one External)
3. If a student gets a 'F' or 'Ab' grade he/she should re register the course, earn marks for research proposal and project report as applicable and then appear for the final viva. During the course the student shall choose a new project topic (other than the one he/she had been associated with earlier) under the guidance of the allotted faculty member

16.2 **REVALUATION:** –After publication of results the candidate can apply for re-evaluation within one week to the university in a prescribed application form along with re-evaluation fees.

17. MARKS QUALIFYING FOR PASS

17.1. Minimum marks for passing examination: A student shall not be declared to have passed examination unless he or she secures at least 50% marks in Theory or Practicalandan aggregate of 50% in IA and the university examinations put together.

17.2. A candidate fails to secure a pass in a particular course; it is mandatory that he / she shall register and reappear for the examination in that course during the next semester. He/she should continue to register and reappear for the examination till he/she securesapass. However, theinternalassessmentmarksobtained by thecandidate in thefirst attempt shall beretained and considered valid for all subsequentattempts.

17.3. The Improvement exams for improving the internal assessment marksmay beconductedasperclause 15. Theapprovalshouldbe obtained from theuniversityduringthe currentsemester.

18. PROMOTION CRITERIA

18.1 The candidate shall be promoted to V semester only after obtaining pass in all the courses in I and II semester.

18.2 Thecandidate shall be promoted to VII semester only after obtaining pass in all the courses in III and IV semester.

18.3 There would not be any add batch in any of the semester and candidate who got break or detention should follow the re admissionprocedureand enrollthenextsemesterwhen it willbe offered in the university.

18.4. The candidate shall be eligible for internship program only after successfulcompletionof all thecourses till eightsemesters as per the curriculum.

19. READMISSION AFTER BREAK OF STUDY

Break of the study and readmission will be done according to the Guidelines of SRMIST.

20. READMISSION DURING INTERNSHIP

Internship re admission after the break of internship training shall be done as per the rules & regulations of the SRMIST.

21. GRADING:

The total of the internal evaluation marks and final University examination marks in each course will be converted to a letter grade on to confirm as per the following scheme as recommended by UGC:

Letter Grade	Grade Points	Mark Range
O(Outstanding)	10	91 – 100
A+(Excellent)	9	81 – 90
A(Very good)	8	71 – 80
B+(Good)	7	61 – 70
B(Above	6	56 – 60

average)		
C(Average)	5	50 – 55
F(Fail)	0	< 50 Failure due to insufficient marks in the course
Ab (Absent)	0	Failure due to non-appearance in examination

Astudentobtaining Grade F(or)Gradepoint'0'shallbe consideredfailed and will be required to reappear in the examination.

22. COMPUTATION OF SGPA AND CGPA:

The UGC recommends the following procedure to compute the Semester Grade Point
Average (SGPA) and Cumulative Grade Point Average (CGPA):

- The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

SGPA (Si) = $SGPA = \frac{\sum_1^n C_i \times (GP)_i}{\sum_1^n C_i}$

where Ci is thenumberofcreditsoftheithcourseand Gi is the grade point scored by the student in the ith course.

The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme excluding internship i.e.

$$CGPA = \frac{\sum_1^r S_i \times (SGPA)_i}{\sum_1^r S_i}$$

where Si is the SGPA of the ith semester and Ci is the total number of credits in that semester.

- The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.
- Credit Earned in Internship and online courses will not be considered for SGPA and CGPA

23. INTERNSHIP:

There shall be six months (24 weeks) of Internship after successfully completing the eighth semester examination for candidates and had been declared to have passed the examination in all the subjects. No candidate shall be awarded degree certificate without successfully completing six months of Internship.

The Internship should be rotatory and cover clinical branches concerned with Physiotherapy such as Orthopaedics, Cardiothoracic including ICU, Neurology, Paediatrics, General Medicine, General Surgery, Obstetrics and Gynaecology, Leprosy , Sports ,Fitness and etc, in both inpatient and outpatient services. On completion of all postings, the students will be assessed based on their satisfactory attendance, performance in the postings / research labs and duly completed logbooks will be submitted to the Principal/Head of the program to be considered as having successfully completed the internship program.

24. AWARD OF DEGREE :

Every student of the programme who fulfills the following criteria will be eligible for the award of the degree provided

- He/She should have earned at least minimum of 191 credits (Excluding online Courses) as prescribed in course structure,
- He/She should have cleared all internal and external evaluation components in every course,
- He/She should have successfully completed the internship with minimum of 24 credits.
- He/She should have secured a minimum CGPA of 5.00 at the end of the programme .

25. AWARD OF CLASS:

Theclass awarded toastudent in theprogramme is decidedbythefinal CGPA as per the following scheme:

Category	**CGPA(From I -VIII semesters)**	**Class/Distinction**
Students who successfully complete the program within the time duration of 8 semesters	≥5.0&<6.0	Second class
	≥6.0 &<7.5	First class
	≥7.5 &<10.0 (Without F or AB in any semester)	First class with distinction
	≥6.0 &<10.0 (With F in any semester but obtained pass grade (O to P) subsequently)	First class
	≥5.0 & <6.0	Second class
Candidates who could not Successfully complete the program in normal duration but completed within the maximum duration.	≥6.0 &<10	First class
	≥5.0&<6.0	Second class

UNIVERSITY EXAM QUESTION PAPER PATTERN:

All the university theory examination will be conducted for 70 marks with 3 hours duration.

S.NO.	**QUESTIONS**	**MARKS**

SECTION A		
1.	MCQ (2 MCQ 's from Each Units)	10×1=10 Marks
SECTION B		
2	Essay (2 out of 3)	2×10=20 Marks
SECTION C		
3	Short Notes (8 out of 10) (2 Short notes from Each Units)	8×5=40Marks
Total		**70 Marks**

BACHELOR OF PHYSIOTHERAPY

(BPT SEMESTER PATTERN)

CURRICULUM AND SYLLABUS 2019

For the students admitted from 2019-2020

FACULTY OF MEDICINE & HEALTH SCIENCES
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
(Deemed tobe University u/s 3 of UGCAct, 1956)
SRM NAGAR, KATTANKULATHUR,
KANCHEEPURAM DISTRICT-603203.

1. OVERALL OBJECTIVES

An undergraduate course in Physiotherapy is to impart knowledge and skill to a student to become competent in the physical diagnosis, treatment techniques and develop the proper attitude required for the practice of Physiotherapy par with International standards.

2. OBJECTIVES

The graduate of Physiotherapy programme must have the following quality.

a) Acquire adequate knowledge of the basic medical subjects in the practice of physiotherapy.
b) Develops skills and techniques of therapeutic Exercise, Massage and electrotherapeutic modalities for the management of various medical and surgical conditions.
c) Develops proper attitude for compassion and concern for the individuals and welfare of the physically handicapped in the community.
d) Demonstrates skill in teaching, management, research, guidance and counseling.
e) Practices moral and ethical values.

SEMESTER – 3

COURSE CODE	COURSE TITLE			HOURS				
	Core Course	DSE	Enhancement Course	Total hours	L	T	P	C
BPT19101	Human Anatomy – I	-	-	60	3	1	--	4
BPT19102	Human Physiology – I	-	-	60	3	1	--	4
BPT19103	Clinical Biochemistry	-	-	45	2	1	--	3
BPT19104	Sociology	-	-	45	2	1	--	3
BPT19105	-	-	English & Communication Skills	30	2	--	--	2
BPT19106	Human Anatomy Practical –I	-	-	60	--	--	4	2
BPT19107	Human Physiology Practical-I	-	-	30	--	--	2	1
BPT19108*	-	-	Basic Computer Applications	30	2	--	--	2
BPT19109*	-	-	Disaster Management	30	2	-	-	2
BPT19110*	Clinical Training - I	-	-	90	--	--	6	2
	Library	-	-	45	3			
	Total				**35**			**25**

***End semester examination will be conducted at the department and mark will be submitted to the University**

SEMESTER – 4

COURSE CODE	COURSE TITLE			HOURS				
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	C
BPT19201	Human Anatomy – II	-	-	60	3	1	--	4
BPT19202	Human Physiology –II	-	-	60	3	1	--	4
BPT19203	Biomechanics I	-	-	60	3	1	--	4
BPT19204	Psychology	-	-	45	2	1	--	3
BPT19205	Human Anatomy Practical – II	-	-	60	--		4	2
BPT19206	Human Physiology Practical –II	-	-	60	--		4	2
BPT19207*	-	-	First Aid & BLS	45	1		**2**	2
BPT19208*	-	-	Environmental Science	15	1	--	--	1
BPT19209*		-	Introduction To Healthcare delivery System In India	15	1	--	--	1
BPT19210*	Clinical Training - II	-	-	90	--	--	6	2
	Library	-	-	15	1			
Total					**35**			**25**

***End semester examination will be conducted at the department and mark will be submitted to the University**

SEMESTER – III

COURSE CODE	COURSE TITLE			HOURS				
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	C
BPT19301	Biomechanics – II	-	-	60	3	1	--	4
BPT19302	Exercise therapy -I	-	-	60	3	1	--	4
BPT19303	Pathology		-	45	2	1	--	3
BPT19304	Microbiology		-	45	2	1	--	3
BPT19305	Pharmacology		-	30	1	1	--	2
BPT19306	Biomechanics - II Practical	-	-	60	--	--	4	2
BPT19307	Exercise therapy -I Practical	-	-	120	--	--	8	4
BPT19308*	Clinical Training -III	-	-	90	--	--	**6**	2
-	Library			**15**	**1**			
Total					**35**			**24**
***End semester examination willbeconducted at thedepartment and mark will be submitted to the University**								

SEMESTER – IV

COURSE CODE	COURSE TITLE			HOURS				
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	C
BPT19401	Exercise therapy - II	-	-	60	3	1	--	4
BPT19402	Electrotherapy (LMHF)	-	-	60	3	1	--	4
BPT19403	Bio Physics	-	-	45	2	1	--	3
BPT19404	Ethics and Management in Physiotherapy	-	-	45	2	1	--	3
BPT19405	Exercise therapy Practical II	-	-	120	--	--	8	4
BPT19406	Electrotherapy LMHF Practical	-	-	120	--	--	8	4
BPT19407*	Clinical Training - IV	-	-	45	--	--	3	1
-	Library			30	2			
Total					**35**			**23**
***End semester examination will be conducted at the department and mark will be submitted to the University**								

SEMESTER – V

COURSE CODE	COURSE TITLE			HOURS				
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	C
BPT19501	Evaluation Measurements and Outcome measures	-	-	45	2	1	--	3
BPT19502	Orthopedic conditions for Physiotherapist	-	-	60	3	1	-	4
BPT19503	General Surgery, Plastic Surgery & OBG	-	-	60	3	1	-	4
BPT19504	General Medicine, Pediatrics & Psychiatry	-	-	60	3	1	-	4
BPT19505	Community Medicine		-	45	2	1	-	3
BPT19506*	-	-	Diagnostic Imaging for Physiotherapist	30	2	--	--	2
BPT19507*	-	-	Human science for yoga practice	60	2	--	2	3
BPT19508*	Clinical Training - V	-	-	90	-	-	6	2
	Library			75	5	--		
Total					**35**	**525**		**25**
***End semester examination will be conducted at the department and mark will be submitted to the University**								

SEMESTER – VI

COURSE CODE	COURSE TITLE			HOURS				
	Core Course	DSE	Enhance-ment Course	Total Hours	L	T	P	C
BPT19601	PT in Orthopedic Conditions	-	-	60	3	1	--	4
BPT19602	PT in General Medicine & General Surgery	-	-	60	3	1	--	4
BPT19603	Neurological Conditions for Physiotherapist		-	60	3	1	--	4
BPT19604	Research Methodology & BioStatistics		-	30	1	1	--	2
BPT19605	Pain mechanisms and Management of Pain for Physiotherapists	-	-	30	1	1	--	2
BPT19606	PT in Orthopedic conditions – Practical	-	-	60	--	--	4	2
BPT19607	Work Physiology	-	-	45	2	1	--	3
BPT19608*	-		Medical Terminology and Record Keeping	15	1	--	--	1
BPT19609*	Clinical Training-VI	-	-	90	--	--	6	2
-	Library				75			
Total					**35**	**525**		**24**
***End Semester exam will be conducted atthedepartmentand mark will be submitted to the University**								

SEMESTER – 8

COURSE CODE	COURSE TITLE			HOURS				
	CORE COURSE	DSE	ENHANCEMENT COURSE	Total Hours	L	T	P	C
BPT19701	PT in Neurological disorders	-	-	60	3	1	--	4
BPT19702	Community Based Physiotherapy– I	-	-	60	3	1	--	4
BPT19703	Health Promotion and Fitness	-	-	30	1	1	--	2
BPT19704	Cardiovascular & Pulmonary Conditions for Physiotherapist			60	3	1	--	4
BPT19705	PT in Neurological Disorders Practical	-	-	60	--	--	4	2
BPT19706*	Research Project I	-	-	90	--	--	6	2
BPT197E1	Tele Rehabilitation			45	2	1	--	3
BPT197E2	Hospital and Healthcare Services Marketing			45	2	1	--	3
BPT19707*	Clinical Training-VII	-	-	90	--	--	6	2
	Library			30	2			
Total					**35**		**525**	**23**

***End semester examination will be conducted at the department and mark will be submitted to the university**

SEMESTER – VIII

COURSE CODE	COURSE TITLE			HOURS				
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	C
BPT19801	PT in Cardio Pulmonary Diseases	-	-	60	3	1	--	4
BPT19802	Community Based Physiotherapy - II	-	-	60	3	1	--	4
BPT19803	PT in Cardio Pulmonary Diseases& ICU Practical	-	-	60	--		4	2
BPT19804	Community Based Physiotherapy -II Practical	-	-	60	--	--	4	2
BPT198E1	-	Pediatric Physiotherapy		45	2	1		3
BPT198E2	-	PT in Hand Condition		45	2	1		3
BPT19805	Evidence Based Practice			45	2	1		3
BPT19806	Research Project - II	-	-	90	--	--	6	2
BPT19807*	Clinical Training-VIII	-	-	90	--	--	6	2
	Library			15	1			
Total					**35**	**525**		**22**

***Endsemesterexamination willbeconductedatthedepartmentandmark will be submitted to the University**

STATEMENT OF MARKS

		Theory			Practical			Total Marks	
Course Code	**Course Name**	**Internal**	**Passing Min**	**Maximum Marks**	**Internal**	**Pass Min**	**Maximum marks**	**Aggregated passing Minimum**	**Maximum total marks**
	SEMESTER - I								
BPT19101	Human Anatomy – I	**30**	**35**	**70**	**N/A**	**N/A**	**N/A**	50	100
BPT19102	Human Physiology – I	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19103	Clinical Biochemistry	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19104	Sociology	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19105	English & Communication Skills	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19106	Human Anatomy Practical –I	N/A	**N/A**	**N/A**	50	25	50	50	100
BPT19107	Human Physiology Practical-I	N/A	**N/A**	**N/A**	50	25	50	50	100
BPT19108*	Basic Computer Applications	N/A	N/A	N/A	100	N/A	N/A	50	100
BPT19109*	Disaster Management	100	N/A	N/A	**N/A**	**N/A**	**N/A**	50	100
BPT19110*	Clinical Training - I	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100
	SEMESTER II								
BPT19201	Human Anatomy – II	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19202	Human Physiology–II	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19203	Biomechanics I	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19204	Psychology	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19205	Human Anatomy Practical – II	N/A	**N/A**	**N/A**	50	25	50	50	100
BPT19206	Human Physiology Practical –II	N/A	**N/A**	**N/A**	50	25	50	50	100
BPT19207*	First Aid & BLS	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100
BPT19208*	Environmental Science	100	N/A	N/A	**N/A**	**N/A**	**N/A**	50	100

BBPT19209*	Introduction to Healthcare Delivery System In India	100	N/A	N/A	**N/A**	**N/A**	**N/A**	50	100
BBPT19210*	Clinical Training- II	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100
SEMESTER III									
BPT19301	Biomechanics – II	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19302	Exercisetherapy-I	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19303	Pathology	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19304	Microbiology	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19305	Pharmacology	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19306	Biomechanics - II Practical	N/A	**N/A**	**N/A**	50	25	50	50	100
BPT19307	Exercise therapy Practical -I	N/A	**N/A**	**N/A**	30	35	70	50	100
BPT19308*	Clinical Training -III	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100

		Theory			Practical			Total Marks	
Course Code	**Course Name**	**Internal**	**Pass Min**	**Maximum Marks**	**Internal**	**Pass Min**	**Maximum marks**	**Aggregated passing Minimum**	**Maximum total marks**
	SEMESTER IV								
BPT19401	Exercise therapy - II	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19402	Electrotherapy (LMHF)	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19403	Bio Physics	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19404	Ethics and Management in Physiotherapy	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19405	Exercise therapy Practical - II	N/A	N/A	N/A	**30**	**35**	**70**	50	100
BPT19406	Electrotherapy LMHF Practical	N/A	N/A	N/A	**30**	**35**	**70**	50	100
BPT19407*	Clinical Training - IV	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100
	SEMESTER V								
BPT19501	Evaluation Measurements and Outcome measures	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19502	Orthopedic conditions for Physiotherapist	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19503	General Surgery, Plastic Surgery & OBG	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19504	General Medicine, Pediatrics & Psychiatry	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19505	Community Medicine	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19506*	Diagnostic Imaging for Physiotherapist	100	N/A	N/A	**N/A**	**N/A**	**N/A**	50	100
BPT19507*	Human science for yoga Practice	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100
BPT19508*	Clinical Training – V	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100

SEMESTER VI									
BPT19601	PT in Orthopedic Conditions	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19602	PT in General Medicine & General Surgery	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19603	Neurological Conditions for Physiotherapist	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19604	Research Methodology & Bio Statistics	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19605	Pain mechanisms and Management of Pain for Physiotherapists	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19606	PT in Orthopedic conditions – Practical	N/A	**N/A**	**N/A**	50	25	50	50	100
BPT19607	Work Physiology	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19608*	Medical Terminology and Record Keeping	100	N/A	N/A	**N/A**	**N/A**	**N/A**	50	100
BPT19609*	Clinical Training - VI	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100

		Theory			Practical			Total Marks	
Course Code	**Course Name**	**Internal**	**Pass Min**	**Maximum Marks**	**Internal**	**Pass Min**	**Maximum marks**	**Aggregated passing Minimum**	**Maximum total marks**
SEMESTER VII									
BPT19701	PT in Neurological Disorders	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19702	Community Based Physiotherapy – I	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19703	Health Promotion and Fitness	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19704	Cardiovascular & Pulmonary Conditions for Physiotherapist	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19705	PT in Neurological disorders Practical.	N/A	**N/A**	**N/A**	50	25	50	50	100
BPT19706*	Research Project I*	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100
BPT197E1	Tele Rehabilitation	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT197E2	Hospital and Healthcare services Marketing	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19707*	Clinical Training - VII	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100
SEMESTER VIII									
BPT19801	PT in Cardio Pulmonary Diseases	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19802	Community Based Physiotherapy -II	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19803	PT in Cardio Pulmonary Diseases & ICU Practical	N/A	N/A	N/A	**50**	**25**	**50**	50	100
BPT19804	Community Based Physiotherapy – II Practical	N/A	**N/A**	**N/A**	50	25	50	50	100
BPT198E1	Pediatric Physiotherapy	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT198E2	PT in Hand Conditions	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19805	Evidence Based Practice	30	35	70	**N/A**	**N/A**	**N/A**	50	100
BPT19806	Research Project II	50	**N/A**	**N/A**	N/A	25	50	50	100
BPT19807*	Clinical Training- VIII	N/A	**N/A**	**N/A**	100	N/A	N/A	50	100

SEMESTER – I

Course Code	Course Title			Credit				
	Core Course	**DSE**	**Enhancement Course**	**Total hours**	**L**	**T**	**P**	**C**
BPT19101	Human Anatomy – I		-	60	3	1	--	4
BPT19102	Human Physiology – I		-	60	3	1	--	4
BPT19103	Clinical Biochemistry		-	45	2	1	--	3
BPT19104	Sociology		-	45	2	1	--	3
BPT19105	-		English & Communication Skills	30	2	--	--	2
BPT19106	Human Anatomy Practical –I		-	60	--		4	2
BPT19107	Human Physiology Practical-I		-	30	--		2	1
BPT19108*	-		Basic Computer Applications	30	2	--	--	2
BPT19109*	-	-	Disaster Management	30	2	-	-	2
BPT19110*	Clinical Training - I		-	90	--	--	6	2
	Library			45	3			
	Total				**35**			**25**
***End semester examination will be conducted at the department and mark will be submitted to the University**								

COURSE TITLE : HUMAN ANATOMY – I COURSE CODE: BPT19101										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**p**	**TOTAL HOURS**	**L**	**T**	**P**	**TOT**
3	**1**	**-**	**45**	**15**	**-**	**60**	**3**	**1**	**-**	**4**

Learning Outcomes :

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

1. **Classify tissues, joints and muscles.**
2. **Describe the embryological development of tissues of various systems.**
3. **Discuss about various components and contents of the Head, Neck & Thorax.**
4. **Define, state, list & discuss about musculatures of upper extremity.**
5. **Define, state, list & discuss about bones and joints of upper extremity.**
6. **Define and discuss about neuro anatomy.**
7. **Define and discuss about Cardio Vascular System.**

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**INTRODUCTION** **Histology :** General Histology, study of the basic tissues of the body; Microscope, Cell, Epithelium, Connective Tissue, Cartilage, Bone, Muscular tissue, Nerve Tissue – TS & LS, Circulatory system – large sized artery, medium sized artery, large sized vein, lymphoid tissue, Skin and its appendages. **Embryology** **a.** Ovum, Spermatozoa, fertilization and formation of the Germ layers and theirderivations. **b.** Development of skin, Fascia, blood vessels, lymphatic, **c.** Developmentofbones, axial and appendicular skeleton and muscles, **d.** Neural tube, brain vessels and spinal cord, **e.** Development of brain and brain stem structures	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
2	**Musculo Skeletal Anatomy-(Allthetopics to be taught in detail)** a. Anatomical positions of body, axes, planes, common anatomical terminologies (Groove, tuberosity, trochanters etc) b. Connective tissue classification. c. Bones- Composition & functions, classification and types according tomorphology and development. d. Joints-definition-classification, structure of fibrous, cartilaginous joints, blood supply and nerve supply of joints. e. Muscles – origin, insertion, nerve supply and actions.	12
3	**Upper Extremity** i. Osteology: Clavicles, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, Phalanges. ii. Soft parts: Breast, pectoral region, axilla, front of arm, back of arm, cubitalfossa, frontofforearm, back offorearm, palm, dorsumofhand, muscles, nerves, blood vessels and lymphatic drainage of upper extremity. **Joints:** Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint and joints of the hand. Arches ofhand, skinofthepalm and dorsumofhand.	16
4	**Head and Neck:** i. Osteology: Mandible and bones of the skull. ii. Soft parts: Muscles of the face and neck and their nerve and blood supply-extra ocular muscles, triangles of the neck. iii. Gross anatomy ofeyeball, nose, ears and tongue.	08
5	**Neuro Anatomy** Organization of Central Nervous system - Spinal nerves and autonomic nervous system mainly pertaining to cardiovascular, respiratory and urogenital system, Cranial nerves, Peripheral nervous system, Peripheral nerve,	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Thorax: **Cardio – Vascular System Mediastinum:** **i.** Respiratory system - Outline of respiratory passages: **ii.** Diaphragm: Origin, insertion, nervesupply and action, openings in the diaphragm. **iii.** Intercostal muscles and Accessory muscles of respiration: Origin, insertion, nerve supply and action.	

RECOMMENDED BOOKS

1 Williams & Warwick, Gray's Anatomy-Churchill Livingstone.
2 B.D. Chaurasia, Human Anatomy-Volume 1, 2, 3 CBS Publishers & Distributors.
3 Snell-Clinical Anatomy-Lippincott.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : HUMAN PHYSIOLOGY – I COURSE CODE: BPT19102										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOTAL CREDITS
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes :

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

1. Describe physiology of blood.
2. Discuss nerve muscle physiology.
3. Define and describe physiological functions of cardio vascular and respiratory system.
4. Define and describe physiological functions of Digestive system.
5. Define and describe physiological functions of Endocrine system.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**General Physiology** a. Cell: Morphology. Organelles: their structure and functions b. Transport Mechanisms across the cell membrane c. Body fluids: Distribution, composition. **Blood** a. Introduction: Composition and functions of blood. b. Plasma: Composition, formation, functions. Plasma proteins. c. RBC: count and its variations. Erythropoiesis- stages, factors regulating. Reticulo-endothelial system (in brief) Haemoglobin – structure, function and derivatives Anemia (in detail), types of Jaundice. Blood indices, PCV, ESR. d. WBC: Classification. Morphology, functions, count, its variation of each. Immunity e. Platelets: Morphology, functions, count, its variations f. Hemostatic mechanisms: Blood coagulation–factors, mechanisms. Their disorders. Anticoagulants. g. Blood Groups: Landsteiner's law. Types, significance, determination, Erythroblastosis foetalis. h. Blood Transfusion: Cross matching. Indicationsand complications. i. Lymph: Composition, formation, circulation and functions.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
2	**Nerve Muscle Physiology** a. Introduction: Resting membrane potential. Action potential – ionic basis and properties. b. Nerve: Structure and functions of neurons. Classification, Properties and impulse transmission ofnerve fibers. Nerve injury – degeneration and regeneration. c. Neuroglia: Types and functions. d. Muscle: Classification. Skeletal muscle: Structure. Neuromuscular junction: Structure. Neuromuscular transmission, myasthenia gravis. Excitation- Contraction coupling. Rigormortis.	08
3	**Cardiovascular System** Introduction: Physiological anatomy and nerve supply of the heart and blood vessels. Organisation of CVS. Cardiac muscles: Structure. Ionic basis of action potential and pacemaker potential. Properties of Conducting system, Cardiac Output,Arterial Blood Pressure, Regional Circulation, Cardiovascular changes during exercise.	08
4	**Respiratory System** - a. Introduction: Physiological anatomy – Pleura, tracheo-bronchialtree, alveolus, respiratory membrane andtheir nerve supply. Functions of respiratory system. Respiratory muscles. b. Mechanics ofbreathing: Intrapleural and Intrapulmonary pressure changes during respiration. Chest expansion. Lung compliance: Normal value, pressure-volume curve, factors affecting compliance and its variations. Surfactant – Composition, production, functions. Respiratory Distress Syndrome. c. Spirometry: Lung volumes and capacities. Timed vital capacity and its clinical significance. Maximum ventilation volume. Respiratory minute volume. d. Dead Space: Types and their definition. e. Pulmonary Circulation. Ventilation-perfusion ratio and its importance. f. Transport of respiratory gases: Diffusion across the respiratory membrane. Oxygen transport – Different forms, oxygen-haemoglobin dissociation curve. Factors affecting it. P50, Haldane and Bohreffect. Carbon dioxidetransport: Different forms, chloride shift. g. Regulation of Respiration: Neural Regulation. Hering-breuer's reflex. Voluntary control. Chemical Regulation.	16

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	h. Hypoxia: Effects of hypoxia. Types of hypoxia. Hyperbaric oxygen therapy. Acclimatization Hypercapnoea. Asphyxia. Cyanosis – types and features. Dysbarism i. Disorders of Respiration: Dyspnoea. Orthopnoea. Hyperpnoea, hyperventilation, apnoea, tachypnoea. periodic breathing – types Artificial respiration j. Respiratory changes during exercise.	
5	**Digestive System -** a. Introduction: Physiology, anatomy and nerve supplyof alimentary canal. Enteric nervous system b. Salivary Secretion: Saliva: Composition. Functions. Regulation. Mastication (in brief) c. Swallowing: Definition. Different stages. Function. d. Stomach: Functions. Gastric juice: Gland, composition, function, regulation. Gastrin: Production, function and regulation. Peptic ulcer. Gastric motility. Gastric emptying. Vomiting. e. Pancreatic Secretion: Composition, production, function. Regulation. f. Liver: Functions of liver. Bile secretion: Composition, functions and regulation. Gall bladder: Functions. g. Intestine: Succusentericus: Composition, function and regulationof secretion. Intestinal motility and its function and regulation. h. Mechanism of Defecation. **Endocrine System:** Major endocrine glands. Hormone: classification, mechanism of action. Functions of hormones a. Introduction: Major endocrine glands. Hormone: classification, mechanism of action. Functions of hormones b. PituitaryGland: Anterior Pituitary and PosteriorPituitary hormones: Secretory cells, action on target cells, regulation of secretion of each hormone. Disorders: Gigantism, Acromegaly, Dwarfism, Diabetes insipidus. Physiology of growth and development: hormonal and otherinfluences. c. Pituitary-Hypothalamic Relationship. d. Thyroid Gland: Thyroidhormone and calcitonin: secretory cells, synthesis, storage, action and regulation of secretion. Disorders: Myxedema, Cretinism, Grave's disease.	16

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	e. Parathyroid hormones: secretory cell, action, regulation of secretion. Disorders: Hypoparathyroidism. Hyperthyroidism. Calcium metabolism and its regulation. f. Adrenal Gland: Adrenal Cortex: Secretory cells, synthesis, action, regulation of secretion of Aldosterone, Cortisol, and Androgens. Disorders: Addison's disease, Cushing's syndrome, Conn's syndrome, Adrenogenital syndrome. g. Adrenal Medulla: Secretorycells, action, regulation of secretion of adrenaline and noradrenaline. Disorders: Phoechromocytoma. h. EndocrinePancreas: Secretorycells, action, regulation of secretion of insulin and glucagon. Glucose metabolism and its regulation. Disorder: Diabetes mellitus. i. Calcitrol, Thymus and Pineal gland (very brief). j. Local Hormones. (Briefly) .	

RECOMMENDED BOOKS:

1 Text book on Medical Physiology-By Guyton
2 Text Book of Medical Physiology – Sembulingam Jaypee Brothers Medical Publishers
3 Text book of physiology for physiotherapy – Prof. A. K Jain.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : CLINICAL BIOCHEMISTRY COURSE CODE: BPT19103										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Outcomes:

At the end of the course, the candidate will able to -

1. Describe structures & functions of cell in brief.
2. Describe biochemistry of connective tissues.
3. Discuss acid base balance.
4. Define nutrition, balance diet & nutritional disorders.
5. Describe Nucleotide and Nucleic acid Chemistry
6. Discuss role of enzymes.
7. Describe Carbohydrate Chemistry, Amino-acid Chemistry & Vitamins.
8. Discuss Carbohydrate Metabolism, Lipid Metabolism, Amino acid and Protein Metabolism

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Cell Biology -** a. Introduction, Cell structure, Cell membrane structure and function, various typesofabsorption. Intracellularorganelles and their functions, briefly oncytoskeleton. b. Muscle Contraction - Contractile elements in muscle, briefly on the process of muscle contraction, Energy for muscle contraction. **Biochemistry of Connective tissue** - a. Introduction, various connective tissue proteins: Collagen, elastin - Structure and associated disorders. Glycoproteins, Proteoglycans. **Acid-Base balance** - a. Acids, bases andbuffers, pH. Buffersystemsofthebody, bicarbonate buffer system Role of lungs and kidneys in acid base balance, Acid base imbalance. Water balance – b. Water distribution in the body, Body water, water turnover, Regulation of water balance: role of ADH and thirst centre.	9

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Electrolyte balance - c. Osmolarity. Distribution of electrolytes. d. Electrolytebalance: Roleof aldosterone, rennin angiotensin system and ANF. Clinical Biochemistry - e. Normal levels of blood and urine constituents, Relevance of blood and urine levels of Glucose, Urea, Uric acid, Creatinine, Calcium, Phosphates, pH and Bicarbonate. Liver function tests, Renal function tests	
2	**Nutrition –** a. Introduction, Importance of nutrition Calorific values, Respiratory quotient – Definition, and its significance Energy requirement of a person - Basal metabolic rate. Definition, Normal values, factor affecting BMR Special dynamic action of food. b. Physical activities - Energy expenditure for various activities. Calculation of energy requirement of a person c. Balanced diet i. Recommended dietary allowances ii. Role of carbohydrates in diet: Digestible carbohydrates and dietary fibers iii. Role of lipids in diet iv. Roleofproteins in diet: Quality ofproteins - Biological value, net protein utilization, Nutritional aspects of proteins- essential and non- essential amino acids. Nitrogen balance v. Nutritional disorders.	9
3	**Enzymes** Definition, Active site, Cofactor (Coenzyme, Activator), Proenzyme. Classification with examples, Factors effecting enzyme activity, Enzyme inhibition and significance, Isoenzymes, Diagnostic enzymology (clinical significance of enzymes) **Nucleotide and Nucleic acid Chemistry -** a. Nucleotidechemistry: Nucleotidecomposition, functionsof free nucleotides in body. b. Nucleic acid (DNA and RNA) chemistry: Difference between DNA and RNA, Structure of DNA (Watson and Crick model),	5

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Functions of DNA. Structure and functions of tRNA, rRNA, mRNA.	
4	**Vitamins -** a. Definition, classification according tosolubility, b. Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity. Mineral Metabolism- a. Definition, Sources, RDA, Digestion, absorption, transport, excretion, functions, disorder of Individual minerals - Calcium, phosphate, iron, Magnesium, fluoride, selenium, molybdenum, copper. Phosphate, calcium and iron in detail. **Carbohydrate Chemistry** – a. Definition, general classification with examples, Glycosidic bond b. Structures, composition, sources, properties and functions of Monosaccharides, Disaccharides, Oligosaccharides and Polysaccharides. c. Glycosaminoglycan (mucopolysaccharides) 3. Lipid Chemistry – a. Definition, general classification b. Definition, classification, properties and functions of Fatty acids, Triacylglycerol, Phospholipids, Cholesterol c. Essential fatty acids and their importance d. Lipoproteins: Definition, classification, properties, Sources and function Ketone bodies **Amino-acid Chemistry** – a. Amino acid chemistry: Definition, Classification, Peptide bonds b. Peptides: Definition, Biologically important peptides c. Proteinchemistry: Definition, Classification, Functions of proteins	12
5	**Digestion and Absorption -** a. General characteristics of digestion and absorption, Digestion and absorption of carbohydrates, proteins and lipids. Disorders ofdigestion and absorption – Lactose intolerance.	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Carbohydrate Metabolism - a. Introduction, Glycolysis – Aerobic, Anaerobic Citric acid cycle, Substrate level phosphorylation. b. Glycogenmetabolism– Glycogenesis, Glycogenolysis, Metabolic disorders glycogen, Gluconeogenesis, Cori cycle c. Hormonal regulation of glucose, Glycosuria, Diabetes mellitus.	
	Lipid Metabolism - a. Introduction to lipid metabolism, Lipolysis, Oxidation of fatty acids -oxidation of fatty acids, b. Lipogenesis - Denovo synthesisoffatty acids, chain elongation, desaturation, triacylglycerol synthesis, fat metabolism in adipose tissues d. Cholesterol metabolism: synthesis, degradation, cholesterol transport e. Hypercholesterolemia and its effects (atherosclerosis and coronary heart diseases) Hypocholesterolemic agents, Common hyperlipoproteinemia, Fatty liver Amino acid and Protein Metabolism - a. Catabolism of amino acids - Introduction, transamination, deamination, Fate of ammonia, transport of ammonia, Urea cycle b. Specialized products formed from amino acids - from glycine, arginine, methionine, phenylalanine and tyrosine.	

RECOMMENDED BOOKS:

1 Biochemistry-by-Dr. Satyanarayan
2 Text book of Biochemistry for Medical students by-Dr Vasudevan/ Shrikumar

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : SOCIOLOGY COURSE CODE: BPT19104										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMSTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Outcome:

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

1. Define sociology
2. Describe sociological factors in health and diseases.
3. Define socialization.
4. Discuss the influence of family and community on health.
5. Discuss relationship between culture and health.
6. Describe social problems of disabled.
7. Discuss about social security.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Introduction:** a. Meaning- Definition and scope ofsociology b. Its relation to Anthropology, Psychology, Social Psychology. c. Methods of Sociological investigations- Case study, social survey, questionnaire, Interview and opinion poll methods. d. Importance of its study with special reference to Health Care Professionals. **Social Factors in Health and disease situations:** a. Meaning of social factors b. Role of social factors in health and illness	9
2	**Socialization:** a. Meaning and nature of socialization. b. Primary, Secondary and Anticipatory socialization. c. Agencies of socialization.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Social Groups: a. Concepts of social groups, influence of formal and informal groups on health and sickness. The role of primary groups and secondary groups in the hospital and rehabilitation setup. **Family:** a. The family, meaning and definitions. b. Functions of types of family c. Changing family patterns d. Influence of family on the individuals health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy. **Community:** a. Rural community: Meaning and features –Health hazards ofruralities, health hazards to tribal community. b. Urban community: Meaning and features- Health hazards of urbanities.	
3	**Culture and Health:** a. Concept of Health b. ConceptofCulture c. Culture and Health d. Culture and Health Disorders **Social change:** a. Meaning of social changes. b. Factors of social changes. c. Human adaptation and social change d. Social change and stress. e. Social change and deviance. f. Social change and health programme g. The role of social planning in the improvement of health and rehabilitation.	10
4	**Social Problems of disabled:** Consequences of the following social problems in relation to sickness and disability, remedies toprevent these problems. a. Population explosion b. Poverty and unemployment	9

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	c. Beggary d. Juvenile delinquency e. Prostitution f. Alchoholism g. Problems of women in employment h. Geriatric problems i. Problems of underprivileged.	
5	**Social Security:** a. Social security and social legislation in relation to the disabled. **Social worker:** a. Meaning of Social Work b. The role of a Medical Social Worker	5

RECOMMENDED BOOKS :

1. Textbook of Sociology for Physiotherapy Students by Neeraja KP
2. Textbook OfSociology (For Physiotherapy And Bmlt Students) As PerThe Syllabus Prescribed By Mlt Council Of India By Neelam Kumari And Madhu Sharma
3. A Textbook of Sociology by James Quayle Dealey&Lester Frank Ward

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : ENGLISH& COMMUNICATION SKILLS **COURSE CODE: BPT19105**										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
2	**-**	**-**	**2**	**-**	**-**	**30**	**2**	**-**	**-**	**2**

Learning Outcomes:

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

1. Develop good vocabulary skills for bettercommunication
2. Useeffective English topreparereport writing, letter writingand e-Correspondence.
3. Participate effectively in public speaking, debate & discussion.
4. Improve listening comprehension.

UNITS	**TITLE OF CONTENT**	**HOURS OF TEACHING / LEARNING**
1	**GRAMMAR AND VOCABULARY** Reading Comprehension Verb Forms, Right Words (Synonyms, Antonyms, Homonyms and One-Word Substitutes), Detection of Errors, Reported Speech & Transformation	6
2	**Tenses** Punctuation, Phrasesand Idioms, Precisewriting& Essay	4
3	**COMPOSITION** Resume Writing, Letter writing and e-Correspondence,Note-Making, Report Writing, Expansion of Proverbs and Ideas &Description of Pictures.	8
4	**PHONETICS** Public Speaking	4
5	**Oral Report** Discussion, Debate, Listening comprehension Audio, Video, Speeches	8

RECOMMENDED BOOKS:

1. Communicative English for Engineers and Professionals Kindle Edition by Nitin Bhatnagar ,Mamta Bhatnagar
2. English for Physiotherapy by Joanna Ciecierska

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : HUMAN ANATOMY PRACTICAL -I COURSE CODE: BPT19106										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	4	-	-	60	60	-	-	2	2

Learning Outcomes :

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

1. Locate various surface landmarks of body.
2. Identify bones of upper extremity, head and neck.
3. Recognize muscles, blood vessels, nerves and tissues of upper extremities in cadaver.
4. Recognize and identify anatomical parts of thorax.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Musculo Skeletal Anatomy -** Anatomical positions of body, axes, planes, common anatomical terminologies (Groove, tuberosity, trochanters etc) , Bones , Joints-definition-classification, structure of fibrous, cartilaginous joints, blood supply and nerve supply of joints. Muscles – origin, insertion, nerve supply and actions.	12
2	**Upper Extremity** Osteology: Clavicles, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, Phalanges. **Joints:** Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint and joints ofthehand. Arches of hand, skin of the palm and dorsum of hand.	16
3	**Soft parts**: Breast, pectoralregion, axilla, frontof arm, back of arm, cubitalfossa, frontoffore arm, back offore arm, palm, dorsum of hand, muscles, nerves, blood vessels and lymphatic drainage of upper extremity. **Thorax**: Heart and blood vessels, Mediastinum , Lungs, Upperrespiratory tract, Diaphragm, Intercostal muscles and Accessory muscles of respiration	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
4	**Head and Neck:** i. Osteology: Mandible and bones of the skull. ii. Soft parts: Muscles of the face and neck and their nerve and blood supply-extra ocularmuscles, trianglesofthe neck. iii. Gross anatomy of eyeball, nose, ears and tongue.	12
5	**Neuro Anatomy** Spinal nerves and autonomic nervous system, Cranial nerves, Peripheral nerve, Central Nervous System, Spinal segments and areas, Brain Stem, Cerebellum, Inferior colliculi, Superior Colliculi, Thalamus, Hypothalamus, Corpus striatum, Cerebral hemisphere, Lateral ventricles, Blood supply to brain, Basal Ganglia, The pyramidal system, Pons, medulla, extra pyramidal systems,	08

RECOMMENDED BOOKS:

1 Williams & Warwick, Gray's Anatomy-Churchill Livingstone.
2 B.D. Chaurasia, Human Anatomy-Volume 1, 2, 3 CBSPublishers& Distributors.
3 Snell-Clinical Anatomy-Lippincott.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION
PRACTICALS

Sl. No	Components	Marks
1	10 Spotters (10 X 3=30)	30
2	Viva voce	20

COURSE TITLE : HUMAN PHYSIOLOGY PRACTICAL – I COURSE CODE: BPT19107										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	2	-	-	30	30			1	1

Learning Outcomes:

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

1. **Demonstrate procedures to determine hematology findings.**
2. **Recognize the abnormalities in the hematology findings.**

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Study of Microscope and its uses Determination of WBC count	04
2	Differential leukocyte count Determination of RBC count	06
3	Determination of blood groups Estimation of hemoglobin	08
4	Determination of clotting time Determination of bleeding time	06
5	Determination of ESR Determination of PCV	06

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

PRACTICALS

Sl. No	Components	Marks
1	Spotters (10X3=30)	30
2	Viva voce	20

COURSE TITLE : BASIC COMPUTER APPLICATIONS COURSE CODE: BPT19108										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	P	P	TOT
2	-	-	30	-	-	30	2	-	-	2

Learning Outcomes:

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

1. Acquire knowledge about basics of computerapplications.
2. Get familiarity in Word Processing software, Spread sheet , Database creation & Powerpoint Presentations.
3. Develop skills in internet accessibility and download the relevant Subject Matter files/documents.
4. Learn the use of Internet services for Research and Documentation.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Introduction to Computers – Generations Of Computers- Data representation- Classifications of Computers-. Computer Peripherals - Input and Output devices- Central Processor Unit (CPU) - Architecture of a digital computer - Memory unit ALU - Control Unit-Data Processing Systems & Stages	2
2	Introduction to windows:- Operating System-Basic functions-DOS and basic DOS commands- The windows (all versions)and start menu-windows features –Windows Accessories-Windows Desktop	6
3	Introduction to programming,Msword&Excel: - Introduction to Programming Languages - Data processing techniques -Modes of data processing Flowcharting techniques- Features of MS-WORD-Creationofnewdocuments & formattingtext-working with table.Intruduction to Excel-Opening a Worksheet-Formatting and editing cells-Entering & editing formulas-Creation of various types of charts.	6

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
4	Introduction to Computer Networks & Multimedia: Computer Networks-Different Types-Local Area & Wide Area Networks-Types of WANS-Internet and Intranet-Web Page& Browser-URI-Search Engines and Emails. Definition & types of Multimedia-Hardware Requirements-Multimedia lrearning advantages-Computer Aided Teaching-Other applications of Multimedia	8
5	Introduction to Powerpoint-Different Presentations-Slide views-Working with Access-Creation of Database-different data types-Primary -Secondary Keys-Creation of tables & queries. Accessing Physio-therapy related websites and downloading documents and information, citing references from web sites. Preparing essays, summaries of Physio & Occupational therapy topics. Introduction to Statistical Packages-Features & Types of Statistical softwares Basics of Hospital Management System-Use for patient care	8

RECOMMENDED BOOKS

1. Basic Computer Knowledge Paperback – December 29, 2016 by John Monyjok Maluth
2. A New Approach to Basic Computer Education, 2/e by D P Nagpal

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

Sl. No	Components	Marks
1	2 Skills (2 X 15=30)	30
2	Viva voce	20

COURSE TITLE : DISASTER MANAGEMENT **COURSE CODE: BPT19109**										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
2	**-**	**-**	**30**	**-**	**-**	**30**	**2**	**-**	**-**	**2**

Learning Outcomes:

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

1. Describe basic concepts in Disaster Management
2. Definetheterminologies usedin Disaster Management
3. Classify the types and Categories of Disasters
4. Discuss components of Disasters Relief.
5. Explain International aid in disaster management.
6. Describe Disaster Risk Management In India

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Introduction to Disasters Concepts of Hazard, Vulnerability, Risks, Natural Disasters (earthquake, Cyclone, Floods, Volcanoes), and Man Made Disaster (Armed conflicts and civil strip, Technological disasters, Human Settlement, Slow Disasters (famine, draught, epidemics) and Rapid Onset Disasters(Air Crash, tidal waves, Tsunami) Risks,	6
2	Difference between Accidents and Disasters, Simple and Complex Disasters, Refugee problems, Political, Social, Economic impacts of Disaster. Disaster Risk Reduction Strategies, Disaster Cycle, Phases of Disaster, Preparedness Plans, Action Plans and Procedures, Early warning Systems Models in disaster preparedness,	6
3	Components of Disaster Relief-(Water, food, sanitation, shelter, Health and Waste Management), Community based DRR, Structural non structural measures in DRR, Factors affecting Vulnerabilities, Policies for Disaster Preparedness Programs, Preparedness Planning, Roles and Responsibilities, Public Awareness and Warnings, Conducting a participatory capacity and vulnerability analysis, Survey of Activities During Disasters, DRR Master Planning for the Future, Capacity	4

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Building, Sphere Standards. Rehabilitation measures and long term reconstruction. Psychosocial care provision during the different phases of disaster.	
4	Disaster Risk Management In India Hazard and Vulnerability Profile India,, Disaster Management Indian scenario, India's vulnerability profile, Disaster Management Act 2005 and Policy guidelines, National Institute of Disaster Management, , National Disaster Response Force (NDRF)National Disaster Management Authority, States Disaster Management Authority, District Disaster Management Authority Cases Studies : Bhopal Gas Disaster, Gujarat Earth Quake, Orissa Super-cyclone, south India Tsunami, Bihar floods, Plague- Surat, Landslide in North East, Heat waves of AP& Orissa, Cold waves in UP.	6
5	Public Health Response And International Cooperation Principles of Disaster Epidemiology , Rapid Health Assessment, Rapid Health needs assessment. Preventive and prophylactic measures including , water, supply, food fortification, food supplements, International cooperation in fundingonpublichealth duringdisaster. Potential publichealth problems before, during and after disasters. International Health Regulation, United Nation International Strategy for Disaster Risk Reduction (UNISDR), United Nation Disaster Management Team, International Search and Rescue Advisory Group, (INSARAG, Global Facility for Disaster Risk Reduction (GFDRR), Asean Region Forum (ARF), Asian disaster Reduction Centre (ADRC), SAARC 277 Disasters Management Centre (SDMC), USAID), UNDAC,UNOCHA,USAR	8

RECOMMENDED BOOKS:

1. Alexander david, Introduction in Confronting Catastrophe Oxford University Press,2000
2. CopplaPDamon, Introduction to International Diaaster management,2007
3. Govt.of India : 2009 National Diaster Management Policy

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : CLINICAL TRAINING-I **COURSE CODE: BPT19110**										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
	-	**6**		**-**	**90**	**90**	**-**	**-**	**6**	**2**

Learning Outcomes :

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

1. Collect demographical datas of patients in OPD and wards.
2. Identify the socioeconomic status of patients in OPD and wards.
3. Identify the Psycho social status of patients in OPD and wards.
4. Collect behavioral, personal& family history.
5. Understand operating system of hospital.

S.NO	TOPIC	HOURS
	1. Organizational chart of PT department 2. IP / OP Rules and Regulation 3. Self Introduction 4. Demographic data Collection 5. Socioeconomic history collection 6. Social behavior and its influence on health	

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

FINAL EXAMINATION

WRITTEN EXAMINATION (50 MARKS)

S.NO.	QUESTIONS	MARKS
1	Case presentation (2X 25= 50)	50

SEMESTER - II

COURSE CODE	COURSE TITLE				HOURS			
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	C
BPT19201	Human Anatomy – II		-	60	3	1	--	4
BPT19202	Human Physiology – II		-	60	3	1	--	4
BPT19203	Biomechanics I		-	60	3	1	--	4
BPT19204	Psychology		-	45	2	1	--	3
BPT19205	Human Anatomy Practical – II		-	60	--		4	2
BPT19206	Human Physiology Practical –II		-	60	--		4	2
BPT19207*	-		First Aid & BLS	45	1		**2**	2
BPT19208*	-		Environmental Science	15	1	--	--	1
BPT19209*			Introduction To healthcare delivery System in India	15	1	-	-	1
BPT19210*	Clinical Training - II			90	--	--	6	2
	Library			15	1			
Total					**35**			**25**
***End semester examination will be conducted at the department and mark will be submitted to the University**								

COURSE TITLE : HUMAN ANATOMY -II COURSE CODE: BPT19201										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
T	**T**	**P**	**T**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
3	**1**	**-**	**45**	**15**	**-**	**60**	**3**	**1**	**-**	**4**

Learning Outcomes:

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

1.Define, state, list& discuss about musculaturesof Lower extremity.

2.Define, state, list & discuss about bones and joints of Lower extremity.

3.Define and discuss about Endocrine glands.

4.Discuss about various components and contents of abdomen and pelvis.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Lower Extremity Osteology:** Hip bone, femur, tibia, fibula, patella, tarsals, metartarsals and phalanges	14
2	**Muscle of Lower Limb :** Origin, Insertion, Nerve supply and Action ofall themuscle of lower limb	14
3	**Joints**: Hip Joint, Knee joint, Ankle joint, joints of the foot	14
4	.**Soft parts:** Gluteal region, front and back of the thigh (Femoral triangle, femoral canal and inguinal canal), medial side of the thigh (Adductor canal), lateral side of the thigh, popliteal fossa, anterior and posterior compartment of leg, sole of the foot, lymphatic drainage of lower limb, venous drainage ofthelowerlimb, arterial supplyofthelowerlimb, arches of foot, skin of foot. **Pelvis**: Position, shape, size, features, blood supply and nerve supply of the male and female reproductive system.	08
5	**Abdomen**: Peritoneum: Parietal peritoneum, visceral peritoneum, folds ofperitoneum, functions ofperitoneum, Large blood vessels of the gut,Location, size, shape, features, blood supply, nerve supply and functions of the	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	following: stomach, liver, spleen, pancreas, kidney, urinary bladder, intestines, gall bladder. **Endocrine Glands**: Position, shape, size, function, blood supply and nerve supply of the following glands: Hypothalamus and pituitary gland, thyroid glands, parathyroid glands, Adrenal glands, pancreatic islets, ovaries and testes, pineal glands, thymus.	

RECOMMENDED BOOKS

1 Williams & Warwick, Gray's Anatomy-Churchill Livingstone.
2 B.D. Chaurasia, Human Anatomy-Volume 1, 2, 3 CBS Publishers& Distributors.
3 Snell-Clinical Anatomy-Lippincott.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : HUMAN PHYSIOLOGY– II COURSE CODE: BPT19202										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
3	**1**	**-**	**45**	**15**	**-**	**60**	**3**	**1**	**-**	**4**

Learning Outcomes:

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

1. Describephysiologyofspecialsenses.
2. Discuss Exercise physiology.
3. Define and describe physiological functions of Nervous system.
4. Define and describe physiological functions of Renal system.
5. Define and describe physiological functions of Reproductive system.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**SPECIAL SENSES -** a. Vision: Introduction: Functional anatomy ofeyeball. Functions of cornea, iris, pupil, aqueous humor – glaucoma, lens–cataract, vitreoushumor, rods and cones. Photopic vision. Scotopic vision. b. Visual Pathway and the effects oflesions. c. Refractive Errors: myopia, hypermetropia, presbyopia and astigmatism. d. Visual Reflexes: Accommodation, Pupillary and Light. Visual acuity and Visual field. Light adaptation. Dark adaptation.Color vision – color blindness. Nyctalopia. e. Audition: Physiological anatomy of the ear. Functions ofexternal ear, middleear and innerear. Structure of Cochlea and organ of corti. Auditory pathway. Types of Deafness. Tests for hearing. Audiometry. f. Taste: Taste buds. Primary tastes. Gustatory pathway. g. Smell: Olfactory membrane. Olfactory pathway. h. Vestibular Apparatus: Crista ampullaris and macula. Funcions. Disorders	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
2	**NERVOUS SYSTEM** - a. Introduction: Organisation of CNS – central and peripheral nervous system. Functions of nervous system. Synapse: Functional anatomy, classification, Synaptic transmission. Properties. b. Sensory Mechanism: Sensory receptors: function, classification and properties. Sensory pathway: The ascending tracts – Posterior column tracts, lateral spinothalamic tract and theanteriorspinothalamic tract – their origin, course, termination and functions. The trigeminal pathway. Sensory cortex. Somatic sensations: crude touch, fine touch, tactile localization, tactile discrimination, stereognosis, vibration sense, kinesthetic sensations. Pain sensation: mechanism of pain. Cutaneous pain –slow and fast pain, hyperalgesia. Deep pain. Visceral pain – referred pain. Gate control theory of pain. tabes dorsalis, sensory ataxia. c. Motor Mechanism: Motor Cortex. Motor pathway: The descendingtracts– pyramidal tracts, extrapyramidal tracts – origin, course, termination and functions. Upper motor neuron and lower motor neuron. Paralysis, monoplegia, paraplegia, hemiplegia and quadriplegia. d. Reflex Action: components, Bell-Magendie law, classification and Properties. Monosynaptic and polysynaptic reflexes, superficial reflexes, deep reflexes.Stretch reflex– structure of muscle spindle, pathway, highercontroland functions. Inversestretch reflex. Muscletone– definition, and propertieshypotonia, atonia and hypertonia. UMNL and LMNL e. Spinal cord Lesions: Complete transection and Hemisection of the spinal cord. f. Cerebellum: Functions. Cerebellar ataxia. g. Posture and Equilibrium: Postural reflexes – spinal, medullary, midbrain and cerebral reflexes. h. Thalamus and Hypothalamus: Nuclei. Functions. Thalamic syndrome	16

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	i. Reticular Formation and Limbic System: Components and Functions. j. Basal Ganglia: Structures included and functions. Parkinson's disease. Cerebral Cortex: Lobes. Brodmann's areas and their functions. Higher functions of cerebral cortex – learning, memory and speech. l. EEG:Waves and features. Sleep: REMand NREMsleep. m. CSF: Formation, composition, circulation and functions. Lumbar puncture and its significance. Blood brain barrier. Hydrocephalus. n. ANS: Features and actions of parasymapathetic and sympathetic nervous system.	
3	**RENAL SYSTEM -** a. Introduction: Physiological anatomy. Nephrons – cortical and juxtamedullary. Juxta-glomerular apparatus. Glomerular membrane. Renal bloodflow and its regulation. Functions of kidneys. b. Mechanism of Urine Formation: Glomerular Filtration. Mechanism of glomerular filtration. GFR – normal value and factors affecting. Renal clearance. Inulin clearance. Creatinine clearance. c. Tubular Reabsorption: Reabsorption of Na+, glucose, HCO3-, urea and water. Filtered load. Renal tubular transport maximum. Glucose clearance: TmG. Renal threshold for glucose. d. Tubular Secretion: Secretion of H+ and K+. PAH clearance. e. Mechanism of concentrating and diluting the Urine. Counter-current mechanism. Regulation of water excretion. Diuresis. Diuretics. f. Micturition: Mechanism of micturition. Cystometrogram. Atonic bladder, automatic bladder. g. Acid-Base balance (very brief) h. Artificial Kidney: Principle ofhaemodialysis. i. Skin and temperature regulation.	08

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
4	**REPRODUCTIVE SYSTEM -** a. Introduction: Physiological anatomy reproductive organs. Sex determination. Sex differentiation. Disorder b. Male Reproductive System: Functions oftestes. Pubertal changes in males. Spermatogenesis. Testosterone: action. Regulation of secretion. Semen. c. Female Reproductive System: Functions of ovaries and uterus. Pubertal changes in females. Oogenesis Hormones: estrogen and progesterone-action. Regulation of secretion. Mentrual Cycle: Phases. Ovarian cycle. Uterine cycle. Hormonal basis. Menarche. Menopause Pregnancy: Pregnancy tests. Physiological changes during pregnancy. Functionsofplacenta.Lactation. Contraception methods	08
5	**PHYSIOLOGY OF EXERCISE –** a. Effects of acute and chronic exercise on i. O2 transport ii. Muscle strength/power/endurance iii. B.M.R. /R.Q. iv. Hormonal and metabolic effect v. Cardiovascular system vi. Respiratory system vii. Body fluids and electrolyte b. Effect of gravity / altitude /acceleration / pressure on physical parameters c. Physiology of Age **Pulmonary Functions** a. Properties of gases, Mechanics of respiration, Diffusion capacity, special features of pulmonary circulation and their application. b. Respiratory adjustments in exercises. c. Artificial respiration d. Breath sounds. **Cardio vascular Functions** a. Blood flow through arteries, arterioles, capillaries, veins and venuoles. b. Circulation of Lymph, Oedema	16

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	c. Factors affecting cardiac output. d. Circulatory adjustment in exercise and in postural and gravitational changes, e. Pathophysiology of fainting and heart failure. **Muscles and Nervous System Functions** a. Peripheral nervous system, neuromuscular transmission, Types of nerve fibers. b. Action potential, Strength-duration curve, ECG, EMG, VEP, NCV c. Degeneration and regeneration of nerve, Reactions of denervations. d. Synaptic transmission, Stretch reflex- Mechanism and factors affecting it. e. Posture, Balance and Equilibrium/Coordination of voluntary movement. f. Voluntary motor action, clonus, Rigidity, incoordination. g. Special senses- Vision, taste, hearing, vestibular, Olfaction h. Sympathetic and Parasympathetic regulation, Thermoregulation. **4. Blood functions** a. Thalassemia Syndrome, Hemophilia, VWF b. Anemia, Leukocytosis c. Bone marrow transplant **5. Metabolic Functions** a. Diabetes Mellitus, Physiological basis of Peptic Ulcer, Jaundice, GIT disorders and Dietary fiber, Thyroid functions, Vitamins deficiency.	

RECOMMENDED BOOKS:

1 Text book on Medical Physiology-By Guyton
2 Text Book of Medical Physiology - Sembulingam
3 Text book of physiology for physiotherapy – Prof. A. K Jain.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : BIOMECHANICS - I COURSE CODE: BPT19203										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
T	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes:

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

1. Define and describe basic concepts in Biomechanics.
2. Classify joints and describe joint structures & its functions.
3. Discuss biomechanics of movements at joints related to planes and axis.
4. Classify muscle and describe muscle structures & its functions.
5. Discuss biomechanics of muscle related to force production.
6. Describe Biomechanics of the Thorax and Chest wall.
7. Describe Biomechanics of The Temporo mandibular Joint.
8. Describe Biomechanics of vertebral column.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Basic Concepts in Biomechanics: Kinematicsand Kinetics a.Types of Motion** b. Location of Motionc. Direction of Motion d. Magnitude of Motion e. Definition of Forces f. Force of Gravity g. Reaction forces h. Equilibrium i. Objects in Motion j. Force of friction k. Concurrent force systems l. Parallel force system,m. Work n. Moment arm of force o. Force components p. Equilibrium of levers	08
2	**Joint structure and Function** - a. Joint design b. Materials used in human joints c. General properties of connective tissues d. Human joint design e. Joint function f. Joint motion g. Generaleffects ofdisease, injuryandimmobilization.	12
3	**Muscle structure and function** - a. Mobility and stability functions ofmuscles b. Elements of muscle structure c. Muscle function d. Effects of immobilization, injury and aging	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
4	**Biomechanics of the Thorax and Chest wall** - a. General structure and function b. Rib cage and the muscles associated with the rib cage c. Ventilatory motions: itscoordination and integration d. Developmental aspects of structure and function e. Changes in normal structure and function in relation to pregnancy, scoliosis and COPD **The Temporomandibular Joint-** a. General features, structure, function and dysfunction	12
5	**The Vertebral Column** a. Describe the general structure and function of the vertebral column,. b. Describe factors affecting stability and mobility. c. Regional structure and function of cervical, dorsal, lumbar and sacral vertebrae. d. Motions of the vertebral column. e. Lumbar-pelvic rhythm. f. Rotation of the vertebrae in each region. g. Movements of the ribs duringrotation. h. Describe the muscles of the vertebral column, flexors, extensor, rotators and lateral flexors. i. Describe the effects of injury, developmental deficits, defects in vertebrae j. 10. Forces acting on the vertebral column during specific motions.	16

RECOMMENDED BOOKS

1 Joint structure and function – Cynthia Norkin
2 Textbook of Biomechanics by Subrata Pal
3 Kinesiology and Biomechanics by Bhartendu Kumar

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : PSYCHOLOGY COURSE CODE: BPT19204										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Outcomes:

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

1. Define psychology of attention,perception and motivation.
2. Describe causes and management of frustration and conflict.
3. Discuss about intelligence, thinking and learning.
4. Describe personality and methods to assess personality.
5. Classify and describe social psychology and clinicalpsychology.
6. List importanceofpsychology in physiotherapymanagement ofpatients.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Introduction To Psychology:** Schools: Structuralism functionalism, behaviorism, Psychoanalysis. Methods Introspection, observation, inventory and experimenta method. Branches: pure psychology and applied psychology Psychology and physiotherapy **Growth and Development:** Life span: Different stages of development (Infancy, childhood, adolescence, adulthood, middle age, old age). Heredity and environment: role of heredity and environment in physical and psychological development, "Nature v/s Nurture controversy".	07
2	**Sensation, Attention And Perception** Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense. Attention: Types of attention, Determinants of attention (subjective determinants and objective determinants).	08

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Perception: Gestalt principles of organization of perception (principle of figure ground and principles of grouping), factors influencing perception (past experience and context). Illusion and hallucination: different types. **Motivation** Motivation cycle (need, drive, incentive, reward), Classification of motives. Abraham Maslow's theory of need hierarchy	
3	**Frustration And Conflict** Frustration: sources of frustration. Conflict: types of conflict. Management of frustration and conflict **Emotions** Three levels of analysis of emotion (physiological level, subjective state, and overt behavior), Theories of emotion, Stress and management of stress. **Intelligence :** Theories of intelligence, Distribution of intelligence &Assessment of intelligence **Thinking :** Reasoning: deductive and inductive reasoning **,**Problem solving: rules in problem solving (algorithm and heuristic) **&**Creative thinking: steps in creative thinking, traits of creative people	10
4	**Learning:** Factors effecting learning, Theories of learning: trial and error learning, classical conditioning, Operant conditioning, insight learning, social learning theory, The effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods. **Personality:** Approaches to personality: type & trait, behavioristic, psychoanalytic and humanistic approach. Personality assessment: observation, situational test, questionnaire, rating scale, interview, and projective techniques. Defense Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
5	**Social Psychology:** Leadership: Different types of leaders. Different theoretical approaches to leadership. Attitude: development of attitude. Change of attitude. **Clinical Psychology**: Models of training, abnormal behavior assessment, clinical judgment, psychotherapy, self-management methods, physiotherapist patient interaction, aggression, self-imaging, stress management, assertive training, Group therapy, Body awareness, Pediatric, child and geriatric clinical psychology.	08

RECOMMENDED BOOKS

1 General Psychology S.K. Mangal
2 Foundations and applications of Indian psychology by Matthijs Cornelissen , Girishwar Misra
3 Psychology For Physiotherapists by Ramalingam Thangamant

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : HUMAN ANATOMY PRACTICAL -II COURSE CODE: BPT19205										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	4	-	-	60	60	-	-	2	2

Learning Outcomes:

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

1. Locate various surface landmarks of body.
2. Identify bones of lower extremity, abdomen andpelvis.
3. Recognizemuscles, bloodvessels, nerves and tissuesof lower extremities in cadaver.
4. Recognize and identify anatomical parts of abdomen.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Lower Extremity Osteology:** Hip bone, femur, tibia, fibula, patella, tarsals, metartarsals and phalanges	12
2	**Muscle of Lower Limb :** Origin, Insertion, Nerve supply and Action of all the muscle of lowerlimb	12
3	**Joints**: Hip Joint, Knee joint, Ankle joint, joints of the foot.	14
4	**Soft parts:** Gluteal region, front and back of the thigh (Femoral triangle, femoral canal and inguinal canal), medialsideofthethigh (Adductor canal), lateralsideof the thigh, popliteal fossa, anterior and posterior compartment of leg, sole of the foot, lymphatic drainage of lower limb, venous drainage of the lower limb, arterial supply of the lower limb, arches of foot, skin of foot.	08
5	**Abdomen:** i. Large blood vessels of the gut. ii. Location, size, shape, features, blood supply, nerve supply and functionsofthefollowing: stomach, liver, spleen, pancreas, kidney, urinary bladder, intestines, gall bladder. **Pelvis:** Position, shape, size, features, bloodsupply and nerve supply of the male and female reproductive system.	14

RECOMMENDED BOOKS

1 Williams & Warwick, Gray's Anatomy-Churchill Livingstone.
2 B.D. Chaurasia, Human Anatomy-Volume 1, 2, 3 CBS Publishers& Distributors.
3 Snell-Clinical Anatomy-Lippincott.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

PRACTICALS

Sr. No	Components	Marks
1	10 Spotters (10 X 3=30)	30
2	Viva voce	20

COURSE TITLE : HUMAN PHYSIOLOGY PRACTICAL - II COURSE CODE: BPT19206										
COURSE CREDIT										
HOURS/ WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	4	-	-	4	60	-	-	4	2

Learning Outcomes:

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

1. Demonstrate procedures to determine pulses and blood pressure.
2. Demonstrate procedures to examine sensory system & motor system
3. Demonstrate procedures to examine respiratory system & cardio vascular system.
4. Recognize the abnormalities in the ECG and spirometry findings.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Clinical Examination Examination of Radial pulse. Recording of bloodpressure	12
2	Examination of CVS Examination of Respiratory system	14
3	Examination of Sensory system Examination of Motor System	14
4	Examination of reflexes Examination of cranial nerves	12
5	Spirometry Artificial Respiration ECG	08

RECOMMENDED BOOKS:

1 Text book on Medical Physiology-By Guyton
2 Text Book of Medical Physiology - Sembulingam
3 Text book of physiology for physiotherapy – Prof. A. K Jain.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

PRACTICALS

Sr. No	Components	Marks
1	Spotters (10X3=30)	30
2	Viva voce	20

COURSE TITLE : FIRST AID & BLS COURSE CODE: BPT19207										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
1	-	2	15	-	30	45	1	-	1	2

Learning Outcomes:

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

1. Define first aid and describe first aid emergencies.
2. Describerespiratory emergencies and community emergencies.
3. Describe first aid for Skeletal injuries, Wounds and Hemorrhage.
4. Define shock and unconsciousness.
5. Describe and demonstrate transportation of theinjured.
6. Describe and demonstrate Basic Life Support.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Introduction** Definition of first aid. Importance of first aid, Golden rules of first aid, Scope and concept of emergency. **First aid emergencies** 1. Burns & Scalds : Causes, Degrees of burns, First aid treatment, General treatment. 2. Poisoning: Classification (irritants, acid, alkali, narcotics), Signsandsymptoms. Firstaidtreatment, General treatment. 3. Trauma due to foreign body intrusion : Eye, ear, nose, throat, stomach and lungs. 4. Bites : First aid, signs, symptoms and treatment. a) Dog bite : rabies b) Snake bite : neurotoxin, bleedingdiathesis	10
2	**Skeletal injuries** Definition: Types offracturesofvarious parts ofthebody. Causes, Signs and Symptoms. Rules of treatment, Transportation of patient with fracture and spinal cord injuries. First aid measures in dislocation of joints. Treatment of muscle injuries.	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Respiratory emergencies : 1. Asphyxia: Etiology, Signs & Symptoms, rules of treatment. 2. Drowning: Definition and management. 3. Artificial respiration: Types andtechniques.	
3	**Wounds and Hemorrhage** 1. Broad outline of Anatomy and Physiology of the circulatory system. 2. Wounds: Classification, management. 3. Hemorrhages: Classification, signs and symptoms, rules for treatment of hemorrhage. 4. Treatment of hemorrhage from special areas (Scalp, mouth, nose, ear, palm and various veins). 5. Internal hemorrhages: Visible and concealed. **Shock and unconsciousness** Definition: Types of shock, Common causes of shock, signsandsymptomsofshock (assessment ofestablished shock). General and special treatment of established shock.	10
4	**Transportation of the injured** 1. Methods of transportation: Single helper, Hand seat, Stretcher, Wheeled transport (ambulance). 2. Precautions taken : Blanket lift, Air and Sea travel. **Community emergencies** Role of first aider (immediate and late) in fires, explosions, floods, earthquakes. **Community resources** Police Assistance, Voluntary agencies (local, National, International). Ambulance services (Functions).	10
5	**Basic Life Support** – AHA Guidelines	5

RECOMMENDED BOOKS:

1 Physiotherapy, Health, First Aid and Kinesiology in Physical Education by Dr. Md. Ataullah Jagirdar
2 First Aid and Emergency Management by Surabhi Arya

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

FINAL EXAMINATION

WRITTEN EXAMINATION (20 MARKS)

S.NO.	QUESTIONS	MARKS
1	MCQ	10×1=10 Marks
2	Short Notes (3 out of 4)	5×2=10 Marks

PRACTICAL EXAMINATION (30 MARKS)

S.NO.	COMPONENT	MARKS
1	Practical (Two Situations)	2×15=30 Marks

COURSE TITLE : ENVIRONMENTAL SCIENCE COURSE CODE: BPT19208										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
1	-	-	15	-	-	15	1	-	-	1

Learning Outcomes:

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

1. Define environmental science and its multidisciplinary nature.
2. Classify natural resources and its methods of preservations.
3. Describe the Structure and function of an ecosystem.
4. Describe environment ethics and Acts to preserve environment.
5. Discuss environment and human health.
6. Describe Role of Information Technology in Environment and Human health

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**The Multidisciplinary Nature Of Environmental Studies** Definition, Scope and importance Need for public awareness.	2
2	**Natural Resources:** Renewable and non-renewable resources : Natural resources and associate problem Forest resources : Use and over-exploitation, deforestation, case studies. timber extraction, mining, dams andtheireffectsonforest and tribal people. Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems. Food resources : World food problems , changes caused by agricultureandovergrazing, effectsof modernagriculture,fertilizer-pesticide problems, water logging , salinity, case studies. Energyresources: Growingenergyneeds, renewableandnon-renewable energy sources. use of alternate energy sources , case studies. Role of individual in conservation of natural resources.	4

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
3	**Ecosystems** Concept of an ecosystem. Structure and function of an ecosystem. Producers, consumers and decomposers. Energy flow in the ecosystem. Ecological succession. • Food chains, food webs and ecological pyramids. introduction, types, characteristic features, structure and function of the following ecosystem :- a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)	3
4	**Social Issues And The Environment** a) Urban problems related to energy b) Water conservation. rain water harvesting, watershed management Environmental ethics : issues and possible solutions. Climate change. global warm inc_ acid rain, ozone laver depiction. nuclear accidents and holocaust. Case studies. Wasteland reclamation. a) Consumerism and aste products. b) Environment Protection Act Air(Prevention and Control of Pollution) Act. a) Water (Prevention and control of Pollution) Act b) Wildlife Protection Act c) Forest Conservation Act d) Issues involved in enforcementofenvironmental legislation. e) • Public awareness.	4
5	**Human Population And The Environment** a) Population growth, variation among nations. b) Population explosion — Family Welfare Programme. c) Environment and human health. d) Human Rights. Role of Information Technology in Environment and Human health.	2

RECOMMENDED BOOKS

1 Agarwal, K.C.2001 Environmental Biology, Nidi Publ. Ltd. Bikaner
2 Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd. , Ahmedabad — 380 013, India
3 Jadhay. 11 & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.
4 Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines , Compliances and Standards, Vol I and II, Enviro Media (R)

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : INTRODUCTION TO HEALTHCARE DELIVERY SYSTEM IN INDIA COURSE CODE: BPT19209										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
1	-	-	15	-	-	15	1	-	-	1

Learning Outcomes:

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

1. Describe Indian healthcare delivery system of India.
2. Describe National Health Programme of India.
3. Discuss health scenario of India.
4. Explain concepts of demography.
5. List recording of vital statistics.
6. Describe Principles of Epidemiology.
7. Describe Epidemiologyofcommunicable& non-communicablediseases

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Introduction to healthcare delivery system a. Healthcare delivery system in India at primary, secondary and tertiary care b. Community participation in healthcare delivery system c. Health system in developed countries. d. Private Sector e. National Health Mission f. National Health Policy g. Issues in Health Care Delivery System in India	4
2	National Health Programme- Backgroundobjectives, action plan, targets, operations, achievements and constraints in various National Heath Programme.	3
3	Health scenario of India- past, present and future	2
4	Demography & Vital Statistics- a. Demography – its concept b. Vital events of life & its impact on demography c. Significance and recording of vitalstatistics	4

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	d. Census & its impact on health policy	
5	Epidemiology e. Principles of Epidemiology f. Natural History of disease g. Methods of Epidemiological studies h. Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance.	2

RECOMMENDED BOOKS:

1 Introduction to Healthcare Delivery Organizations: Functions and Management, Fourth Edition Hardcover – August 1, 1999 by Beverly LeBov Sloane

2 Healthcare Services Delivery in India: Special Reference to Mother and Child Health Ajith Paninchukunnath

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : CLINICAL TRAINING-II **COURSE CODE: BPT19210**										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**			**CREDITS**				
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**P**	**SPT**	**TOT**
-	**-**	**6**	**-**	**-**	**90**	**90**	**-**	**-**	**6**	**2**

Learning Outcomes :

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

1.Collect demographical datas of patients in OPD and wards.
2.Indentify the socioeconomic status of patients in OPD and wards.
3.Indentifythe Psychosocialstatus ofpatients in OPD and wards.
4.Collect behavioral, personal& family history.
5.Understand operating system of hospital.

S.NO	**TOPIC**	**HOURS**
1.	Organizational chart of PT department	
2.	IP / OP Rules and Regulation	
3.	Self Introduction	
4.	Demographic data Collection	
5.	Socioeconomic history collection	
6.	Social behavior and its influence on health	

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

FINAL EXAMINATION

WRITTEN EXAMINATION (50 MARKS)

S.NO.	QUESTIONS	MARKS
1	Case presentation (2X 25= 50)	50

SEMESTER – III

COURSE CODE	COURSE TITLE			CREDITS				
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	C
BPT19301	Biomechanics – II	-	-	60	3	1	--	4
BPT19302	Exercise therapy -I	-	-	60	3	1	--	4
BPT19303	Pathology		-	45	2	1	--	3
BPT19304	Microbiology		-	45	2	1	--	3
BPT19305	Pharmacology		-	30	2	--	--	2
BPT19306	Biomechanics - II Practical	-	-	60	--		4	2
BPT19307	Exercise therapy -I Practical	-	-	120	--		8	4
BPT19308*	Clinical Training -III	-	-	90	--	--	**6**	2
-	Library			**15**	**1**			
Total					**35**		**24**	

***End semester examination will be conducted at the department and mark will be submitted to the University**

COURSE TITLE : BIOMECHANICS -II COURSE CODE: BPT19301										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	4	-	-	4

Learning Outcomes:

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

1. Describe Biomechanics of the shoulder complex.
2. Describe Biomechanics of the elbow Joint.
3. Describe Biomechanics of wrist joint and hand complex.
4. Describe Biomechanics of the hip Joint.
5. Describe Biomechanics of the knee and ankle complex.
6. Define and discuss biomechanical analysis of human gait.
7. Define and discuss biomechanical analysis of human posture.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**The shoulder complex and The elbow complex** a. The shoulder complex: Structure and components of the shoulder complex and their integrated function b. The elbow complex: Structure and function of the elbow joint – humeroulnar and humeroradial articulations, superior and inferiorradioulnar joints; mobilityand stability oftheelbow complex; the effects of immobilization and injury.	12
2	**The wrist and hand complex:** Structural components and functions of the wrist complex; structure ofthe hand complex; functional position ofthewrist and hand.	08
3	**The Hip Complex**: structure and functionofthe hip joint; hip joint pathology-arthrosis, fracture, bony abnormalities ofthe femur: **The Knee Complex**: structure and function of the knee joint – tibiofemoral joint and patellofemoral joint; effects of injury and disease	14
4	**THE ANKLE AND FOOT COMPLEX.**: structure and function of the ankle joint, subtalar joint, talocalcaneonavicular joint, transverse tarsal joint, tarsometatarsal joints, metatarsophalangeal joints, interphalangeal joints, structure and function of the plantar arches, muscles of the ankle and foot, deviations from normal structure and function – Pes Planus and Pes Cavus	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
5	**Analysis Of Posture And Gait** – Static and dynamic posture, postural control, kinetics and kinematics of posture, ideal posture analysis of posture, effects of posture on age, pregnancy, occupation and recreation; generalfeatures ofgait, gait initiation, kinematicsand kinetics of gait, energy requirements, kinematics and kinetics of the trunk and upper extremities in relation to gait, stair case climbing and running, effects of age, gender, assistive devices, disease, muscle weakness, paralysis, asymmetries of the lower extremities, injuries and malalignments ingait; Movement Analysis : ADL activities like sitting – to standing, lifting, various grips , pinches.	14

RECOMMENDED BOOKS:

1 Joint structure and function – Cynthia Norkin
2 Textbook of Biomechanics by Subrata Pal
3 Kinesiology and Biomechanics by Bhartendu Kumar

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : EXERCISE THERAPY - I COURSE CODE: BPT19302										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes:

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

1. Define principle of exercise applications.
2. Describe methodsoftesting – goniometry, manual muscletesting, Anthropometric Measurements, Measurement of Limb Length and functional tests.
3. Classify and describe active movements and passive movements.
4. Define and describe free exercises and resisted exercises.
5. Describe relaxation techniques.
6. Define and describe therapeutic massage.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Introduction To Exercise Therapy** – The aims of Exercise Therapy, The techniques of Exercise Therapy, Approach to patient's problems, Assessment of patient's condition – Measurements of Vital parameters, Starting Positions – Fundamental positions & derived Positions, Planning of Treatment	08
2	**Methods OfTesting** a. Functional tests b. **Measurement of Joint range**: ROM-Definition, Normal ROM for all peripheral joints & spine, Goniometer-parts, types, principles, uses, Limitations of goniometry, Techniques for measurement of ROM for all peripheral joints **Tests for neuromuscular efficiency** i. Electrical tests ii. Manual Muscle Testing: Introduction to MMT, Principles& Aims, Indications & Limitations, Techniques of MMT for group & individual: Techniquesof MMT for upperlimb/ Techniquesof MMT for lower limb / Techniques of MMT for spine. iii. Anthropometric Measurements: Muscle girth– biceps, triceps, forearm, quadriceps, calf iv. Static power Test v. Dynamic power Test	14

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	vi. Endurance test vii. Speed test Tests for Co-ordination e. Tests for sensation f. Pulmonary Function tests g. Measurement of Limb Length: truelimblength, apparent limb length, segmental limb length h. Measurement of the angle of Pelvic Inclination	
3	**Passive Movements** a.CausesofimmobilityClassificationofPassive movements, Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses , Techniques of giving passive movements. **Active Movements** a. Definition of strength, power & work, endurance, muscle actions. b. Physiology of muscle performance: structure of skeletal muscle, chemical & mechanical events during contraction &relaxation, musclefibertype, motorunit, forcegradation. c. Causes of decreased muscle performance d. Physiologic adaptation totraining: Strength& Power, Endurance. e. Types of active movements **Free Exercise**: Classification, principles, techniques, indications, contraindications, effects and uses **Active Assisted Exercise:** principles, techniques, indications, contraindications, effects and uses Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses	14
4	**Resisted Exercise**: Definition, principles, indications, contraindications, precautions & techniques, effects and uses Types of resisted exercises: Manual and Mechanical resistance exercise, Isometric exercise, Dynamic exercise: Concentric and Eccentric, Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise. **Specific exercise regimens**	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	a. Isotonic: de Lormes, Oxford, MacQueen, Circiut weight training b. Isometric: BRIME (Brief Resisted Isometric Exercise), Multiple Angle c. Isometrics Isokinetic regimens **Relaxation** a. Definitions: Muscle Tone, Postural tone, Voluntary Movement, Degrees ofrelaxation, Pathologicaltension in muscle, Stress mechanics, types of stresses, Effects of stress on the body mechanism, Indications of relaxation, Methods & techniques of relaxation-Principles & uses: General, Local, Jacobson's, Mitchel's, additional methods	
5	.**Massage** History and Classification of Massage Technique ,Principles, Indications and Contraindications ,Technique of Massage Manipulations & Physiological and Therapeutic Uses of Specific Manipulations	12

RECOMMENDED BOOKS:

1 Therapeutic Exercise (English, Lynn Allen Colby, Carolyn Kisner)
2 Therapeutic Exercise by Carrie M Hall and Lori Thein Brody
3 Muscles: Testing and Function, with Posture and Pain by Florence Peterson Kendall

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : PATHOLOGY COURSE CODE: BPT19303										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Outcomes:

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

1. Define cell injuries.
2. Describe inflammation and wound healing.
3. Discuss about immuno pathology.
4. Describe pathology of infectious diseases.
5. Describe Growth Disturbances and Neoplasia.
6. Explain pathology of Nutritional Disorders and genetic disorders.
7. Describe the pathology of various systems of human body.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Introduction to Pathology **Cell injuries –** a. Aetiology and Pathogenesis with a brief recall of important aspects of normal cell structure. Reversible cell injury: Types, Sequential changes, Cellular swellings, vacuolation, Hyaline changes, Mucoid changes. **Irreversible cell injury:** Types of Necrosis & Gangrene, Autolysis. Pathologic calcification: Dystrophic and Metastatic. Intracellular Accumulations - Fatty changes, Protein accumulations, Glycogen accumulations, b. Pigments - Melanin / Hemosiderin. c. Extra cellular accumulations: Amyloidosis -Classification, Pathogenesis, Pathology including special stains. **Inflammation and Repair** – a. Acute inflammation: features, causes, vascular and cellular events. b. Inflammatory cells and Mediators. Chronic inflammation: Causes, Types, Classification nonspecific and granulomatous with examples. c. Repair, Wound healing by primary and secondary union, factors promoting and delaying the process. d. Healing in specific site including bone healing.	08
2	**Immunopathology –** a. Immune system: General concepts. b. Hypersensitivity: type and examples, antibody and cell mediated tissue injury with examples. . Secondary immunodeficiency	09

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	including HIV infection. Auto-immune disorders: Basic concepts and classification, SLE. c. AIDS-Aetiology, Modes of transmission, Diagnostic procedures, handling of infected material and health education. **Infectious diseases** – a. Mycobacterial diseases: Tuberculosis, Leprosy and Syphilis. b. Bacterial disease: Pyogenic, Diphtheria, Gram negative infection, Bacillary dysentery. c. Viral diseases: Poliomyelitis, Herpes, Rabies, Measles, Rickttsia, Chlamydial infection, HIV infection. d. Fungal disease and opportunistic infections. e. Parasitic diseases: Malaria, Filaria, Amoebiasis, Kala-azar, Cysticercosis, Hydatid cyst. **Circulatory Disturbances** – a. Hyperemia/Ischemia and Haemorrhage Edema: Pathogenesis and types. Chronic venous congestion: Lung, Liver, Spleen, Systemic Pathology Thrombosis and Embolism: Formation, Fate and Effects. b. Infarction: Types, Common sites. c. Shock: Pathogenesis, types, morphologic changes.	
3	**Growth Disturbances and Neoplasia** a. Atrophy, Hypertrophy, Hyperplasia, Aplasia, Hypoplasia, Metaplasia, Malformation, agenesis, dysplasia. b. Precancerous lesions. c. Neoplasia: Definition, classification, Biological behaviour : Benign and Malignant, Carcinoma and Sarcoma. d. Malignant Neoplasia: Grades and Stages, Local & Distant spread. e. Carcinogenesis: Environmental carcinogens, chemical, viral, occupational. Heredity and cellular oncogenesandpreventionof cancer. f. Benign & Malignant epithelial tumours Eg. Squamous papilloma, Squamous cell carcinoma, Malignant melanoma. Benign & Malignant mesenchymal tumours Eg: Fibroma, Lipoma, Neurofibroma, Fibrosarcoma, Liposarcoma, Rhabdo-myosarcoma, Teratoma. **Nutritional Disorders** – a. Proteinenergymalnutrition: Marasmus, Kwashiorkor, and Vitamin deficiency disorders, classification with specific examples. **Genetic Disorders** –	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	a. Basic concepts of genetic disorders and some common examples and congenital malformation.	
4	**Hematology** – a. Constituents ofblood and bonemarrow, Regulation of hematopoiesis. Anemia: Classification, clinical features & lab diagnosis. b. Nutritional anemias: Iron deficiency anemia, Folic acid,Vit. B 12 deficiency anemia including pernicious anemia. Hemolytic Anaemias: Classification and Investigations. Hereditary hemolytic anaemias: Thalessemia, Sickle cell anemia, Spherocytosis and Enzyme deficiencies. c. Acquired hemolytic anaemias i. Alloimmune, Autoimmune ii. Druginduced, Microangiopathic Pancytopenia - Aplastic anemia. d. Hemostatic disorders, Vascular and Platelet disorders & lab diagnosis. **Coagulopathies** – i. Inherited ii. Acquired with lab diagnosis. e. Leukocytic disorders: Leukocytosis, Leukopenis, Leukemoid reaction. f. Leukemia: Classification, clinicalmanifestation, pathology and Diagnosis. Multiple myelomaand disproteinemias. g. Blood transfusion; Grouping and cross matching, untoward reactions, transmissible infections including HIV & hepatitis, Blood-components & plasma-pheresis. **Respiratory System** a. Pneumonia, Bronchitis, Bronchiectasis, Asthma, Tuberculosis, Carcinoma of lungs, Occupational lung diseases	08

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
5	**Cardiovascular Pathology** a. Congenital Heart disease: Atrial septal defect, Ventricular septal defect, Fallot's tetralogy, Patent ductus arteriosus. b. Endocarditis. Rheumatic Heart disease. c. Vascular diseases: Atherosclerosis, monckeberg's medial calcification, Aneurysm and Arteritis and tumours of Blood vessels. d. Ischemicheart Disease: Myocardial infarction. Hypertension and hypertensive heart Disease. **Alimentary tract**: a. Oral Pathology: Ulcers, leukoplakia, Carcinoma, oral cavity diseases and tumour of salivary gland & esophagus and precancerous lesions, Esophagus inflammatory, functional disorders and tumours. b. Stomach: Gastritis, Ulcer & Tumours. c. Tumours and tumour like condition of the small and large Intestine: Polyps, carcinoid, carcinoma, Lymphoma. d. Pancreatitis and pancreatic tumours : i) Exocrine, ii) Endocrine Salivary gland tumours : Mixed, Warthin's **Hepato – biliary pathology**. a. Jaundice: Types, aetio-pathogenesis and diagnosis. Hepatitis: Acute, Chronic, neonatal. b. Alcoholic liverdisease c. Cirrhosis: Postnecrotic, Alcoholic, Metabolic and Portal hypertension Liver abscesses; Pyogenic, parasitic and Amoebic. Tumours of Liver **Lymphatic System** a. Diseasesof thegallbladder: Cholecystitis, Cholelithiasis, Carcinoma. Lymphadenitis - Nonspecific and granulomatous. Causes of Lymph Node enlargements. Reactive Hyperplasia, Primary Tumours - Hodgkin's and Non hodgkin's Lymphomas, Metastatic Tumours. b. Causes of Splenic Enlargements. **Musculoskeletal System** a. Osteomyelitis, acute, chronic, tuberculous, mycetoma b. Metabolic diseases: Rickets/Osteomalacia, osteoporosis, Hyperparathyroidism, Paget's disease.	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	c. Tumours Classification: Benign, Malignant, Metastatic and synovial sarcoma. Arthritis: Suppurative, Rheumatoid. Osteoarthritis, Gout, Tuberculous. d. Tumours of Thyroid: Adenoma, Carcinoma: Papillary, Follicular, Medullary, Anaplastic. Adrenal diseases: cortical hyperplasia, atrophy, tuberculosis, tumours of cortex and medulla. **Neuropathology** a. Inflammations and Infections: TBMeningitis, Pyogenic Meningitis, viral meningitis and Brain Abscess b. Tuberculosis, Cysticercosis c. CNSTumors, Astrocytoma, Neuroblastoma, Meningioma, Medulloblastoma **Dermatopathology** a. Skintumors: Squamos cellcarcinoma, Basal cellcarcinoma, Melanoma	

RECOMMENDED BOOKS:

1 Text book of Pathology (5th Edition) – Harsh Mohan
2 Text book of Pathology (2nd Edition) – Datta
3 Robbins Basic pathology by Kumar,Abbas & Aster

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : MICROBIOLOGY COURSE CODE: BPT19304										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Outcomes:

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

1. Define infection,routes of infection and spread.
2. Describe Sterilization, disinfection and universal precautions in relation to infection.
3. Discuss basic principles of immunity.
4. Describe general properties of bacteria and bacteriology.
5. Describe general properties of viruses and virology.
6. Describe general properties of fungi and mycology.
7. Discuss clinical microbiology.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**General Microbiology** - a. Definitions: infections, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, Zoonosis, Epizootic, Attack rate. b. Normal flora of the human body. c. Routes of infection and spread; endogenous and exogenous infections; source at reservoir of infections. d. Bacterial cell. Morphologylimitedto recognizing bacteria in clinical samples Shape, motility and arrangement. Structures, which are virulence, associated. e. Physiology: Essentials of bacterial growth requirements. f. Sterilization, disinfection and universal precautions in relation to patient care and disease prevention. Definition of asepsis, sterilization, disinfection. g. Antimicrobials: Mode of action, interpretation of susceptibility tests, resistance spectrum of activity.	09
2	**Immunology** a. Basic principles of immunity immunobiology: lymphoid organs and tissues. Antigen, Antibodies, antigen and antibody reactions with relevance to pathogenesis and serological diagnosis. b. Humoralimmunityanditsroleinimmunity Cell mediated immunity and its role in immunity. Imunology of hypersensitivity, Measuring immunefunctions.	05

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
3	**Bacteriology -** a. To be considered under the following headings b. Morphology, classification according to pathogenicity, mode of transmission, methods of prevention, collection and transport of samples for laboratory diagnosis, interpretationof laboratory reports. c. Staphylococci, Streptococci and Pneumococci. d. Mycobacteria:Tuberculosis, M.leprae, atypical mycobacteria, Enterobacteriaceae, e. Vibrois: V. cholerae and othermedically important vibrios, Campylobacters and Helicobacters, Pseudomonas. f. Bacillus anthracis, Sporing and non-sporing anaerobes: Clostridia, Bacteroides and Fusobacteria.	11
4	**General Virology** - General properties: Basic structure and broad classification of viruses. Pathogenesis and pathology of viral infections. Immunity and prophylaxis of viral diseases. Principles of laboratory diagnosis of viral diseases. List of commonly used antiviral agents. **Mycology -** a. General properties of fungi. Classification based on disease: superficial, subcutaneous, deep mycosel opportunistic infections including Mycotoxins, systemic mycoses. General principles of fungal diagnosis, Rapid diagnosis. Method of collection of samples. Antifungal agents	11
5	**Clinical/Applied Microbiology** - a. Streptococcal infections: Rheumatic fever and Rheumatic heart disease, Meningitis. b. Tuberculosis, c. Pyrexia of unknown origin, leprosy, d. Sexually transmitted diseases, Poliomyelitis, e. Hepatitis, f. Acute-respiratory infections, Central nervous System infections, Urinary tract infections, g. Pelvic inflammatory disease, Wound infection, Opportunistic infections, HIV infection, h. Malaria, Filariasis, Zoonotic diseases.	10

RECOMMENDED BOOKS:

1 Text book of Microbiology – C.K.J. Paniker
2 Text book of Microbiology – Logeswari Selvaraj
3 Essentials of Medical Microbiology – Apurba sankar satry sandhya bhat k
4 Medical Microbiology: by Patrick R. Murray PhD, Ken S. Rosenthal PhD, Michael A. Pfaller MD

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : PHARMACOLOGY COURSE CODE: BPT19305										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
1	1	-	15	15	-	30	1	1	-	2

Learning Outcomes:

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

1. Describe Pharmacological effects of commonly used drugs by patients referred for Physiotherapy, list their adversereactions, precautions to be taken& contraindications, Formulation& route of administration.
2. Identify whether the pharmacological effect of the drug interferes with the Therapeutic response of Physiotherapy & vice-versa
3. Indicate the use of analgesics & anti-inflammatory agents with movementdisorders with consideration of cost, efficiency & safety for individual needs.
4. Get the awareness of other essential &commonly used drugs by patients-The bases for their use & common as well as serious adverse reactions.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Introduction–** a., Definitions, Classification of drugs, Sources of drugs, Routes of drug administration, Distribution ofdrugs, Metabolism and Excretion of drugs Pharmacokinetics, Pharmacodynamics, Factors modifying drug response, Adverse effects. **Autonomic Nervous system –** a. General considerations – The Sympathetic and Parasympathetic Systems, Receptors, Somatic Nervous System b. Cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.	10
2	**Cardiovascular Pharmacology** – a. Drugs used in the treatment of heart failure: Digitalis, Diuretics, Vasodilators, ACEinhibitors Antihypertensive Drugs: Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Agonists, Peripheral Alpha Antagonists, Direct acting Vasodilators b. Antiarrhythmic Drugs c. Drugs used in the treatment of vascular disease and tissue ischemia : Vascular Disease, Hemostasis Lipid-Lowering agents, Antithrombotics, Anticoagulants and Thrombolytics Ischemic Heart	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Disease – Nitrates, Beta-Blockers, Calcium Channel Blockers, Cerebral Ischemia Peripheral Vascular Disease. **Neuropharmacology –** a. Sedative-Hypnotic Drugs: Barbiturates,Benzodiazepines b. Antianxiety Drugs: Benzodiazepines, Other Anxiolytics c. Drugs Used in Treatment of Mood Disorders: Monoamine Oxidase Inhibitors, Tricyclic Antidepressants, Atypical Antidepressants, Lithium d. Antipsychotic drugs	
3	**Movement Disorders** a. Drugs used in Treatment of Parkinson 's disease b. Antiepileptic Drugs c. Spasticity and Skeletal Muscle Relaxants	6
4	**Inflammatory/Immune Diseases -** a. Non-narcotic Analgesics and Nonsteroidal Anti-Inflammatory Drugs: Acetaminophen, NSAIDs, Aspirin, Nonaspirin NSAIDs, drug Interactins with NSAIDs b. Glucocorticoids: Pharmacological Uses of Glucocorticoids, adverse effects, Physiologic Use of Glucocorticoids c. Drugs Used in Treatment of Arthritic Diseases: Rheumatoid Arthritis, Osteoarthritis, Gout d. Drugs Used in the Treatment of Neuromuscular Immune/Inflammatory Diseases: Myasthenia gravis, Idiopathic Inflammatory Myopathies, systemiclupus Erythematous, Scleroderma, Demyelinating Disease e. Respiratory Pharmacology: Obstructive Airway Diseases, Drugs used in Treatment of Obstructive airway Diseases, Allergic Rhinitis	10
5	**Digestion And Metabolism -** a. Gastrointestinal Pharmacology: Peptic Ulcer Disease, Constipation, Diarrhea Drugs Used in Treatment of Diabetes Mellitus: Insulin, Oral Hypoglycemic Geriatrics - a. Pharmacology and the geriatric Population: Adverse effects of special concern in the Elderly, Dementia, Postural hypotension.	9

RECOMMENDED BOOKS:

1. Essential of Medical Pharmacology – Tripathi

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : BIOMECHANICS – II PRACTICAL COURSE CODE: BPT19306										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER			CREDITS				
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	4	-	-	60	60	-	-	2	2

Learning Outcomes:

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

1. Demonstrate movements of joints in all planes of movement. .
2. Identify missing component of movement.
3. Analysis posture and recognize presence of abnormality.
4. Analysis gait and recognize presence of abnormality.
5. Analysis activities ofdaily living and interpretthe findings in functional activities.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Joint movements and analysis Movements of joints of upper extremity ,lower extremity andvertebralcolumnanalysisfromthreeplanesofaction..	14
2	Analysis of posture. Normal posture, abnormal posture, posture analysis from different planes of action.	14
3	Analysis of Gait Components of gait, abnormal gait and analysis of gait cycle in lateral view & anterior view.	12
4	Analysis for activities ofdaily living – ADL –(like sitting to standing, throwing, lifting etc.)	08
5	Analysis of Functional Activities.	12

RECOMMENDED BOOKS

1 Joint structure and function – Cynthia Norkin
2 Textbook of Biomechanics by Subrata Pal
3 Kinesiology and Biomechanics by Bhartendu Kumar

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATIONPRACTICAL EXAMINATION (50 MARKS)

S.NO.	QUESTIONS	MARKS
1	Spotters (4)	5×4=20 Marks
2	Biomechanical analysis of Functions(2)	15×2=30Marks

COURSE TITLE : EXERCISE THERAPY PRACTICAL - I COURSE CODE: BPT19307										
COURSE CREDIT										
HOURS /WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	8	-	-	120	120	-	-	4	4

Learning Outcomes s:

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

1.Demonstrate passive movements in terms of various Anatomical planes.

2.Demonstrate various starting and derivedpositions.

3.Acquire a skill of assessment of sensations, superficial and deep reflexes, pulse rate/ Blood pressure, Chest expansion/respiratory rate, and limb length/girth measurement on Models.

4. Demonstrate the skills of relaxation.

5. Demonstrate the skill of measuring ROM with goniometer**.**

6. DemonstrateTechniques of Massage Therapy& Soft Tissue Manipulations.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Starting Positions – Fundamental positions & derived Positions, Methods of Testing Measurement of Joint range: ROM for all peripheral joints & spine, Techniques for measurement of ROM for all peripheral joints Anthropometric Measurements: Muscle girth – biceps, triceps, forearm, quadriceps, calf Static power Test ,Dynamic power Test, Endurance test Speed test Tests for Co-ordination Tests for sensation Free exercise, Active Assisted Exercise, Resisted Exercise, Types of resisted exercises: Manual and Mechanical resistance exercise, Isometric exercise, Dynamic exercise: Concentric and Eccentric,	24

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise.	
2	Manual Muscle Testing: Techniques of MMT for group & individual: Techniques of MMT forupperlimb/ Techniquesof MMT for lower limb / Techniques of MMT for spine.	33
3	Measurement ofLimb Length:truelimblength, apparentlimb length, segmental limb length Measurement oftheangleofPelvic Inclination Passive Movements Techniques of giving passive movements. &Active Movements	33
4	Relaxation Methods & techniques of relaxation- General, Local, Jacobson's, Mitchell's, additional methods.	10
5	Techniques of Massage Therapy & Soft Tissue Manipulations.	20

RECOMMENDED BOOKS

1 Therapeutic Exercise (English, Lynn Allen Colby, Carolyn Kisner)
2 Therapeutic Exercise by Carrie M Hall and Lori Thein Brody
3 Muscles: Testing and Function, with Posture and Pain by Florence Peterson Kendall

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

UNIVERSITY EXAMINATION

PRACTICAL EXAMINATION (70 MARKS)

S.NO.	QUESTIONS	MARKS
1	Exercise Therapy Techniques (3)	20×3=60 Marks
2	Massage Techniques(1)	10×1=10Marks

COURSE TITLE : CLINICAL TRAINING- III COURSE CODE: BPT19308										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	6	-	-	90	90	-	-	6	2

Learning Outcomes :

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

1. **Collect demographical data's of patients in OPD and wards.**
2. **Assess muscle performance, joint range and limb length of patients in OPD and wards and record it .**
3. **Assess posture and gait of patients in OPD and wards and record it**
4. **Administer exercises to patients in OPD and wards under supervision of clinical staffs.**
5. **Administer soft tissue manipulations to patients in OPD and wards under supervision of clinical staffs.**
6. **Maintain clinical log note.**

S.NO	TOPIC	HOURS
	1. Demographic data Collection 2. Socioeconomic history collection 3. Social behavior and its influence on health 4. Assess the ROM of the patients 5. Assess and record the Manual Muscle testing of the patients 6. Applythesofttissuemanipulation topatients under supervision	

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

FINAL EXAMINATION

WRITTEN EXAMINATION (50 MARKS)

S.NO.	QUESTIONS	MARKS
1	Case presentation (2X 25= 50)	50

SEMESTER – IV

COURSE CODE	COURSE TITLE				CREDITS			
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	C
BPT19401	Exercise therapy - II	-	-	60	3	1	--	4
BPT19402	Electrotherapy (LMHF)	-	-	60	3	1	--	4
BPT19403	Bio Physics	-	-	45	2	1	--	3
BPT19404	Ethics and Management in Physiotherapy	-	-	45	2	1	--	3
BPT19405	Exercise therapy II Practical	-	-	120	--	--	8	4
BPT19406	Electrotherapy LMHF Practical	-	-	120	--	--	8	4
BPT19407*	Clinical Training - IV	-	-	45	-	-	3	1
-	Library			30	2			
Total					**35**			**23**
***End semester examination will be conducted at the department and mark will be submitted to the University**								

COURSE TITLE : EXERCISE THERAPY - II COURSE CODE: BPT19401										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes:

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

1. Define principle of PNF and describe patterns,techniques of PNF.
2. Classify types of suspension and Describe methods of applying it.
3. Describe functional reeducation.
4. Define and describe Aerobic exercises.
5. Describe stretchingtechniques andclassify thetypesofstretching.
6. Define principle ofhydrotherapyand describe its variousapplications.
7. Describe mobilization of peripheral joints.
8. Discuss balance& coordination exercises.
9. Describe different walking aids and its uses.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Proprioceptive Neuromuscular Facilitation** Basic neurophysiologic principles of PNF: Muscular activity, Diagonals patterns ofmovement: upperlimb, lowerlimb Procedure: components of PNF, Techniques of facilitation , Mobility:Contract relax, Holdrelax, Rhythmicinitiation,. Strengthening: Slowreversals, repeatedcontractions, timing for emphasis, rhythmic stabilization Stability: Alternating isometric, rhythmic stabilization, Skill: timing for emphasis, resisted progression Endurance: slowreversals, agonist reversal	12
2	**Suspension Therapy** a. Definition, principles, equipments & accessories, Indications & contraindications, Benefits of suspension therapy b. Types of suspension therapy: axial, vertical, pendular Techniques of suspension therapy for upper limb Techniques of suspension therapy for lower limb **Stretching**	15

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	a. Definition of terms related to stretching; Tissue response towards immobilization and elongation, Determinants of stretching exercise, Effects of stretching, Inhibition and relaxationprocedures, Precautionsandcontraindications of stretching, Techniques of stretching	
3	**Aerobic Exercise** a. Definition and key terms; Physiological response to aerobic exercise, Examination and evaluation of aerobic capacity – Exercise Testing, Determinants ofan Exercise Program, The Exercise Program, Normal and abnormal response to acute aerobic exercise, Physiological changes that occur with training, Application of Principles of an Aerobic conditioning program for patients – types and phases of aerobic training. . **Hydrotherapy** a. Definitions, Goals and Indications, Precautions and Contraindications, Properties of water, Use of special equipment, techniques, Effects and uses, merits and demerits Individual and Group Exercises a. Advantages and Disadvantages, Organization of Group exercises, Recreational Activities and Sports	10
4	**Manual Therapy & Peripheral Joint Mobilization** a. Schools of Manual Therapy, Principles, Grades, Indications and Contraindications, Effects and Uses – Maitland, Kaltenborn, Mulligan b. Biomechanical basis for mobilization, Effects of joint mobilsation, Indications and contraindications, Grades of mobilization, Principles of mobilization, Techniques of mobilization forupperlimb, lowerlimb, Precautions. **Functional Re-education** a. Lying to sitting: Activities on the Mat/Bed, Movement and stability at floor level; Sitting activities and gait; Lower limb and Upper limb activities	15

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
5	**Balance Exercises.** Components of balance (sensory, musculoskeletal, biomechanical) , Causes of impaired balance, Examination & evaluation of impaired balance, Activities for treating impaired balance: mode, posture, movement, Precautions & contraindications, Types Balance retraining. **Co-ordination Exercise** Causes for Inco-ordination, Test for co-ordination: equilibrium test, non-equilibrium test Principles of co-ordination exercise. Frenkel's Exercise: uses of Frenkel's exercise, technique of Frenkel's exercise, progression, home exercise. **Postural correction** Principles of re-education: corrective methods and techniques, Patient education **Walking Aids** a. Types: Crutches, Canes, Frames; Principles and training with walking aids	08

RECOMMENDED BOOKS:

1 Therapeutic Exercise (English, Hardcover, Lynn Allen Colby, Carolyn Kisner)
2 Therapeutic Exercise by Carrie M Hall and Lori Thein Brody
3 Muscles: Testing and Function, with Posture and Pain by Florence Peterson Kendall
4. The Principles of Exercise Therapy. M. Deena Gardiner

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : ELECTROTHERAPY (LMHF) COURSE CODE: BPT19402										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes:

At end of course candidate able to:

1. Describe the types of currents
2. Describe the electro diagnosis.
3. Describe the about modalities of heat
4. Describe the application of electrotherapy.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Nerve Muscle Physiology**: Action Potential, Resting membrane potential, Propagation of Action Potential, Motor unit, synapse, Accommodation, Stimulation of Healthy Muscle, Stimulation of Denervated Muscle, Stimulation for Tissue Repair **Low frequency Currents** 1. Basic types of current a. Direct Current: types, physiological &therapeutic effects. b. Alternating Current 2. Types of Current used in Therapeutics a. Modified D.C i. Faradic Current ii. Galvanic Current b. Modified A.C i. Sinusoidal Current ii. Diadynamic Current. 3. Faradic Current: Definition, Modifications, Techniquesof Application of Individual, Muscle and Group Muscle stimulation, Physiological & Therapeutic effects of Faradic Current, Precautions, Indications & Contra-Indications, Dangers. 4. Galvanic Current: Definition, Modifications, Physiological & Therapeuticeffectsof Galvanic Current, Indications& Contra-Indications, Dangers, Effect of interrupted galvanic	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	currentonnormallyinnervated and denervated muscles and partially denervated muscles. 5. Sinusoidal Current & Diadynamic Current in Brief. 6. HVPGS – Parameters & its uses 7.Ionization / Iontophoresis: Techniques of Application of Iontophoresis, Indications, Selection of Current, Commonly used Ions (Drugs) forpain, hyperhydrosis, wouldhealing. 8. Cathodal / Anodal galvanism. 9. Micro Current & Macro Current	
2	**Electro-diagnosis** 1. FG Test 2. SD Curve: Methodsof Plotting SD Curve, Apparatus selection, Characters of Normallyinnervated Muscle, Characters of Partially Denervated Muscle, Characters of Completely denervated Muscle, Chronaxie & Rheobase. 3. Nerve conduction velocity studies 4. EMG: Construction of EMG equipment. 5. Bio-feed back. **Types of Electrical Stimulators** a. NMES- Construction component. b. Neuro musculardiagnosticstimulator- construction component. c. Components and working Principles Principles of Application: Electrode tissue interface, Tissue Impedance, Types of Electrode, Size & Placement of Electrode– Waterbath, Unipolar, Bi-polar, Electrodecoupling, Current flow in tissues, Lowering of Skin Resistance **Pain:** Define Pain, Theories of Pain (Outline only), Pain Gate Control theory in detail. **TENS:** Define TENS, Types of TENS, Conventional TENS, Acupuncture TENS, Burst TENS, Brief & Intense TENS, Modulated TENS. Types of Electrodes & Placement of Electrodes, Dosage parameters, Physiological & Therapeutic effects, Indications & Contraindications.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
3	**Medium Frequency** 1. Interferential Therapy: Define IFT, PrincipleofProduction of IFT, Static Interference System, Dynamic Interference system, Dosage Parameters for IFT, Electrode placement in IFT, Physiological & Therapeutic effects, Indications & Contraindications. 2. Russian Current 3. Rebox type Current **Superficial heating Modalities** 1. Wax Therapy: Principle of Wax Therapy application – latent Heat, Composition of Wax Bath Therapy unit, Methods of application of Wax, Physiological & Therapeutic effects, Indications & Contraindication, Dangers. 2. Contrast Bath: Methods of application, Therapeutic uses, Indications & Contraindications. 3. Moist Heat Therapy: Hydro collatorpacks – in brief, Methods of applications, Therapeutic uses, Indications & Contraindications. 4. Cyclotherm: Principles of production, Therapeutic uses, Indications & Contraindications. 5. Fluidotherapy: Construction, Method of application, Therapeuticuses, Indications& Contraindications. 6. Whirl Pool Bath: Construction, Methodof Application, Therapeutic Uses, Indications & Contraindications. 7. Magnetic Stimulation, Principles, Therapeutic uses, Indications & contraindication. 8. Cryotherapy: Define- Cryotherapy, Principle- Latent heat of fusion, Physiological & Therapeuticseffects, Techniquesof Applications, Indications & Contraindications, Dangers, Methods of application with dosages. 9.Traction: Describe principles, Types, Procedure, Indication, Contraindication, therapeutic effect of traction	12
4	**High Frequency Currents**: 1. Electro Magnetic Spectrum.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	2. SWD: Define short wave, Frequency & Wavelength of SWD, Principle of Production of SWD, Circuit diagram & Production of SWD, Methods of Heat Production by SWD treatment, Types of SWD Electrode, Placement & Spacing of Electrodes, Tuning, Testing of SWD Apparatus, Physiological & Therapeutic effects, Indications & Contraindications, Dangers, Dosage parameters. 3. Pulsed Electro Magnetic Energy: Principles, Production & Parameters of PEME, Uses of PEME. 4. Micro Wave Diathermy: Define Microwave, Wavelength& Frequency, Production of MW, Applicators, Dosage Parameters, Physiological & Therapeutic effects, Indications & Contraindications, Dangers of MWD. [2 Hours] 5. Ultrasound: Define Ultrasound, Frequency, Piezo Electric effects: Direct, Reverse, Production of US, Treatment Dosage parameters: Continuous& Pulsed mode, Intensity, US Fields: Near field, Far field, Half value distance, Attenuation, Coupling Media, Thermal effects, Non-thermal effects, Principles& Application of US: Direct contact, Waterbag, Water bath, Solid sterile gel pack method for wound. Uses of US, Indications & Contraindications, Dangers of Ultrasound. Phonophoresis: Define Phonophoresis, Methods of application, commonly used drugs, Uses. Dosages of US.	
5	6. IRR:Define IRR,wavelength& parameters, Typesof IR generators, Production of IR, Physiological & Therapeutic effects, Duration & frequency of treatment, Indication & Contraindication. 7. UVR: Define UVR, Types of UVR, UVR generators: High pressure mercury vapour lamp, Water cooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, Theraktin tunnel, PUVA apparatus. Physiological & Therapeutic effects. Sensitizers & Filters. Test dosage calculation. Calculation of E1, E2, E3, E4 doses. Indications, contraindications.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Dangers. Dosages for different therapeutic effects, Distance in UVR lamp 8. LASER: Define LASER. Types of LASER. Principles of Production. Productionof LASER byvarious methods. Methods of application of LASER. Dosage of LASER. Physiological & Therapeutic effects of LASER. Safety precautions of LASER. Classifications of LASER. Energy density & power density	

RECOMMENDED BOOKS:

1 Electrotherapy Explained: Principles and Practice by john low and ann read, Val Robertson and Alex ward
2 Therapeutic Modalities for Physical Therapists, William E. Prentice,
3 Clayton's Electrotherapy: Theory and Practice: by Angela Forster
4 Therapeutic Modalities, Chad Starkey

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : BIO PHYSICS COURSE CODE: BPT19403										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
2	**1**	**-**	**30**	**15**	**-**	**45**	**2**	**1**	**-**	**3**

Learning Outcomes:

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

1. Define and classify types of electricity.
2. Define units of electricity and laws of electricity.
3. Describe magnetism and its application.
4. Describe working of electrical devices and its parts.
5. Dscribe First aid and initial management of electric shock and Precaution-safety devices

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**PHYSICAL PRINCIPLES** a. Structure and properties of matter -solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity. b. Structure of atom, molecules, elements and compound c. Electricity: Definition and types. Therapeutic uses. Basic physics of construction. Working d. Importance of currents in treatment. e. Static Electricity: Production of electric charge. Characteristic of a charged body. f. Characteristics oflinesofforces. Potential energy and factors on which it depends. Potential difference and EMF	12
2	**CURRENT ELECTRICITY**: Units of Electricity: farad, Volt, Ampere, Coulomb, Watt a. Condensers: Definition, principle, Types- construction and working, capacity & uses. b. Magnetism: Definition. Properties of magnets. Electromagnetic induction. Transmission by contact. Magnetic field and magnetic forces. Magnetic effects of an electric field.	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	c. Conductors, Insulators, Potential difference, Resistance and intensity d. Ohm's law and its application to DC and AC currents. Fuse: construction, working andapplication. e. Transmission of electrical energy through solids, liquids, gases and vacuum.	
3	**RECTIFYING DEVICES**- Thermionic valves, Semiconductors, Transistors, Amplifiers, transducer and Oscillator circuits. Display devices and indicators-analogue and digital. Transformer: Definition, Types, Principle, Construction, Eddy current, working uses Chokes: Principle, Construction and working, Uses	05
4	**EFFECTS OF CURRENT ELECTRICITY** a. Chemical effects-lons and electrolytes, lonisation, Production of an EMF by chemical actions. b. Ionization: Principles, effects of various technique of medical ionization. c. Electromagnetic Induction. d. Electromagnetic spectrum.	09
5	**ELECTRICAL SUPPLY** a. Brief outline of main supply of electric current b. Dangers-short circuit, electric shocks: Micro/ Macro shocks c. Precaution-safety devices, earthing, fusesetc. d. First aid and initial management of electric shock e. Burns: electrical & chemical burns, prevention and management **Various agents** a. Thermal agents: Physical Principles of cold, Superficial and deep heat. b. Ultrasound: Physical Principles of Sound c. Electro- magnetic Radiation: Physical Principles and their Relevance to Physiotherapy Practice d. Electric Currents: Physical Principles and their Relevance to Physiotherapy Practice.	09

RECOMMENDED BOOKS:

1 Fundamentals of Biophysics by Andrey B. Rubin
2 Introduction to Biophysics, by P K Banerjee

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : ETHICS AND MANAGEMENT IN PHYSIOTHERAPY COURSE CODE: BPT19404										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Outcomes:

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

1. Describe Medical and Physiotherapy ethics.
2. Discuss Laws affecting physiotherapy practice
3. Describe Theories of management
4. Describe Resource and quality management

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	1. Medicalethicsversusmedicallaw - Definition - Goal - Scope 2. Introduction to Code of conduct 3. Basic principles of medical ethics – Confidentiality 4. Malpractice and negligence - Rational and irrational drug therapy 5. Autonomy and informed consent - Right of patients 6. Care of the terminally ill- Euthanasia 7. Organ transplantation 8. Medical diagnosis versus physiotherapy diagnosis. 9. Medico legal aspects of medical records – Medico legal case and type- Records and document related to MLC - ownershipofmedicalrecords- Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects	09
2	Professional Indemnity insurance policy Development of standardized protocol to avoid near miss or sentinel events Obtaining an informed consent. Biomedical ethical principles	09
3	Code of ethics for physiotherapists	09

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Ethics documents for physiotherapists Laws affecting physiotherapy practice	
4	Management studies for Physiotherapy Definition - Branches ofmanagement - Principles ofhealth sector management. General principles of management - Theories of management. Professionalism: Five roles of physiotherapist; Physiotherapist as consultant, critic inquirer, clientmanager, educator, administrator.	09
5	Personnel management - Polices and procedure basic concepts and theories. Financial issues including budget and income generation. Principles of an organizational chart. Organization of a department - planning, space, manpower, materials, basic requirements. Resource and quality management - planning with change and coping with change. Self-Management Preparing for first job Time management Career Development	09

RECOMMENDED BOOKS:

1 Physical Therapy Ethics 2nd Editionby Donald L. Gabard PTPhD, Mike W. Martin PhD
2 Textbook of Medical Ethics by Loewy, Erich H.
3 Management In Physiotherapy by Robert Jones
4 Professionalism in Physical Therapy: History, Practice, and Development, Laura Lee Swisher

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : EXERCISE THERAPY PRACTICAL - II COURSE CODE: BPT19405										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	8	-	-	120	120	-	-	4	4

Learning Outcomes:

At the end of this course candidate able to :

1. Demonstrate PNF techniques.
2. Demonstrate Suspension therapy
3. Demonstrate mobilization of peripheral jonts.
4. Demonstrate balance and coordination exercises.
5. Demonstrate usage of walking aids.
6. Demonstrate various techniques of stretching.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Specific exercise regimens a. Isotonic: de Lormes, Oxford, MacQueen, Circiut weight training b. Isometric: BRIME (Brief Resisted Isometric Exercise), Multiple Angle Isometrics Isokinetic regimens Proprioceptive Neuromuscular Facilitation a. Definitions & goals b. Basic neurophysiologic principles of PNF: Muscular activity, Diagonals patternsof movement: upper limb, lower limb c. Procedure: components of PNF d. Techniques of facilitation e. Mobility: Contract relax, Holdrelax, Rhythmic initiation f. Strengthening: Slow reversals, repeated contractions, timing for emphasis, rhythmic stabilization Stability: Alternating isometric, rhythmic stabilization	40

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	g. Skill: timing for emphasis, resisted progression Endurance: slow reversals, agonist reversal	
2	Suspension Therapy a. Types of suspension therapy: axial, vertical, pendular Techniques of suspension therapy for upper limb Techniques of suspension therapy for lower limb Functional Re-education a. Lying to sitting: Activities on the Mat/Bed, Movementandstability at floorlevel; Sitting activities and gait; Lower limb and Upper limb activities.	20
3	Aerobic Exercise Examination and evaluation of aerobic capacity – Exercise Testing, Determinants of an Exercise Program, The Exercise Program,. Stretching: Techniques of stretching.	20
4	Manual Therapy & Peripheral Joint Mobilization a Maitland, Kaltenborn, Mulligan Balance Examination & evaluation of impaired balance, Activities for treating impaired balance: mode, posture, movement, Precautions & contraindications, Types Balance retraining.	20
5	Co-ordination Exercise Test for co-ordination: equilibrium test, non-equilibrium test c. Frenkel's Exercise: uses of Frenkel's exercise, technique of Frenkel's exercise, progression, home exercise. Walking Aids a. Types: Crutches, Canes, Frames; Principles and training with walking aids	20

RECOMMENDED BOOKS:

1 Therapeutic Exercise (English, Hardcover, Lynn Allen Colby, Carolyn Kisner)
2 Therapeutic Exercise by Carrie M Hall and Lori Thein Brody
3 Muscles: Testing and Function, with Posture and Pain by Florence Peterson Kendall

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

UNIVERSITY EXAMINATION

PRACTICAL EXAMINATION (70 MARKS)

S.NO.	QUESTIONS	MARKS
1	Exercise Therapy Techniques (5)	14×5=70 Marks

COURSE TITLE : ELECTROTHERAPY LMHF PRACTICAL COURSE CODE: BPT19406										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	8	-	-	120	120	-	-	4	4

Learning Outcomes:

At the end of this course candidate able to :

1. Demonstrate electrical stimulation
2. Demonstrate SWD & UST application
3. Demonstrate superficial heat modalities
4. Demonstrate checking of electrical equipments.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Demonstrate the technique for patient evaluation – receiving the patient and positioning the patient for treatment using electrotherapy. 1. Collection of materials required for treatment using electrotherapy modalities and testing of the apparatus. 2. Demonstrate placement of electrodes for various electrotherapy modalities	10
2	Electrical stimulation for the muscles supplied by the peripheral nerves Faradism under Pressure for UL and LL Plotting of SD curve with chronaxie and rheobase 1. Demonstrate FG test	40
3	Application of Ultrasound for different regions-various methods of application 1. Demonstrate treatmenttechniquesusingSWD, IRR and Microwave diathermy	30
4	1. Demonstrate the technique of UVRexposure for various conditions – calculation of test dose 2. DemonstratetreatmentmethodusingIFTforvarious regions 3. Calculation of dosage and technique of application of LASER	30

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
5	1.Techniqueoftreatment and application of Hydrocollator packs, cryotherapy, contrast bath, wax therapy 2.Demonstrate the treatment method using whirl pool bath 3. Winding up procedure after any electrotherapy treatment method. 4.Traction : Lumbar, Cervical, Bedside traction Performa: 1. Checking of equipments 2. Arrangement ofexercisetherapyandelectrotherapy equipment. 3. Calibration of equipment 4. Purchase, billing, document ofequipment. 5. Safety handling of equipments. 6. Research lab equipment maintenance. 7. Stock register, movement register maintenance	10

RECOMMENDED BOOKS

1 Electrotherapy Explained: Principles and Practice by john low and ann read, Val Robertson and Alex ward
2 Therapeutic Modalities for Physical Therapists, William E. Prentice,
3 Clayton's Electrotherapy: Theory and Practice: by Angela Forster
4 Therapeutic Modalities, Chad Starkey

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

UNIVERSITY EXAMINATION

PRACTICAL EXAMINATION (70MARKS)

S.NO.	QUESTIONS	MARKS
1	Low Frequency Application (2)	20×1=20 Marks 10×1=10 Marks
2	High Frequency Application(2)	20×2=40Marks

COURSE TITLE : CLINICAL TRAINING - IV COURSE CODE: BPT19407										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
-	**-**	**3**	**-**	**-**	**45**	**45**	**-**	**-**	**1**	**1**

Learning Outcomes :

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

1. Collect demographical datas of patients in OPD and wards.
2. Assess muscle performance, joint range and limb length of patients in OPD and wards and record it .
3. Assess posture and gait of patients in OPD and wards and record it
4. Administer exercises to patients in OPD and wards under supervision of clinical staffs.
5. Administer soft tissue manipulations to patients in OPD and wards under supervision of clinical staffs.
6. Application of electrical equipments to patients in OPD and wards under supervision of clinical staffs.
7. Application of superficial and deep heat modalities to patients in OPD and wards under supervision of clinical staffs
8. Maintain clinical log note.

S.NO	TOPIC	HOURS
1.	Demographic data Collection	
2.	Socioeconomic history collection	
3.	Social behavior and its influence on health	
4.	Apply superficial and deep heating modalities to patients	
5.	Apply electrical modalities to the patients	
6.	Record the clinical log note	

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

FINAL EXAMINATION

WRITTEN EXAMINATION (50 MARKS)

S.NO.	QUESTIONS	MARKS
1	Case presentation (2X 25= 50)	50

SEMESTER – V

COURSE CODE	COURSE TITLE			HOURS				
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	C
BPT19501	Evaluation Measurements and Outcome measures	-	-	45	2	1	--	3
BPT19502	Orthopedic conditions for Physiotherapist	-	-	60	3	1	-	4
BPT19503	General Surgery, Plastic Surgery & OBG	-	-	60	3	1	-	4
BPT19504	General Medicine, Pediatrics & Psychiatry	-	-	60	3	1	-	4
BPT19505	Community Medicine		-	45	2	1	-	3
BPT19506*	-	-	Diagnostic Imaging for Physiotherapist	30	2	--	--	2
BPT19507*	-	-	Human science for yogapractice	60	2	--	2	3
BPT19508*	Clinical Training - V	-	-	90	-	-	6	2
	Library			75	5	--		
Total					**35**	**525**		**25**

***End semester examination will be conducted at the department and mark will be submitted to the University**

COURSE TITLE: EVALUATION MEASUREMENTS AND OUTCOME MEASURES COURSE CODE: BPT19501										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMSTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Objectives:

By the end of the course the candidate will be able

1. Classifythe FunctionalDiagnosisusing ICF and Interpretationof X-ray ofextremities &spine, routine, bio-chemical investigation
2. Interpretationof Electrodiagnosticfindings, routine Biochemicalinvestigations.
3. Demonstratethe assessment techniques of musculoskeletal, neurological cardiovascular conditions , Hand conditions and Posture.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	ASSESSMENT OF MUSCULO SKELATAL FUNCTION SOAP Format of Assessment : a) Demographic Data Collection b) Chief Complaint c) History Taking d) ASSESSMENT OF PAIN e) Intensity & quality f) Body Diagram g) Objective assessment & documentation – VAS, Mc Gill's modified questionnaire, Numerical Rating Scale	09
2	Assessment of Posture a) Assessment of Gait b) Palpation : Limb Lengthand Girthmeasurement c) Selective Tissue Tension Testing: Examination ofjoint integrity (Contractile tissNon contractile tissues) d) Active movement e) Passive movement : Assessment of accessory movement & End feel f) Resisted isometric contraction g) Tightness Testing h) Assessment of Muscle Strength (Group and Individual)	09

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	i) Special Tests j) Observational Movementanalysis and Analysisof Muscle Work k) Assessment of articular &extra- articular soft tissue status l) Myofascial assessment m) Acute & Chronic muscle hold n) Outcome Measures o) Functional Diagnosis using ICF p) Interpretation of X-ray of extremities &spine, routine, bio-chemical investigation	
3	ASSESSMENT OF NEUROMUSCULAR FUNCTION Higher functions a) Cranial nerves b) Sensations & sensory organization (Dermatome, Myotome and Sclerotome) c) Joint mobility d) Body image e) Tone f) Reflexes-Superficial &Deep g) Voluntary control h) Muscle Strength i) Co-ordination j) Balance k) Endurance l) Trick movements m) Limb Length n) Posture o) Gait p) Scales-Berg's Balance, Ashworth, Glasgow Coma, DGI q) Functional Diagnosis using ICF r) Interpretation of Electro diagnostic findings, routine Biochemical investigations.	09
4	ASSESSMENT OF CARDIO VASCULAR & PULMONARY DYSFUNCTION Demographic Data a) Chief complaint	09

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	b) HOPI c) History of Symptoms d) Past Relevant Histories e) Vital Parameters f) Examinatiom: Head and Neck, Chest and Extremities g) Palpation: Head and Neck, Chest and Extremities h) Measurements: Chest Expansion, symmetry of chest movement i) Auscultation: Normal and Abnormal Breath Sounds j) Special tests : Breath Holding Test etc. k) Outcome Measures & Investigations: l) Quality of life questionnaire m) BORG and Modified BORG scale for Ratingof Perceived Exertion (RPE) n) Exercise Tolerance – six minutes walk test, Theoretical bases of Bruce's protocol. o) Peak Flow Meter p) ABG, PFT, ECG-(Normal & Variations incommon pathologic conditions) q) X-ray Chest r) Tests for Peripheral Arterial & Venous circulation s) Ankle Brachial Index	
5	ASSESSMENT OF HAND a) Sensations b) Mobility of joints c) Strength d) Special Testslike Froment's Sign, Bunnel–Litter's Test, Phalen's Test, Tinels Sign, Wartenberg's Sign e) Hand Function – Precision and Powergrips	09

RECOMMENDED BOOKS:

1. Orthopedic Physical Assessment. David J Magee, Sixth Edition
2. Physical rehabilitation, Susan B O 'Sullivan, 6th edition

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : ORTHOPEDIC CONDITIONS FOR PHYSIOTHERAPIST COURSE CODE: BPT19502										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes:

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

1. Discuss the Patho-physiology, clinical manifestations and conservative/ surgical management ofvarioustraumatic cases ofthe Musculo-skeletalconditions
2. Describe the skill of clinical examination and interpretationofthe pre-operative cases and post-operative cases
3. Discuss the investigation used in musculoskeletalconditions
4. Discuss Pathological/biochemical studiespertaining to orthopedicconditions
5. Identify the radiological findings with the clinical findings

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Introduction a. Introduction to orthopaedics. b. Clinical examination in an Orthopedic patient. c. Common investigative procedures. d. Radiological and Imaging techniques in Orthopeadics. e. Inflammation and repair, Soft tissue healing. 2. Traumatology a. Fracture: definition, types, signs and symptoms. b. Fracture healing. c. Complications of fractures. d. Conservative and surgical approaches. e. Principles of management – reduction (open/closed, immobilization etc). f. Subluxation/ dislocations – definition, signs and symptoms, management (conservative and operative)	5
2	Fractures and Dislocations of Upper Limb Fractures of Upper Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management for the following fracture: a) Fractures of clavicle and scapula.	13

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	b) Fractures of greater tuberosity and neck of humerus. c) Fracture shaft of humerus. d) Supracondylar fracture of humerus. e) Fractures ofcapitulum, radial head, olecranon, coronoid, and epicondyles. f) Side swipe injury of elbow. g) Both bone fractures of ulna and radius. h) Fracture of forearm – monteggia, galaezzi fracture –dislocation. i) Chauffer's fracture. j) Colle's fracture. k) Smith's fracture. l) Scaphoid fracture. m) Fracture of the metacarpals. n) Bennett's fracture. o) Fracture of the phalanges. (Proximal and middle.) Dislocations of Upper Limb – a) Anterior dislocation of shoulder – mechanism of injury, clinical feature, complications, conservative management (Kocher's and Hippocrates maneuver), surgical management (putti plat, bankart's) etc. b) Recurrent dislocation of shoulder. c) Posterior dislocation of shoulder – mechanism ofinjury, clinicalfeatures and management. d) Posterior dislocation of elbow – mechanism of injury, clinical feature, complications & management. Regional Conditions: Definition, Clinical features and management of the following regional conditions a. Shoulder: Periarthritic shoulder (adhesive capsulitis). Rotator cuff tendinitis. Supraspinatus Tendinitis.	

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Infraspinatus Tendinitis. Bicipital Tendinitis. Subacromial Bursitis. b. Elbow: Tennis Elbow. Golfer's Elbow. Olecranon Bursitis (student's elbow). Triceps Tendinitis. c. Wrist and Hand: De Quervain's Tenosynovitis. Ganglion. Trigger Finger/ Thumb. Mallet Finger, Carpal Tunnel Syndrome, Dupuytren'sContracture. Fracture of Spine a. Fracture of Cervical Spine - Mechanism of injury, clinical feature, complications (quadriplegia); Management- immobilization (collar, cast, brace, traction); Management for stabilization, management of complication (bladder and bowel, quadriplegia). a. Clay shoveller'sfracture. b. Hangman's fracture. c. Fracture odontoid. d. Fracture of atlas. Fracture of Thoracic and Lumbar Regions - Mechanism of injury, clinical features, and management— conservative and surgical of common fractures around thoracic and lumbar regions. Fracture of coccyx. d. Fracture of Rib Cage - Mechanism ofinjury, clinical features, management for Fracture Ribs, Fracture of sternum.	
3	Fractures and Dislocations of Lower Limb a. Fracture of Pelvis and Lower Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management ofthe following fractures: a. Fracture of pelvis. b. Fracture neck of femur – classification, clinical features, complications, management - conservative and surgical. c. Fractures of trochanters.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	d. Fracture shaft femur—clinical features, mechanism of injury, complications, management-conservative and surgical. e. Supracondylar fracture of femur. f. Fractures ofthecondyles offemur. g. Fracture patella. h. Fractures of tibial condyles. i. Both bones fracture of tibia and fibula. j. Dupuytren's fracture k. Maisonneuve's fracture. l. Pott's fracture – mechanism of injury, management. m. Bimalleolar fracture n. Trimalleolar fracture o. Fracture calcaneum – mechanismof injury, complications and management. p. Fracture of talus. q. Fracture ofmetatarsals—stress fractures jone's fracture. r. Fracture of phalanges. Dislocations of Lower Limb - mechanism ofinjury, clinical features, complications, management ofthe following dislocations of lower limb. a. Anterior dislocation of hip. b. Posterior dislocation of hip. c. Central dislocation ofhip. d. Dislocation of patella. e. Recurrent dislocation of patella. Soft Tissue Injuries - Define terms such as sprains, strains, contusion, tendinitis, rupture, tenosynovitis, tendinosis, bursitis. Mechanism of injury of each, clinical features, managements- conservative and surgical of the following soft tissue injuries:	

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	a. Meniscal injuries of knee. b. Cruciate injuries of knee. c. Medial and lateral collateral injuries of knee. d. Lateral ligament of ankle. e. Wrist sprains. f. Strains- quadriceps, hamstrings, calf, biceps, triceps etc. g. Contusions- quadriceps, gluteal, calf, deltoid etc. h. Tendon ruptures-Achilles, rotator cuff muscles, biceps, pectorals etc. Hand Injuries - mechanism of injury, clinical features, and management of the following – a. Crush injuries. b. Flexor and extensor injuries. c. Burn injuries of hand Pelvis and Hip: IT Band Syndrome. Piriformis Syndrome. Trochanteric Bursitis. Knee: OsteochondritisDissecans. Prepatellar and Suprapatellar Bursitis. Popliteal Tendinitis. Patellar Tendinitis. Chondromalacia Patella. Plica Syndrome. Fat Pad Syndrome (Hoffa's syndrome). Ankle and Foot: Ankle Sprains. Plantar Fasciitis / Calcaneal Spur. Tarsal Tunnel Syndrome. Achilles Tendinitis. Metatarsalgia. Morton's Neuroma	
4	Amputations - Definition, levels ofamputation ofboth lower and upperlimbs, indications, complications. Traumatic Spinal Cord Injuries - Clinical features, complications, medical and surgical management of Paraplegia and Quadriplegia. Deformities - clinical features, complications, medical and surgical management of the following Congenital and Acquired deformities.	15

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	a. Congenital Deformities – a) CTEV. b) CDH. c) Torticollis. d) Scoliosis. e) Flat foot. f) Vertical talus. Hand anomalies- syndactyly, polydactyly and ectrodactly. Arthrogryposis multiplex congenita (amyoplasiacongenita). Limb deficiencies- Amelia and Phocomelia. Klippelfeil syndrome. Osteogenesisimperfecta(fragile ossium). Cervical rib. Acquired Deformities – a) Acquired Torticollis b) Scoliosis. c) Kyphosis. d) Lordosis. e) Genu varum. f) Genu valgum. g) Genu recurvatum h) Coxavara. i) Pescavus. j) Hallux rigidus. k) Hallux valgus. l) Hammer toe. m) Metatarsalgia. Disease of Bones and Joints: Causes, Clinical features, Complications, Management- medical and surgical of the following conditions: a. Infective conditions: Osteomyelitis (Acute / chronic). Brodie's abscess. TB spine and major joints like shoulder, hip, knee, ankle, elbow etc. b. Arthriticconditions: Pyogenic arthritis. Septic arthritis. Syphilytic infection of joints.	

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	c. Bone Tumors: classification, clinical features, management - medical and surgical of the following tumors: Osteoma. Osteosarcoma, Osteochondroma. Enchondroma. Ewing'ssarcoma. Gaintcelltumor. Multiple myeloma. Metastatic tumors. d. Perthes disease, Slipped Capital Femoral Epiphysis and Avascular Necrosis. e. Metabolic Bone Diseases: Rickets. Osteomalacia, Osteopenia. Osteoporosis. Orthopedic Surgeries: Indications, Classification, Types, Principlesofmanagement ofthefollowing Surgeries: a. Arthrodesis. b. Arthroplasty (partial and total replacement). c. Osteotomy, d. External fixators. e. Spinal stabilization surgeries (Harrington's, Luque's, Steffi plating) etc , f. Limb re attachments.	
5	Inflammatory and Degenerative Conditions: causes, clinical feature, complications, deformities, radiological features, management- conservative and surgical for the following conditions: a. Osteoarthritis. Rheumatoid arthritis. Ankylosing spondylitis Gouty arthritis. Psoriatic arthritis. Hemophilic arthritis. Still's disease (juvenile rheumatoid arthritis). Charcot's joints. b. Connective Tissue Disorders- Systemic Lupus Erythematosis, Scleroderma, Dermatomyositis, Poliomyelitis, Mixed connective tissue Disease (MCTD) Syndromes: Causes, Clinical features, complications, management- conservative and surgical of the following: a. Cervico brachial syndrome. Thoracic outlet syndrome. Vertebro- basilar syndrome. Scalenus	15

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	syndrome. Costoclavicular syndrome. Levator scapulae syndrome. Piriformis syndrome. Neuromuscular Disorders: Definition, causes, clinical feature, complications, management. (Multidisciplinary approach) medical and surgical of the following conditions: a. Cerebral palsy. b. Poliomyelitis. c. Spinal Dysraphism. d. Leprosy. Cervical and Lumbar Pathology: Causes, clinical feature, patho-physiology, investigations, management-Medical and surgical for the following: a. Prolapsed interverbral disc (PID), b. Spinal Canal Stenosis. c. Spondylosis (cervical and lumbar) d. Spondylolysis. e. Spondylolisthesis. f. Lumbago/ Lumbosacral strain. g. Sacralisation. h. Lumbarisation. i. Coccydynia. j. Hemivertebra.	

REFERENCE BOOKS:

1. Essential of Orthopedics and applied Physiotherapy- Jayanth Joshi, Prakash Kotwal
2. Natarajan's Textbook of Orthopaedics & Traumatology, Natarajan, 7th Edition

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : GENERAL SURGERY , PLASTIC SURGERY & OBG COURSE CODE: BPT19503										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes :

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

1. Describe various surgical indications of abdominal, thoracic, neuro surgical and peripheral vascular conditions
2. Describe surgical steps & Approaches in short and should be able to describe components of soft tissues cut to reach target tissue and complications
3. Recognizethe post-operative complications and its implications inward treatment, Prognosis , Morbidity and mortality
4. Describe effects of Surgical trauma and anesthesia in post operative course
5. Understand, classify, clinically assess, evaluate and describe surgical management in brief in a) Wounds and ulcers b)burns c)head injuries
6. Identify and interpret findings of x-ray chest and abdomen, CT-Scan, USG
7. Describe the normal and abnormal physiological event during the puberty, pregnancy, labour, purpeuriun and pre, peri and post menopause

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Fluid, Electrolyte and Acid-Base disturbances – diagnosis and management ; Nutrition in the surgical patient ; Wound healing – basic process involved in wound repair, basic phases in the healing process, clinical management of wounds, factors affecting wound healing, Scars – types and treatment. Hemostasis – components, hemostatic disorders, factors affecting bleeding during surgery. Transfusion therapy in surgery – blood components, complications of transfusion ; Surgical Infections ; General Post – Operative Complications and its management. Reasons for Surgery; Types of anaesthesia and its affects on the patient; Types of Incisons; Clips Ligatures and Sutures; General Thoracic Procedures – Radiologic Diagnostic procedures, Endoscopy – types, Biopsy –	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	uses and types. Overview and Drainage systems and tubes used in Surgery. Causes, Clinical Presentation, Diagnosis and treatment ofthefollowing Thoracic Traumasituations – Airway obstruction, Pnuemothorax, Hemothorax, Cardiac Tamponade, Tracheobronchial disruption, Aortic disruption, Diaphragmatic disruption, Esophageal disruption, Cardiac and Pulmonary Contusions.	
2	Surgical Oncology – Cancer – definition, types, clinical manifestations ofcancer, Staging of Cancer, surgical proceduresinvolved in themanagement ofcancer. Disorders of the Chest Wall, Lung and Mediastinum Thoracic surgeries – Thoracotomy – Definition, Typesof Incisions with emphasis tothesiteofinsision, muscles cut and complications. Lung surgeries: Pnumonectomy, Lobectomy, segmentectomy – Indications, Physiological changes and Complications; Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung. Cardiac surgeries – An overview of the Cardio-Pulmonary Bypass Machine – Extracardiac Operations, Closed Heart surgery, Open Heart surgery. Transplant Surgery – Heart, Lung and Kidney – Indications, Physiological changes and Complications.	12
3	Diseases of the Arteries and Veins : Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases : Arteriosclerosis, Atherosclerosis, Aneurysm, Buerger's disease, Raynaud's Disease, Thrombophlebitis, Deep Vein Thrombosis, Pulmonary Embolism, Varicose Veins. 8. Definition, Indication, Incision, Physiological changes and Complications following Common operations like Cholecystectomy, Colostomy, Ileostomy, Gastrectomy, Hernias, Appendicectomy Mastectomy, Nephrectomy, Prostectomy. Burn: Definition, Classification, Causes, Prevention, Pathological changes, Complications, Clinical Features	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	and Management. Skin Grafts – Types, Grafting Procedures, Survival of Skin Graft; Flaps – Types and uses of Flaps.	
4	ENT: Common problems of ear, otitis media, Otosclerosis, functional achonia and deafness, management facial palsy classification, medical and surgical management of lower motor neuron type of facial palsy. Ophthalmology: Ophthalmologic surgical conditions, refraction's, conjunctivitis, glaucoma, cornealulcer, iritis, cataract, retinitis, detachment ofretina, defectsof extra-ocular muscles-surgical management. Principle of common gynaecological operations – hysterectomy, D&C, D&E, Papsmear . Menopause: Its effect on emotions and musculoskeletal system Urogenital dysfunction – pre and post-natal condition Sterility: Pathophysiology, investigations, management, Malnutrition and deficiencies in females. Surgical procedures involving child birth. a. Definition, Indications and Management of the following surgical procedures – pelvic repair, caesarian section, nephrectomy, Hysterosalphyngography, Dilatation and Curettage, Laproscopy, Colposcopy, Hysterectomy. Carcinoma of female reproductive organs – surgical management in brief Mastectomy – Simple, radical. Hysterectomy. Incontinence – Types, Causes, Assessment and Management.	12
5	Anatomyand physiology ofthe femalereproductive organs. Puberty dynamics Physiology of menstrual cycle – a. ovulation cycle, b. uterine cycle, c. Cx cycle, d. duration,	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	e. amount f. Hormonal regulation of menstruation, . Hormonal disorders of females-obesity and female hormones Pregnancy a. Diagnosis of pregnancy b. Abortion c. Physiological changes during pregnancy d. Importance of antenatal care exercise e. High risk pregnancy, prenatal common complications – investigation and management f. Musculoskeletal disorders duringpregnancy g. Multiple child birth h. Normal labor Childbirthcomplications, investigation and management Normalpuerperium, lactationandimportance ofpost-natal exercises Family planning. Medical Termination of Pregnancy . Infection of female genital tract including sexually transmitted diseases, low backache Prolapse of uterus and vagina	

REFERENCE BOOK:

1. Principles and practice of Medicine- Davidson, 23rd Edition,
2. Textbook of gynecology. D.C Dutta's.
3. Physical Rehabilitation , Susan O Sullivan 6th Edition
4. Manipal Manual of Surgery, K.Rajagopal Shenoy.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : GENERAL MEDICINE, PEDIATRICS &PSYCHIATRY COURSE CODE: BPT19504										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes :

At the end of the course, the candidate will

1. Describe Etiology, Pathophysiology, Signs &Symptoms &Management of the various Cardiovascular, Pulmonary, Gastero intestinal, Renal, Endocrinal, Metabolic, Geriatric &Nutrition Deficiency conditions.
2. Describe Etiology, Pathophysiology, Signs & Symptoms, and Clinical Evaluation & Management of the various Psychiatry Conditions.
4. Describe the principles of Management at the pediatrics conditions

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Infection : Effects of Infection on the body – Pathology – source and spread of infection – vaccinations – generalized infections – rashes and infection – food poisoning and gastroenteritis – sexually transmitted diseases – HIV infections and Aids. 2. Poisoning: Clinical features – general management – common agents in poisoning – pharmaceutical agents – drugs of misuse – chemical pesticides – Envenomation.	12
2	Food and Nutrition: Assessment – Nutritional and Energy requirements; Deficiency diseases – clinical features and treatment; Protein – Energy Malnutrition: Clinical features and treatment; Obesity and its related disorders: Causes – Complications – benefits of weight loss – management of Obesity – diet, exercise and medications. 4. Endocrine diseases: Common presenting symptoms of Endocrine disease – common classical disease presentations, clinical features and its management; Diabetes Mellitus: Etiology and pathogenesis of diabetes – clinical manifestations of the disease – management of the disease – Complications of diabetes.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Diseases of the blood: Examinations of blood disorders – Clinical manifestations of blood disease; Anemia – signs and symptoms– types and management ; Hemophilia- Cause – clinical features severity of disease – management – complications due to repeated hemorrhages – complications due to therapy.	
3	Diseases of the digestive system : Clinical manifestations of gastrointestinal disease – Etiology, clinical features, diagnosis, complications and treatment of the following conditions : Reflux Oesophagitis, AchlasiaCardia, Carcinoma of Oesophagus, GI bleeding, Peptic Ulcer disease, Carcinoma of Stomach, Pancreatitis, Malabsorption Syndrome, Ulcerative Colitis, Peritonitis, Infections of Alimentary Tract;Clinicalmanifestations ofliverdiseases - Aetiology, clinical features, diagnosis, complications and treatment of the following conditions : Viral Hepatitis, Wilson's Disease, Alpha1-antitrypsin deficiency, Tumors of the Liver, Gall stones, Cholycystitis. Diseases of the Skin: Examination and clinical manifestations ofskindiseases; Causes, clinicalfeatures and management of the following skin conditions: Leprosy, Psoriasis, Pigmentary Anomalies, Vasomotor disorders, Dermatitis, Coccal and Fungal Parasitic and Viral infections.	12
4	Pediatrics : Problems and management of LBW infants, Perinatal problems and management, Congenital abnormalities and management, Respiratory conditions of childhood, Cerebral Palsy – causes, complications, clinical manifestations, treatment ; Spina Bifida – management and treatment, Epilepsies – types, diagnosis and treatment; Recognizing developmental delay, common causes of delay ; Orthopedic and Neuromuscular disorders in childhood, clinical features and management ; Sensory disorders – problems resulting from loss of vision and hearing ; Learning and behavioural problems – Hyperactivity, Autism, Challenging behaviours, Educational delay, The Clumsy Child.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
5	Psychiatric Disorders: Classifications, Causes, Clinical manifestations and treatment methods used in Psychiatry. Modalities of psychiatric treatment, Psychiatric illness and physiotherapy, Brief description of Etio-pathogenesis, manifestations, and management of psychiatric illnesses -. Anxiety neurosis, Depression, Obsessive compulsive neurosis, Psychosis, Maniac-depressive psychosis, Post-traumatic stress disorder, Psychosomatic reactions: Stress and Health, theories of Stress – Illness. Etio-pathogenesis, manifestations, and management of psychiatric illness a. Drug dependence and alcoholism, b. Somatoform and Dissociate Disorders – conversion reactions, Somatization, Dissociate Amnesia, and Dissociate Fugue, c. Personality disorders d. Child psychiatry - manifestations, and management of childhood disorders -attention deficit syndrome and behavioral disorders. e. Geriatric psychiatry.	12

RECOMMENDED BOOKS

1. Text book of Medicine, API - 5th edition
2. Medicine for students - Golwalla
3. Principles & Practice of Medicine by Davidson

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : COMMUNITY MEDICINE COURSE CODE: BPT19505										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
2	**1**	**-**	**30**	**15**	**-**	**45**	**2**	**1**	**-**	**3**

Learning Outcomes:

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

1. Describe the Health and Disease of the society
2. Describe the Epidemiology of the various disease
3. Discuss the public health administration of India
4. Discuss various Health program in India.
5. Discuss about Various occupational health hazards

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Health and Disease: Definitions, Concepts, Dimensions and Indicators of Health, Concept of well-being, Spectrum and Determinants of Health, Concept and natural history of Disease, Concepts of disease control and prevention, Modes of Intervention, Population Medicine, The role of socio-economic and cultural environment in health and disease. Epidemiology, definition and scope. Principles of Epidemiology and Epidemiological methods: Components and Aims, Basic measurements, Methods, Uses of Epidemiology, Infectious disease epidemiology, Dynamics and modes of disease transmission, Host defenses and Immunizing agents, Hazards of Immunization, Disease prevention and control, Disinfection. Screening for Disease: Concept ofscreening, Aims and Objectives, Uses and types of screening	09
2	Epidemiology of communicable disease: Respiratory infections, Intestinal infections, Arthropod-borne infections, Zoonoses, Surface infections, Hospital acquired infections Epidemiology of chronic non-communicable diseases and conditions: Cardio vascular diseases: Coronary heart	09

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	disease, Hypertension, Stroke, Rheumatic heart disease, Cancer, Diabetes, Obesity, Blindness, Accidents and Injuries. Publichealth administration-an overviewofthehealth administration set up at Central and state levels. The national health programme-highlighting the role ofsocial, economicand cultural factors in theimplementation ofthe national programmes. Health problems of vulnerable groups- pregnant and lactating women, infants and pre-school children, occupational groups.	
3	Health programmes in India: Vector borne disease control programme, National leprosy eradication programme, National tuberculosis programme, National AIDS control programme, National programmeforcontrolofblindness, Iodine deficiency disorders (IDD) programme, Universal Immunisationprogramme, Reproductive and child health programme, National cancer control programme, National mental health programme. National diabetes control programme, National family welfare programme, National sanitation and water supply programme, Minimum needs programme. 6. Demography and Family Planning: Demographic cycle, Fertility, Family planning-objectives of national family planning programme and family planning methods, A general idea of advantage and disadvantages of the methods.	09
4	Preventive Medicine in Obstetrics, Paediatrics and Geriatrics: MCH problems, Antenatal, Intranatal and post-natal care, Care of children, Child health problems, Rights of child and National policy for children, MCH services and indicators of MCH care, Social welfare programmes for women and children, Preventivemedicineandgeriatrics. 8. Nutrition and Health: Classification of foods, Nutritional profiles of principal foods, Nutritional problems in public health, Community nutrition programmes.	09

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	9. Environment and Health: Components of environment, Water and air pollution and publichealth: Pollutioncontrol, Disposal of waste, Medical entomology Hospital waste management: Sources of hospital waste, Health hazards, Waste management. . Occupational Health: Occupational environment, Occupational hazards, Occupational diseases, Prevention of occupational diseases. Social security and other measures for the protection from occupational hazard accidents and diseases. Details of compensation acts.	
5	Occupational Health: Occupational environment, Occupational hazards, Occupational diseases, Prevention of occupational diseases. Social security and other measures for the protection from occupational hazard accidents and diseases. Details of compensation acts. Mental Health: Characteristics ofa mentally healthy person, Types of mental illness, Causes of mental ill health, Prevention, Mental health services, Alcohol and drug dependence. Emphasis oncommunity aspects ofmental health. Role of Physiotherapist in mental health problems such as mental retardation. 14. Health Education: Concepts, aims and objectives, Approaches to health education, Models of health education, Contents ofhealth education, Principles ofhealth education, Practice of health education.	09

REFERENCE BOOK:

1. Text book of community medicine &Community Health – by Bhaskar Rao

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : DIAGNOSTIC IMAGING FOR PHYSIOTHERAPIST **COURSE CODE: BPT19506**										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
2	**-**	**-**	**30**	**-**	**-**	**30**	**2**	**-**	**-**	**2**

Learning Outcomes:

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

1. Discuss the result of diagnostic imaging in various conditions.
2. Recognize the working and principles of Imaging techniques
3. Identifythevarious imagingtechniques used in musculoskeletal, neuromuscular, cardiovascular condition

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	IMAGE INTERPRETATION a. History b. A New Kind of Ray c. How a Medical Image Helps d. What Imaging Studies Reveal e. Radiography(x-rays) f. Fluoroscopy g. Computed Tomography (CT) h. Magnetic Resonance Imaging (MRI) i. Ultrasound j. Endoscopy.	06
2	RADIOGRAPHY AND MAMMOGRAPHY a. Equipment components b. Procedures for Radiography & Mammography c. Benefits versus Risks and Costs d. Indications and contraindications. 3. FLUOROSCOPY a. What is Fluoroscopy? b. Equipment used for fluoroscopy c. Indications and Contra indications d. How it helps in diagnosis e. The Findings in Fluoroscopy	06

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	f. Benefits versus Risks and Costs.	
3	COMPUTED TOMOGRAPHY (CT) a. What is Computed Tomography? b. Equipment used for Computed Tomography c. Indications and Contra indications d. How it helps in diagnosis e. The Findings in Computed Tomography f. Benefits versus Risks and Costs. MAGNETIC RESONANCE IMAGING (MRI) a. What is MRI? b. Equipment used for MRI c. Indications and Contra indications d. How it helps in diagnosis e. The Findings in MRI f. Benefits versus Risks and Costs g. Functional MRI.	06
4	ULTRASOUND a. What is Ultrasound? b. Equipment used for Ultrasound c. Indications and Contra indications d. How it helps in diagnosis e. The Findings in Ultrasound f. Benefits versus Risks and Costs. ENDOSCOPY a. What is Endoscopy? b. Equipment used for Endoscopy c. Indications and Contra indications d. How it helps in diagnosis e. The Findings in Endoscopy f. Benefits versus Risks and Costs.	06
5	NUCLEAR MEDICINE a. What is Nuclear Medicine? b. Equipment used for Nuclear Medicine c. Indications and Contra indications	06

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	d. How it helps in diagnosis. e. Benefits versus Risks and Costs.	

REFERENCE BOOK:

1. Principles of Radiographic Imaging by Richard Carlton
2. Diagnostic Imaging, Includes Wiley E-Text 7th Edition by Andrea G. Rockall Andrew Hatrick Peter Armstrong Martin Wastie

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

COURSE TITLE : HUMAN SCIENCE FOR YOGA PRACTICE COURSE CODE: BPT19507										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
2	**-**	**2**	**30**	**-**	**30**	**60**	**2**	**-**	**1**	**3**

Learning Objectives:

By the end of the course the students able to

1. Describe the basics of yogic Sciences
2. Describe the yoga various postures
3. Demonstrate the yoga postures
4. Apply yoga techniques for clinical condition

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Unit – I: Yoga Introduction:** Definition and typesof Yoga- Theutilityof Practiceof Yoga - Difference between Yogic & Physical Exercises - Astanga Yoga,- Philosophy Of Yoga And Its Utility- Yogic Diet & Food [Composition of Food, Drinking Water, Balanced Diet & Standard Diet] - Sat-Karma, Dhouti,Basti, Neti, Tratak, Nauli,Kapalvati - Upabas [With Water Intake, Nishi Palan], - Bath [Abagahan Bath, Tub Bath, Normal Bath, Ardha Bath], Prakriti- Triguna, - Panchatatta, - Bodies (Sharir), - Panchakosha, - Panchapran - Pancha-Upapran	13
2	**Unit – II: Human Science for Yogic Practice** Anatomy Physiology - Cells - Blood - Respiratory System - Digestive System - Urinary System - Nervous System - Endocrine System	07
3	**Unit– III: Practical of Yoga Postures** Asanas: [Definition, Merits & Demerits].- Forward Bending Asanas: ArdhaKurmasan, Vekasan,Sasangasan,Paschimottanasan, PadaHastasan, Halasan, NaviAsan, Back - Bending Asanas: Bhujangasan, Ustrasan, Dhanurasan, ArdhaChandrasan, Salavasan, Matsyasan, EkaPadaSalavasan or Ardha – Salavasan, SuptaBajrasan, PurnaBhujangasan, SetuBandhyanasan, Chakrasan Or Ardha-Chakarasan, SayanaSukhasan,	15

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Naukasan, Makarasan, - Balancing Asanas: Brikshasan, Utkatasan, UtthitaPadmasan, TirjakSarbangasan, Bhadrasan, Angusthasan,Tula Dandasan, Sirsasan, Mayurasan-Others i.e. Lying, Side Bending, Sitting, Spinal Twisting, Mixing Etc. & Also Dhyanasan: Bajrasan, Padmasan, PabanMuktasan , Gomukhasan, ArdhaMatsyendrasan, AakarnaDhanurasan, UtthanPadasan, Sarbangasan, UpaBistwaPabanmuktasan, UtthitaPaschimottanasan, ParswaChandrasan, SayanaPadmasan,UtthitaPadasan By-Stages, BaddhaKonasan, SayanaPaschimottanasan, Jasthiasan, Singhasan, BirBhadrasan	
4	**Unit – IV: Practical of Pranayamas& Mudras** Pranayama (Definition with Merits & Demerits): 1.Definition of Pranayama, 2.Lists of Pranayamas - Yogic Deep Breathing, Bajrasan Deep Breathing , ArdhaKurmasan Deep Breathing, PabanMuktasan Deep Breathing, Bhujangasan Deep Breathing, ArdhaSuptaBajrasan Deep Breathing ,B.NariSodhan - AnulomVilomPranayamOr Alternate Nostril Breathing - NariSuddhi Or NariSodhan Pranayama C.Miscellaneous:Suryaveda, Ujjayii, Sitkari, Sitali- Bhastrika, Bhramari, Kapalbhati, Kumbhak Pradhan Pranayam, BhramanPranayam ,Urdha – BhramanPranayamSahajParanayam – Moorcha, Plabini - Lists of Mudras &Bandhs (Definition with Merits & Demerits) - Ashwini Mudra, Yoga Mudra- With Breathe-In Yoga Mudra, With Breathe-Out Yoga Mudra Mahabandh Mudra, BiparitKarani Mudra, Matsya Mudra , Mulabandh Mudra, Shakti Chalani Mudra, Maha Mudra, Jalandhar Bandh Mudra ,UddyanBandh Mudra, Tri Bandh Mudra, Nadi, Kula – Kundalini - Aim of Yoga With Sat – Chakra, Muladhara Chakra, Swadhisthan Chakra, Manipura Chakra - Anahata Chakra, Visuddha Chakra, Ajna Chakra, Sahasrar Chakra,	15

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
5	**Unit– V: Remedial Therapy of Diseases** Alimentary System -Acidity, astritis, Constipation, Colitis, Piles, - Indigestion Respiratory System: Bronchitis, Bronchial Asthma Cardio – Vascular System: Ischaemic Heart Disease, Myocardial Infarction - Endocrine System: Hypothyroidism, Hyperthyroidism - Menstrual Disorders: Amenorrhoea, Dysmenorrhoea, Cryptomenorrhoea, Menorrhagia, Metrorrhagia- Diseases Of Bones& Joints: Osteo Arthritis, Back Ache, Arthritis, Rheumatism, Sciatica, Spondylosis (Lumbar & Cervical) - Other Diseases: Sprain, Strain, Synovitis, Bursitis, Planter Fascitis, Tenosynovitis, Sub Calcaneal Bursitis, Rotator Cuff Impringmentation Syndrome (RCIS), LBP (Low Back Pain), Supra Spinatus Tendinitis, Deltoid Fibrosis, Deltoid Ligament Rupture, Tennis Elbow, Golfer's Elbow, Fracture & Dislocation, Sinusitis, Tonsilitis, Pharyngitis, Diabetes - Mellitus &InsipidusInsomnia, Obesity, TabesDorsalis, Epilepsy, Parkinson Disease, Myasthenia Gravis, Friedreich's Ataxia, Anaemia, Frozen Shoulder, Slipped Disc, Blood Pressure– Low & High, Migraine - Viva - Voce & Project - Viva – Voce.	10

REFERENCE BOOKS:

1. SadhguruJaggiVasudev, Inner Engineering – A yogi's guide to joy, 2016
2. Shri Shri Ravi Shankar, The Art of stress-free Living, 2011
3. Swami RamdevJiYog Its Philosophy and Practice, 2008
4. YogirajVethathiri Maharishi, Yoga for Modern Age, Tenth edition, Vethathiri Publications, 2007.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

SCHEME OF WRITTEN EXAMINATION (25 MARKS)

S.NO.	QUESTIONS	MARKS
1	MCQ	05×1=05 Marks
2	Short Notes (2 out of 4)	2×5=10 Marks
3	Essay (2 out of 3)	1×10=10Marks

SCHEME OF EXAMINATION FOR PRACTICAL (25 MARKS)

Sr. No	Components	Marks
1	1. Demonstration of Five Yoga Postures 2. Demonstration of five Pranayamas& Mudras	1×15 =15 1×10 =10

COURSE TITLE : CLINICAL TRAINING - V **COURSE CODE: BPT19508**										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
-	**-**	**6**	**-**	**-**	**90**	**90**	**-**	**-**	**2**	**2**

Learning Outcomes:

By end of the course the students will be able to

1. Explain the various treatment techniques at the various wards in the hospital
2. Schedule the patient treatment according to theircondition
3. Demonstrate the assessment techniques of various conditions

S.NO	TOPIC	HOURS
1.	Demographic data Collection	
2.	Socioeconomic history collection	
3.	Social behavior and its influence on health	
4.	Schedule the patients treatment according to their condition	
5.	Assess and diagnose the patient's condition	

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

Sr. No	Components	Marks
1	2 case presentation	25 ×2=50

SEMESTER – VI

COURSE CODE	COURSE TITLE				HOURS			C
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	
BPT19601	PT in Orthopedic Conditions	-	-	60	3	1	--	4
BPT19602	PT in General Medicine & General Surgery	-	-	60	3	1	--	4
BPT19603	Neurological Conditions for Physiotherapist	-	-	60	3	1	-	4
BPT19604	Research Methodology & BioStatistics	-	-	30	1	1	-	2
BPT19605	Pain mechanisms and Management of Pain for Physiotherapists	-	-	30	1	1	--	2
BPT19606	PT in Orthopedic conditions – Practical	-	-	60	--	--	4	2
BPT19607	Work Physiology	-		45	2	1	--	3
BPT19608*	--	-	Medical Terminology and Record Keeping	15	1	--	--	1
BPT19609*	Clinical Training - VI	-	-	90	-	-	6	2
-	Library				75			
Total					**35**		**525**	**24**

***End Semester exam will be conducted at the department and mark will be submitted to the University.**

COURSE TITLE : PT IN ORTHOPEDIC CONDITIONS COURSE CODE: BPT19601										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Objectives:

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

1. Apply the knowledge gained in clinical orthopaedics with Physiotherapy techniques
2. To identify disabilities due to musculoskeletal dysfunction, plan and set treatment goals
3. Implement the physiotherapy treatment protocol for various musculoskeletal disorders
4. Prescribe appropriate Orthosis / splints & will be able to fabricate temporary protective & functional splints.
5. Describe treatment protocol for various musculoskeletal conditions

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	PT assessment for Orthopedic conditions - SOAP format. Subjective - history taking, informed consent, personal, past, medical and socioeconomic history, chief complaints, history of present illness. Pain assessment- intensity, character, aggravating and relieving factors, site and location. Objective- on observation - body built, swelling, muscle atrophy, deformities, posture and gait. On palpation- tenderness-grades, muscle spasm, swelling-methods of swelling assessment, bony prominences, soft tissue texture and integrity, warmth and vasomotor disturbances. On examination – ROM – active and passive, resisted isometric tests, limb length- apparent, true and segmental , girth measurement, muscle length testing-tightness, contracture and flexibility, manual muscle testing, peripheral	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	neurological examination-dermatomes, myotomes and reflexes, special tests and functional tests. Prescription ofhomeprogram. Documentation of case records, and follow up. Fractures - types, classification, signs and symptoms, complications. Fracture healing - factors affecting fracture healing. Principles of fracture management - reduction - open and closed, immobilization - sling, cast, brace, slab, traction - manual, mechanical, skin, skeletal, lumbar and Cervical traction, external fixation, functional cast bracing. PT management in complications - early and late - shock, compartment syndrome, VIC, fat embolism, delayed and mal union, RSD, myositis ossificans, AVN, pressuresoresetc. Physiotherapy assessment in fracture cases. Aims of PT management in fracturecases - short and longterm goals. Principles of PT management in fractures - Guidelinesforfracturetreatmentduringperiodof immobilization and guidelines for treatment after immobilization period. Specific fractures and dislocations: PT assessment and management of upper limb fractures and dislocations. PT assessment and management of lower limb fractures and dislocations including pelvis. PT assessment and management spinal fractures. Selection and application of physiotherapeutic techniques, maneuver's, modalities for preventive, curative andrehabilitativemeansinallconditions.	
2	Degenerative and inflammatory conditions: Definition, signs and symptoms, clinical features, path physiology, radiological features, deformities, medical, surgical management. Describe the PT assessment and management and home program for the following conditions – Osteoarthritis - emphasis mainly on knee, hip and hand, Rheumatoid Arthritis,	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Ankylosing spondylitis, Gout, Perthesdisease, Periarthritic shoulder. Infective conditions: Definition, signs and symptoms, clinical features, pathophysiology, radiological features, medical, surgical management. Describe PT assessment and management for following conditions – Osteomyelitis – acute and chronic, Septic arthritis, pyogenic arthritis, TB spine and major joints - knee and hip. Define, review the postural abnormalities of spinal column, clinical features, deformities, medical and surgical management. Describe PT assessment and management and home program.	
3	Deformities: Review indetail thecauses, signs and symptoms, radiological features, medical and surgical management. Describe the PT. assessment and management of the following conditions: Congenital: CTEV, CDH, Torticollis, pesplanus, pes cavus and other common deformities. Acquired: scoliosis, kyphosis, coxavara, genuvarum, valgum and recurvatum. Cerebral palsy: Definition, etiology, classification, clinical features, complications, deformities, medical and surgical management and home program with special emphasis on carrying techniques. PT management after surgical corrections. Poliomyelitis: Definition, etiology, types, pathophysiology, clinical features, deformities, medical and surgical management. PT. assessment and management after surgical corrections and reconstructive surgeries - emphasis on tendon transfer and home program. Leprosy: Definition, cause, clinical features, medical and surgical management. PT assessment, aims, and management after surgical procedures such as tendon transfer both pre and post operatively.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
4	Amputations: Definition, levels, indications, types, PT assessment, aims, management pre and post operatively. PT management with emphasis on stump care and bandaging. Pre and post prosthetic training, checking out prosthesis, complications of amputations and its management. Spinal conditions: Review the causes, signs and symptoms, investigations, radiological features, neurological signs. PT assessment, aims, and management and home program of the following conditions: Cervical spondylosis, Lumbar spondylosis, Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Sacro-iliac joint dysfunction, Sacralisation, Lumbarisation, Intervertebral disc prolapse, Coccydynia, Spina bifida occulta. Effects of spinal traction, types of traction, modes of application, indications for spinal traction, contraindications, precautions, limitations of traction. Osteoporosis- causes, predisposing factors, investigations and treatment	12
5	Orthopedic surgeries: Pre and post-operative PT assessment, goals, precautions and PT management of following surgeries such as : Arthrodesis, Osteotomy, Arthroplasty-partial and total - Excision arthroplasty, excision arthroplasty with implant, interpositional arthroplasty and total replacement; Tendon transplant, Soft tissue release- tenotomy, myotomy, lengthening; Arthroscopy, Spinal stabilization, Re-attachment of limbs, External fixators, Synovectomy. 18. Shoulder joint: Shoulder instabilities, TOS, RSD, Impingement syndrome - conservative and post-operative PT management. Total shoulder replacement and Hemi replacement. - Postoperative PTmanagement. AC joint injuries - rehabilitation. Rotator cuff tears-conservative and surgical repair.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Subacromial decompression - Post operative PT management. Elbow and forearm: Excision of radial head - Post operative PTmanagement. Totalelbowarthroplasty- Post operative PT management. Wrist and Hand: Total wrist arthroplasty. Repair of ruptured extensor tendons. Carpal tunnel syndrome. Flexor and extensor tendon lacerations - Post operative PT management. Hip: Jointsurgeries- hemi and totalhipreplacement - Post operative PT management Tendonitis and bursitis. - Management. Knee: Lateral retinacular release, chondroplasty- Post operative management. Realignment of extensor mechanism. ACL and PCLreconstructionsurgeries - Post operative rehabilitation. Meniscectomy and meniscal repair - Post operative management. Plica syndrome, patellar dysfunction and Hoffa's syndrome- conservative management. TKR- rehabilitation protocol. Patellar tendon ruptures and Patellectomy- rehabilitation. Ankle and foot: Ankle instability. Ligamentous tears- Post operative management.	

RECOMMENDED BOOKS:

1. Essential of Orthopaedics and Applied Physiotherapy – Jayant Joshi, Prakash Kotwal
2. Orthopedic Physical Assessment – David J Magee 6th Edition
3. Orthopedic Physical therapy – by Donatelli
4. Therapeutic exercise *Foundations and Techniques Carolyn Kisner 6th Edition*
5. Physical Rehabilitation Assessment and Treatment – O'Sullivan Schmitz 6th Edition

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : PT IN GENERAL MEDICINE & GENERAL SURGERY COURSE CODE: BPT19602										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes:

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

1. Describephysiotherapy Managementofthevarious Endocrinal, Metabolic, Geriatric &Nutrition Deficiency conditions.
2. Describephysiotherapy Managementofthevarious Rheumatological, Cardiovascular and Respiratory Conditions.
3. Interpret Chest X-ray, Blood gas analysis, P.F.T. findings, Blood investigations done for various medical and Rheumatological conditions.
4. Describe the principles of Management at the Medical Intensive Care Unit

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Physiotherapy in mother and child care – ante and post-natal management, early intervention and stimulation therapy in child care (movement therapy) Geriatrics – handling of old patients and their problems. Complication common to all operations Abdominal incisions. Physiotherapy in pre and post-operative stages. Operations on upper G.I.T.- oesophagus, stomach, duodenum Operations on large and small intestine – Appendisectomy, cholecystectomy, partial colectomy, ileostomy, hernia and herniotomy, hernioraphy, hernioplasty. Physiotherapy in dentistry	12
2	Burns and its treatment – physiotherapy in burns, skin grafts, and reconstructive surgeries	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
3	Management of wound ulcers- Care of ulcers and wounds- Care ofsurgical scars-U.V.R and otherelectro therapeutics for healing of wounds, prevention of Hyper-granulated Scars Keloids, Electrotherapeutics measures for relief of pain during mobilization of scars tissues.	12
4	Physiotherapy in dermatology -Documentation of assessment, treatment and follow up skin conditions. U.V.R therapy in various skin conditions; Vitiligo; Hair loss; Pigmentation; Infected wounds ulcers. Faradic foot bath for Hyperhydrosis. Massage maneuvers for cosmetic purpose of skin; use of specific oil as medium; Care of anesthetic hand and foot; Evaluation, planning and management of leprosy-prescription, fitting and training with prosthetic and orthotic devices.	12
5	Physiotherapy intervention in the management of Medical, Surgical and Radiation Oncology Cases ENT – sinusitis, non-suppurative and chronic suppurative otitis media, osteosclerosis, labrynthitis, mastoidectomy, chronic rhinitis, laryngectomy, pharyngeo – laryngectomy, facial palsy.	14

RECOMMENDED BOOKS:

1. Physical Rehabilitation O'SULLIVAN SUSAN B 6th edition,
2. Therapeutic Modalities in Rehabilitation, William E. Prentice 5th edition
3. Cash's Textbook of Chest, Heart and Vascular Disorders for Physiotherapists. Joan E. Cash. 4th edition.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : NEUROLOGICAL CONDITIONS FOR PHYSIOTHERAPIST COURSE CODE: BPT19603										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Objectives:

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

1. Describe Etiology, Pathophysiology, Signs &Symptoms &Management of the various Neurological and Paediatric conditions.
2. Describe the clinical examination of Neurological System.
3. Acquire knowledge in brief about intra-uterine development of the foetus
4. Be able to describe normal development &growth of a child, & psychological aspect of development.
5. Describe the clinical examination of a neonate /child with respect to neurological, Musculoskeletal, Respiratory & Cardiovascular conditions

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Disorders of function in the context of Pathophysiology, Anatomy in Neurology and Cortical Mapping. Classification of neurological involvement depending on level of lesion. Neurological assessment: Principles of clinical diagnosis, higher mental function, assessment of brain & spinal cord function, evaluation of cranial nerves and evaluation of autonomic nervous system. Investigations: principles, methods, views, normal/abnormal values/features, types of following investigative procedures- skull x-ray, CT, MRI, evokedpotentials, lumbarpuncture, CSFexamination, EMG, NCV. Paediatric neurology: Neural development, Etiology, pathophysiology, classification, clinical signs &	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders - Cerebral palsy, Hydrocephalus, Arnold-chiari malformation, Basilar impression, Klippel-Feil syndrome, Achondroplacia, Cerebral malformations, Autism, Dandy walker syndrome and Down's syndrome. Introduction, Indications and Complications of following Neurosurgeries: Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Burr-hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Microvascular decompression surgery, Endarterectomy, Embolization, Pituitary surgery, Ablativesurgery- Thalamotomy and Pallidotomy, Coiling of aneurysm, Clipping of aneurysm, and Neural implantation.	
2	Neuro-ophthalmology: Assessment of visual function – acuity, field, colour vision, Pupillary reflex, accommodation reflex, abnormalities of optic disc, disorders of optic nerve, tract, radiation, occipital pole, disorders of higher visual processing, disorders of pupil, disorders of eye movements, central disorders of eye movement. Deafness, vertigo, and imbalance: Physiology of hearing, disorders of hearing, examination & investigations ofhearing, tests ofvestibular function, vertigo, peripheral vestibular disorders, central vestibular vertigo. Lower cranial nerve paralysis – Etiology, clinical features, investigations, and management of following disorders - lesions in trigeminal nerve, trigeminal neuralgia, trigeminal sensoryneuropathy, lesions in facial nerve, facial palsy, bell'spalsy, hemi facial spasm, Glossopharangial neuralgia, lesions of	15

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Vagus nerve, lesionsofspinalaccessory nerve, lesions of hypoglossal nerve. Dysphagia – swallowing mechanisms, causes of dysphagia, symptoms, examination, and management of dysphagia. Cerebro-vascular diseases: Define stroke, TIA, RIA, stroke in evolution, multi infarct dementia and Lacunar infarct. Classification ofstroke– Ischemic, hemorrhagic, venous infarcts. Risk factors, cause of ischemic stroke, causes of hemorrhagic stroke. Classification of hemorrhagic stroke, classification of stroke based on symptoms, stroke syndrome, investigations, differential diagnosis, medical and surgical management	
3	Head injury: Etiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications. Higher cortical, neuro psychological and neurobehavioral disorders: Causes of blackouts, physiological nature of Epilepsy, classification, clinical features, investigations, medical& surgical management of following disorders – Non-epileptic attacks of childhood, Epilepsy in childhood, Seizers, and Epilepsy syndromes in adult. Classification and clinical features of Dyssomnias, Parasomnias, Dementia, Obsessive-compulsive disorders. Neural basis of consciousness, causes &investigations of Coma, criteria for diagnosis of Brain death. Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Perceptual disorders and Speech disorders. Movementdisorders: Definition, etiology, riskfactors, pathophysilogy, classification, clinical signs&	13

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Parkinson's disease, Dystonia, Chorea, Ballism, Athedosis, Tics, Myoclonus and Wilson's disease. 12. Cerebellar and coordination disorders: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, managementof Congenital ataxia, Friedreich's ataxia, Ataxia talengiectasia, Metabolic ataxia, Hereditary cerebellar ataxia, Tabes dorsalis and Syphilis	
4	Spinal cord disorders: Functions of tracts, definition, etiology, risk factors, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Spinal cord injury, Compression by IVD prolapse, Spinal epidural abscess, Transverse myelitis, Viral myelitis, Syringomyelia, Spina bifida, Sub acute combined degeneration of the cord, Hereditary spastic paraplegia, Radiation myelopathy, Progressive encephalomyelitis, Conus medullaris syndrome, Bladder & bowel dysfunction, and Sarcodosis. Brain tumors and spinal tumors: Classification, clinical features, investigations, medical and surgical management. . Infections of brain and spinal cord: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Meningitis, Encephalitis, Poliomyelitis and Post-polio syndrome. Complications of systemic infections on nervous	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	system – Septic encephalopathy, AIDS, Rheumatic fever, Brucellosis, Tetanus, and Pertussis. . Motor neuron diseases: - Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications of following disorders - Amyotrophic lateral sclerosis, Spinal muscular atrophy, Hereditary bulbar palsy, Neuromyotonia and Post-irradiation lumbosacral polyradiculopathy. Toxic, metabolic and environmental disorders: Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – Encephalopathy, Alcohol toxicity, Recreational drug abuse, Toxic gases & Asphyxia, Therapeutic & diagnostic agent toxicity, Metaltoxicity, Pesticidepoisoning, Environmental & physicalinsults, Pant& Fungal poisoning, Animal poisons, & Complications of organ transplantation.	
5	Multiple sclerosis - Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications. Disorders of neuromuscular junction – Etiology, classification, signs & symptoms, investigations, management, of following disorders Myasthenia gravis, Eaton-Lambert syndrome, and Botulism. Muscle diseases: Classification, investigations, imaging methods, Musclebiopsy, management of muscle diseases, genetic counselling. Classification, etiology, signs& symptomsoffollowingdisorders– Musculardystrophy, Myotonicdystrophy, myopathy, Non-dystrophic myotonia. Polyneuropathy – Classification of Polyneuropathies, Hereditary motor sensory neuropathy, hereditary	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	sensory and Autonomic neuropathies, Amyloid neuropathy, acute idiopathic Polyneuropathies. Guillain-Barre syndrome – Causes, clinical features, management of GBS, Chronic Idiopathic Polyneuropathies, diagnosis of polyneuropathy, nerve biopsy. Focal peripheral neuropathy: Clinical diagnosis of focal neuropathy, neurotmesis, Axonotmesis, Neuropraxia. Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – RSD, Nerve tumors, Brachial plexus palsy, Thoracic outlet syndrome, Lumbosacral plexus lesions, Phrenic & Intercostal nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy, Musculocutaneous nerve palsy, Anterior & Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic nerve palsy, Suprascapular nerve palsy, Sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obturator nerve palsy, Pudental nerve palsy.	

RECOMMENDED BOOKS:

1. Neurology And Neurosurgery Illustrated, 5th edition, Kenneth W. Lindsay.
2. Brain's Diseases of the Nervous System, Allan Ropper 12th Edition
3. Davidson's Principles and Practice of Medicine 23rd edition
4. Textbook of Neurology- Victor Adams 10th edition

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : RESEARCH METHODOLOGY& BIOSTATISTICS COURSE CODE: BPT19604										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
1	1	-	15	15	-	30	1	1	-	2

Learning Outcomes:

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

1. Describe the basic principles of research and methods applied to draw inferences from the research findings.
2. Discuss the basic concepts of Biostatistics.
3. Explain the Design & Methodology of an Experiment or Survey ,Demography & vital statistics, Sampling & interpretation of Data.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Common Statistical terms, notations. Sources and presentation of data.	05
2	Measures of Location - averages & percentiles. Variability and its measures. Normal distribution and normal curve.	07
3	Sampling. Probability. Sampling variability and significance Significance of difference in mean.	05
4	Chi-square test. Designing and methodology of an experiment or a study.	07
5	Demography and vital statistics. Measure of population and vital statistics. Life table	06

RECOMMENDED BOOK:

1. IntroductiontoBiostatistics and Research Methods. Sundar P.S. S. Rao4th Edition

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : PAINMECHANISMS ANDMANAGEMENT OF PAIN FOR PHYSIOTHERAPISTS COURSE CODE:BPT19605										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
1	**1**	**-**	**15**	**15**	**-**	**30**	**1**	**1**	**-**	**2**

Learning Objectives:

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

1. Describe the Multidimensional Nature of Pain
2. Define the current theories and science of pain
3. Discuss the Assessment of pain
4. Implement the physiotherapy management for pain conditions

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**PAIN**: This domain focuses on the fundamental concepts of pain including the science, nomenclature, and experience of pain, and pain's impact on the individual and society. a) Explain thecomplex, multidimensional, and individual-specific nature ofpain. b) Present theories and science for understanding pain. c) Defineterminology fordescribing pain and associated conditions. d) Describe the impact of pain on society. Explain howcultural, institutional, societal, and regulatory influences affect assessment and management ofpain.	4
2	**Factors Influence the pain** Recognize the inter-individual variability in pain presentations and apply this understanding to contextualize the assessment and management of pain considering age, sex, family, and culture. Explain the current theories and science of pain that considers anatomical, physiological, psychological, and social factors of pain and pain management.	4

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Describe the magnitude ofthe problemofpain as a public health problem that includes social, ethical, and economic consequences. Describehowinstitutional, societal, andregulatory factors influence the assessment, treatment, and management of pain.	
3	**Pain Assessment and Measurement:** a) Use valid and reliable tools for measuring pain and associated symptoms to assess and reassess related outcomes as appropriate for the clinical context andpopulation. b) Identify and analyze patient, provider, and system factors that can facilitate or interfere with effective pain assessment. c) Assesspatientpreferences and values to determine pain-related goals and priorities. Demonstrate empathic and compassionate communication during pain assessment. Pain intensity/severity (e.g., Numerical Rating Scale, Visual Analogue Scale, Brief Pain Inventory, Location, Type, including nociceptive, nociplastic, and neuropathic 1. Function and Disability/Impairment (e.g., Six-minute Walk Test, Oswestry Disability Index, Örebro Musculoskeletal Pain Questionnaire) 2. Psychophysical (pain thresholds) or autonomic response measures (e.g., skin conductance) 3. Psychological factors (e.g., Pain Catastrophizing Scale, Fear Avoidance Scale, depression, anxiety, Stress Scale, Pain Self-Efficacy Questionnaire) 4. Social domain (e.g., supportive social network, Pain Disability Index) 5. Person-centered factors (identified by a thorough clinical interview; e.g., sex, age, culture, beliefs aboutpain, expectations, coping strategies, impact)	8

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	6. Vulnerable populations (e.g., communication barriers, cognitive impairment, cultural sensitivities) 7. Social factors (e.g., supportivenetwork, participation in life)	
4	**Management of Pain:** a) Demonstratetheinclusionofpatient and others, as appropriate, in the education and shared decision-making process for pain care. b) Identify pain treatment options that can be accessed in a comprehensive pain-management plan. c) Explain how health promotion and self-management strategies are important to the management of pain. d) Develop a pain-treatment plan based on benefits and risks ofavailable treatments. e) Monitor effects of pain management approaches to adjust the plan of care as needed. f) Differentiate physical dependence, substance use disorder, misuse, tolerance, addiction, and non-adherence. Developatreatment planthat takes into account the differences between acute pain, acute-on-chronic pain, chronic/persistent pain, and pain at the end of life.	8
5	**Pain Conditions:** a) Describe the unique pain assessment and management needs ofspecial populations. b) Explain howto assess and manage pain across settings and transitionsofcare. c) Describe the role, scope of practice, and contribution ofthedifferent professions withinapain-management careteam. d) Implement an individualizedpain-management plan that integrates the	6

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	perspectives of patients, their social support systems, and health-care providers in the context of available resources. Describe the role of the clinician as an advocate in assisting patients to meet treatment goals.	

RECOMMENDED BOOKS:

1. Explain Pain. David Butler, Lorimer Moseley
2. Wall & Melzack's Textbook of Pain, 6th Edition

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : PT IN ORTHOPEDIC CONDITIONS - PRACTICAL COURSE CODE: BPT19606										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	4	-	-	60	60	-	-	2	2

Learning Outcomes:

At end of the course the candidate will be able

1. Identify the musculoskeletal dysfunctions
2. Describe effective goals and treatment plan
3. Demonstrate the special test used to diagnose in various musculoskeletal conditon
4. Implement and assess progression of treatment plan.
5. Design the physiotherapy treatment for various musculoskeletal disorders
6. Demonstrate the various exercise techniques used in musculoskeletal disorders.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**PT assessment for Orthopedic conditions** PT assessment for Orthopedic conditions - SOAP format. Subjective - history taking, informed consent, personal, past, medical and socioeconomic history, chief complaints, history of present illness. Pain assessment- intensity, character, aggravating and relieving factors, site and location. Objective- on observation - body built swelling, muscle atrophy, deformities, posture and gait. On palpation- tenderness-grades, muscle spasm, swelling-methods of swelling assessment, bony prominences, soft tissue texture and integrity, warmth and vasomotor disturbances. On examination – ROM – active and passive, resistedisometric tests, limb length-apparent, true and segmental , girth measurement, muscle length testing-tightness, contracture and flexibility, manual muscletesting, peripheral neurological examination-dermatomes, myotomes and reflexes, special	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	tests and functional tests. Prescription of home program. Documentation of case records, and follow up.	
2	PT assessment and management for Fractures Specific fractures and dislocations. Principles of fracture management - reduction - open and closed, immobilization - sling, cast, brace, slab, traction - manual, mechanical, skin, skeletal, lumbar and Cervical traction, external fixation, functional cast bracing	12
3	Degenerative and inflammatory conditions: Infective conditions Amputations: Definition, levels, indications, types, PT assessment, aims, management pre and post operatively. PT management with emphasis on stump care and bandaging. Pre and post prosthetic training, checkingoutprosthesis, complications of amputations and its management.	12
4	Postural abnormalities : Spinal conditions: Review the causes, signs and symptoms, investigations, radiological features, neurological signs. PT assessment, aims, and management and home program of the following conditions: Cervical spondylosis, Lumbar spondylosis, Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Sacro-iliac joint dysfunction, Sacralisation, Lumbarisation, Intervertebral disc prolapse, Coccydynia, Spina bifida occulta Deformities: Deformities: Review in detail the causes, signs and symptoms, radiological features, medical and surgical management. Describe the PT. assessment and management of the following conditions: Congenital: CTEV, CDH, Torticollis, pes planus, pes cavus and other common deformities. Acquired: scoliosis, kyphosis, coxavara, genu varum, valgum and recurvatum. Orthopedic surgeries: Pre and post-operative PT assessment, goals, precautions and PT management of following surgeries such as : Arthrodesis, Osteotomy, Arthroplasty-	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	partial and total - Excision arthroplasty, excision arthroplasty with implant, interpositional arthroplasty and total replacement; Tendon transplant, Soft tissue release-tenotomy, myotomy, lengthening; Arthroscopy, Spinal stabilization, Re-attachment oflimbs, External fixators, Synovectomy.	
5	Cerebral palsy: ,Poliomyelitis,Leprosy: Cerebral palsy: Definition, etiology, classification, clinical features, complications, deformities, medical and surgical management and home program with special emphasis on carrying techniques. PT management after surgical corrections. . Poliomyelitis: Definition, etiology, types, pathophysiology, clinical features, deformities, medical and surgical management. PT. assessment and management after surgical corrections and reconstructive surgeries - emphasis on tendon transfer and home program. Leprosy: Definition, cause, clinical features, medical and surgical management. PT assessment, aims, and management after surgical procedures such as tendon transfer both pre and post operatively.	12

RECOMMENDED BOOKS:

1. Orthopedic Physical Assessment – David J Magee 6th Edition
2. Orthopedic Physical therapy – by Donatelli
3. Therapeutic exercise *Foundations and Techniques Carolyn Kisner 6th Edition*

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

PRACTICALS:

Sr. No	Components	Marks
1	05 spots :	10
2	Demonstration of assessment	10
3	Demonstration of Physiotherapy treatment	10
4	Viva voce:	20

COURSE TITLE : WORK PHYSIOLOGY COURSE CODE: BPT19607										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Outcomes:

By the end of this course the students will be able to

1. Describe the physiological changes occur duringexercise
2. Explain food and Nutrition role on exercise
3. Describe about assessment of fitness and prescription of exercise

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Muscle Physiology** Muscle and its contraction - Architecture of skeletal muscles, sliding filament theory, types of muscle fibres, mechanical efficiency of muscle contraction, force - velocity, motor unit, muscle fatigue - blood supply, prolonged exercise.	9
2	**Blood and CVS System** Cardiac cycle - pressure during cardiac cycle, Haemodynamics mechanical work and pressure, hydrostatic pressure, flow and resistance, Venous - capillary structure and transport mechanisms, filtration & osmosis, vascularization of skeletal muscles, regulation of circulation during exercise, cardiac output & O2 updates - stroke volume, blood pressure	09
3	**Respiration** Lung compliance airway resistance, pulmonary ventilation at rest and during exercise, diffusion in lung tissues, gas pressure - ventilation & perfusion - regulation of breathing - Exercise, High air pressures - Breath holding diving.	09
4	**Physical Performance** Aerobic processes intensity & duration of exercise, prolonged exercise, muscular stress involved in exercise.	09

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Anaerobic Processes: Power & capacity of high energy breakdown	
5	**Applied Work Physiology** Factors affecting sustainedphysicalwork, assessment of work load in relation to work capacity, Assessment of maximal aerobic power measurement of oxygen uptake in a typical work situation, **Fatigue & Deconditioning, Nutrition & Physical Performance**	09

RECOMMENDED BOOKS:

1. Physiology of Sport and Exercise, Jack H. Wilmore.4th edition.
2. Exercise Physiology: Nutrition, Energy, and Human Performance. William D. McArdle. 8th Edition.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : MEDICAL TERMINOLOGY AND RECORD KEEPING COURSE CODE: BPT19608										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS IN SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
1	-	-	1	-	-	15	1	-	-	1

Learning Outcomes:

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

1. Describe the important medical terminology
2. Describe record maintenance.
3. Interpret medical records/reports
4. Discuss management on electronic health recordsystem.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Derivation of medical terms. Define word roots, prefixes, and suffixes.	6
2	Conventions forcombined morphemes andtheformation of plurals. Basic medical terms in health care and physiotherapy.	6
3	Form medical terms utilizing roots, suffixes, prefixes, and combining roots. Interpret basic medical abbreviations/symbols.	6
4	Utilize diagnostic, surgical, and procedural terms and abbreviations related to the integumentary system, musculoskeletal system, respiratory system, cardiovascular system, nervous system, and endocrine system. Interpret medical records/reports.	6
5	Data entry and management on electronic health record system.	6

RECOMMENDED BOOKS:

1. Effective Documentation for Physical Therapy Professionals, 2e by Eric Shamus, Debra Feingold Stern
2. Medical Terminology, Documentation, and Coding 1st Edition by Anne P. Stich

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

COURSE TITLE : CLINICAL TRAINING -VI COURSE CODE: BPT19609										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**P**	**SPT**	**TOT**
-	**-**	**6**	**-**	**-**	**6**	**90**	**-**	**-**	**2**	**2**

Learning Outcomes:

By end of the course the students will be able to

1. Explain the various treatment techniques at the various wards in the hospital
2. Schedule the patient treatment according to theircondition
3. Demonstrate the assessment techniques of various conditions

S.NO	TOPIC	HOURS
1.	Demographic data Collection	
2.	Socioeconomic history collection	
3.	Social behavior and its influence on health	
4.	Schedule the patient treatment	
5.	Apply the treatment techniques	

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

Sr. No	Components	Marks
1.	2 case presentation	25 ×2=50

SEMESTER – VII

COURSE CODE	COURSE TITLE			HOURS				C
	CORE COURSE	DSE	ENHANCEMENT COURSE	Total Hours	L	T	P	
BPT19701	PT in Neurological disorders	-	-	60	3	1	--	4
BPT19702	Community Based Physiotherapy– I	-	-	60	3	1	--	4
BPT19703	Health Promotion and Fitness	-	-	30	1	1	--	2
BPT19704	Cardiovascular & Pulmonary Conditions for Physiotherapist	-	-	60	3	1	-	4
BPT19705	PT inNeurological Disorders Practical.	-	-	60	-	-	4	2
BPT19706*	Research Project I	-	-	90	-	-	6	2
BPT197E1	Tele Rehabilitation	-	-	45	2	1	-	3
BPT197E2	Hospital and Healthcare Service Marketing	-	-	45	2	1	-	3
BPT19707*	Clinical Training - VII	-	-	90	-	-	6	2
	Library			30	2			
Total					**35**		**525**	**23**
***End semester examination will be conducted at the department and mark will be submitted to the university**								

COURSE TITLE : PT IN NEUROLOGICAL DISORDERS COURSE CODE: BPT19701										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	1	-	60	3	1	-	4

Learning Outcomes:

At end of the course the candidate will be able :

1. Describe the assessment and physiotherapy management for neurology and neurosurgery
2. Toidentify disabilities duetoneurological dysfunction, plan andsettreatment goals
3. To apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore neurologicalfunction.
4. Identify & analyze Neuro-motor & psychosomatic dysfunction
5. Implement the Advice, & parents education in Neuro-pediatric care
6. Be able to prescribe appropriate Orthosis / splints & will be able to fabricate temporary protective & functional splints.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**NEUROLOGICAL ASSESSMENT**: Requiredmaterials forexamination, Chiefcomplaints, History taking – Present, Past, medical, familial, personal histories, Observation, Palpation, Higher mental function – Consciousness, Orientation, Wakefulness, memory, Speech, Reading, Language, Writing, Calculations, Perception, Left right confusion, Reasoning, and Judgment, Motor Examination – Musclepower, Muscletone, Spasticity, Flaccidity, Reflexes – Developmental reflexes, deep tendon reflexes, Superficial reflexes, Sensory examination – Superficial, Deep and Cortical sensations, Special tests – Romberg's, Kernig's sign, Brudenzki sign, Tinels's sign, Slum test, Lehermitte's	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	sign, Bells Phenomenon, Gower'ssign, Sun setsign, Battle's sign, Glabellar tap sign, etc, Balance examination, coordination examination, Gait analysis – Kinetics & Kinematics (Quantitative & Qualitative analysis), Functional Analysis, Assessmenttools& Scales –Modified Ashworthscale, Bergbalance scale, FIM, Barthelindex, Glasgowcoma scale, Mini mental state examination, Rancho Los Amigos Scale for Head injury, APGAR score, ASIA scale, Reflex Grading. Differential diagnosis	
2	**NEURO PHYSIOLOGICAL TECHNIQUES** – Concepts, Principles, Techniques, Effectsoffollowing Neurophysiological techniques: NDT, PNF, Vojta therapy, Rood's Sensory motor Approach, Sensory Integration Approach, Brunnstorm movement therapy, Motorrelearning program, Contemporarytask oriented approach, Muscle re-education approach and Constraint induced movement therapy.	12
3	**EVALUATION AND MANAGEMENT OF BRAIN AND SPINAL CORD DISORDERS** : History, Observation, Palpation, Higher mental function, Cranial nerve examination, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, Listof Problems& Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches& Modalities in Cerebro vascular Accident, Meningitis, Encephalitis, Head Injury, Brain Tumors, Perceptual disorders, Amyotrophic lateral sclerosis, and Multiple sclerosis.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
4	**EVALUATION AND MANAGEMENT OF CEREBELLAR, SPINAL CORD AND MUSCLE DISORDERS :** History, Observation, Palpation, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches& Modalities in Ataxia, Sensory Ataxia, Parkinson's disease, Muscular dystrophy (DMD), Myasthenia Gravis, Eaton-Lambert Syndrome, Spinal tumors, Spinal cord injury, Transverse myelitis, Bladder & Bowel Dysfunction, Spinal muscular atrophies, Poliomyelitis, Post-Polio Syndrome. **EVALUATION AND MANAGEMENT OF PERIPHERAL NERVE INJURIES AND DISORDERS :** History, Observation, Palpation, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, Listof Problems& Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches& Modalities in Hereditary motor sensory neuropathy, Guillain-Barre syndrome, Brachial plexus palsy, Thoracicoutletsyndrome, Lumbosacral plexus lesions, Phrenic& intercostalsnervelesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy, Musculocutaneousnervepalsy, Anterior& Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic nerve palsy, Suprascapular nerve palsy, sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obturator nerve palsy, and Pudental nerve palsy.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
5	**ASSESSMENT AND MANAGEMENT OF NEUROLOGICAL GAITS**: Quantitative and Qualitative (Kinetic & Kinematics) analysis, List of Problems, short & Long Term goals, Management of following Neurological Gaits - Hemiplegic gait, Parkinson gait, High step gait, Hyperkinetic gait, Hypokinetic gait, Waddling gait, Scissoring gait, Spastic gait, Choreaform Gait, Diplegic Gait, and Myopathic Gait. **PRE AND POST-SURGICAL ASSESSMENT AND TREATMENT** following conditions - Spinal disc herniation, Spinal stenosis, Spinal cord trauma, Head trauma, Brain tumors, Tumors of the spine, Spinal cord and peripheral nerves, Cerebral aneurysms, Subarachnoid hemorrhages, epilepsy, Parkinson's disease, Chorea, Hemiballism, Psychiatric disorders, Malformations of the nervous system, Carotid artery stenosis , Arteriovenous malformations, and Spina bifida.	12

RECOMMENDED BOOKS:

1. Cash’s Text book for Physio Therapists in Neurologicaldisorders
2. Practical Physical therapy by Margaret Hollis
3. Therapeutic Exercise by Carolyn Kisner & Colby
4. Physical Rehabilitation by Susan. B.O` Sullivan
5. Tidy’s Physiotherapy by Stuart Porter
6. Neurological Rehabilitation by Darcy Umphred
7. “Right in the middle of stroke” by Patricia Davis
8. Physical Rehabilitation by Krusen
9. Brain`s disorders of Nervous system

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : COMMUNITY BASED PHYSIOTHERAPY - I COURSE CODE: BPT19702										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes:

At end of the course the candidate will be able :

1. Describe theorganizational setup of thehealthcare delivery system of India
2. To apply these in clinical situations of health and disease and its prevention.
3. Toidentifyrehabilitation methodstopreventdisabilities anddysfunctionsdueto various disease conditions
4. To plan and set treatment goals and apply the skills gained in rehabilitating and restoring functions.
5. Todoevaluation ofdisabilityandplanning for prevention and rehabilitation.
6. To plan Community Based Rehabilitation in urban and rural set up.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**REHABILITATION**: Definition, Types. **COMMUNITY:** Definition of Community, Multiplicity of Communities, The Community based approach, Community Entry strategies, CBR and Community development, Community initiated versus community oriented programme, Community participation and mobilization. **COMMUNITY BASED REHABILITATION:** Definition, Historical review, Concept of CBR, Need for CBR, Difference between Institution based and Community based Rehabilitation, Objectives of CBR, Scopeof CBR, Members of CBR team, Models of CBR.	12
2	**PRINCIPLES OF COMMUNITY BASED REHABILITATION**. W.H.O.`s policies-about rural health care-concept of primary /tertiary health centers-district hospitals etc-Role of P.T.-Principles of a team work of Medical person/P.T./O.T. audiologist/speech therapist /P.&O./vocational guide in C.B.R. of physically handicapped person , Agencies involved in rehabilitation of	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	physical handicapped - Legislation for physically handicapped. Conceptofmultipurposehealth worker. Role of family members in the rehabilitation of a physically handicapped. Planning and management of CBR Programmes, CBR Programmed planning and management, Ownership and Governance, Decentralization and CBR, Management of CBR, Programmed sustainability, Communication and Coordination, Community participation, mobilization and awareness, CBR programme influence on promoting and developing public policies. **DISABILITY:** Definition of Impairment, Handicap and Disability, Difference between impairment, handicap and disability, Causes of disability, Types of disability, Prevention of disability, Disability in developed countries, Disability in developing countries. Disability Surveys: Demography. Screening: Early detection of disabilities and developmental disorders, Prevention ofdisabilities- Types and levels.	
3	**DISABILITY EVALUATION**: Introduction, What, Why and Howtoevaluate, Quantitative versus Qualitative data, Uses of evaluation findings. **ROLE OF GOVERNMENT IN CBR:** Laws, Policies, Programmes, Human Rights Policy, Present rehabilitation services, Legal aspects of rehabilitation. **ROLE OF SOCIAL WORK IN CBR:** Definition of social work, Methods of social work, History of social work, Role of social worker in rehabilitation.	10
4	**ROLE OF VOLUNTARY ORGANIZATIONS IN CBR:** Charitable Organizations, Voluntary health agencies – National level and International NGO's, Multilateral and Bilateral agencies. International Health Organizations: WHO, UNICEF, UNDP, UNFPA, FAO, ILO, World bank, USAID, SIDA, DANIDA, Rockfeller, Ford foundation, CARE, RED CROSS. **NATIONAL DISTRICT LEVEL REHABILITATION PROGRAMME**: Primary rehabilitation unit, Regional training	10

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	center, District rehabilitation center, Primary Health center, Village rehabilitation worker, Anganwadi worker	
5	**ROLE OF PHYSIOTHERAPY IN CBR**: Screening for disabilities, Prescribing exercise programme, Prescribing and devising low cost locally available assisstive aids, Modifications physical and architectural barriers for disabled, Disability prevention, Strategies to improve ADL, Rehabilitation programmes for various neuro-musculoskeletal and cardiothoracicdisabilities. Screeningandrehabilitation ofpaediatric disorders in the community: Early detection of high risk babies, Maternal nutrition and education, Rehabilitation of Cerebral Palsy, Polio, Downs Syndrome, Muscular Dystrophies etc., Prevention and rehabilitation ofmental retardation and Behavioural disorders, Immunization programmes, Early intervention in highrisk babies, Geneticcounselling. Extension services and mobile units: Introduction, Need, Camp approach. Vocational training in rehabilitation: Introduction, Need, Vocational evaluation, Vocational rehabilitation services.	10

RECOMMENDED BOOKS

1. Text book of community medicine &Community Health – by Bhaskar Rao**.**
2. Industrial Therapy – by Glenda Key
3. Preventive &Social Medicine –by Park
4. Indian Social Problem Vol 2 – by G R Madan.
5. Disability 2000 - RCI.
6. ICF –WHO Health Organisation 2001 publication

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : HEALTH PROMOTION AND FITNESS COURSE CODE: BPT19703										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
1	**1**	**-**	**15**	**15**	**-**	**30**	**1**	**1**	**-**	**2**

Learning Outcomes:

At end of the course the candidate will be able

1. To discuss on the theories of health and wellness, including motivational theory, locus of control.
2. To understand public health initiative, psycho-Social, spiritual and cultural consideration in assessment and treatment planning.
3. To do Health risks screening, assessments considering epidemiological principles are emphasized.
4. To implement Risk reduction strategies for primary and secondary prevention, including programs for special populations.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**PREVENTION PRACTICE**: a holistic perspective for physiotherapy a. Defining Health b. Predictions of Health Care c. Comparing Holistic Medicine and Conventional Medicine d. Distinguishing Three Types of Prevention Practice. Healthy People a. Definition of healthy people b. Health education Resources c. Physiotherapist role for a healthy community.	12
2	**KEY CONCEPTS OF FITNESS** a. Defining & Measuring Fitness b. Assessment of Stress with a Survey c. Visualizing Fitness	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	d. Screening for Mental and Physical Fitness e. Body Mass Index calculations.	
3	**FITNESS TRAINING** a. Physical Activities Readiness Questionnaire b. Physical Activities Pyramid c. Exercise Programs d. Evidence-Based Practice.	12
4	**HEALTH, FITNESS, AND WELLNESS ISSUES** a) during childhood and adolescence b) during adulthood	12
5	**PREVENTION PRACTICE FOR OLDER ADULTS** Resources to optimize health and wellness Health protection.	12

RECOMMENDED BOOKS

1. Therapeutic Exercise by Carolyn Kisner & Colby
2. ACSM Exercise Testing And Prescription 10th Edition

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : CARDIOVASCULAR & PULMONARY CONDITIONS FOR PHYSIOTHERAPIST COURSE CODE:BPT19704										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcomes:

At end of the course the candidate will be able to

1. Discuss thecardio-thoracicconditions whichcommonly cause disability.
2. Describe the Cardio-thoracic conditions causing disability and their management
3. Interpret the investigation used in cardio respiratory conditions

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**ANATOMY AND PHYSIOLOGY** **RESPIRATORY SYSTEM** Upper respiratory tract,Lower respiratory tract – Trachea, Bronchial tree, Bronchopulmonary segments, Respiratory unit, hilum of lung. Muscles of respiration,Pleura, intra pleural space, intra pleural pressure, surfactant,Mechanics ofrespiration– Chest wall movements, lung& chestwall compliance,V/Q relationship, airway resistance,Respiratory centre, Neural & chemical regulation of respiration, Lung volumes and lungcapacities, Spiro meter, lungfunction test, Pulmonary circulation, Lung sounds, cough reflex **CARDIOVASCULAR SYSTEMS** Chambers of heart, semi lunar and atria ventricular valve, Coronary circulation, conductive system of heart,Cardiac cycle, ECG, Heart sounds, Bloodpressure, pulse, cardiac output	8
2	**CARDIO VASCULAR CONDITIONS** a. Define, etiology, pathogenesis, clinical features, complications,	15

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	b. Conservative and surgical management of the following conditions a. Ischemic heart disease b) Myocardial infarction c) Heart failure d) Cardiac arrest e) Rheumatic fever f) Hypertension g) Infective endocarditis h) Pericarditis ,Myocarditis & cardiomyopathy i) Congenital Heart diseases j) Acyanotic congenital heart disease & Cyanotic congenital heart disease : Patent Ductus Arteriosus, Coarctation of Aorta, Atrial Septal Defect, Ventricular Septal Defect, Tetraologyof Fallot, Transposition of Great Vessels ; a) Acquired Heart Disease – Mitral Stenosis & Insufficiency, Aortic Stenosis and Insufficiency, b) Ischemic Heart Disease – Coronary Artery Disease, Cardiac tumors	
3	**RESPIRATORY SYSTEM** Clinical manifestations of Lung disease ; Patterns of lung disease – Chronic Obstructive Lung Disease and Restrictive Lung Disease ; Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following lung diseases : Chronic Bronchitis, Emphysema, Asthma, Bronchiectasis, Cystic Fibrosis, Upper Respiratory Tract Infections, Pneumonia, Tuberculosis, Fungal Diseases, Interstitial Lung Diseases, Diseases of the pleura, diaphragm and chest wall ; Respiratory failure – Definition, types, causes, clinical features, diagnosis and management.	15
4	**CHEST WALL DISORDERS** Definition, Clinical features, diagnosis and choice of management for the following disorders – chest wall deformities, chest wall tumors, Spontaneous	13

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Pneumothorax, Pleural Effusion, Empyema Thoracis, Lung abscess, Bronchiectasis, Tuberculosis, Bronchogenic Carcinoma, Bronchial Adenomas, Metastatic tumors of the Lung, tracheal Stenosis, Congenital tracheomalacia, Neoplasmsofthetrachea, Lesions ofthe Mediastinum. Carcinoma of the female breast	
5	**INVESTIGATIONS** Cardiovascular Disease : Examination of the Cardiovascular System Investigations : ECG, Exercise Stress Testing, Radiology Respiratory Disease : Examination of the Respiratory System – Investigations : Chest Radiographs, Pulmonary Function Testing, Arterial Blood Gas Analysis	09

REFERENCE BOOK:

1. Davidson's Principles and Practice of Medicine
2. Harrison's Principles of Internal Medicine

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : PT IN NEUROLOGICAL DISORDERS PRACTICAL COURSE CODE: BPT19705										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER			CREDITS				
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	4	-	-	60	60	-	-	2	2

Learning Outcomes:

At end of the course the candidate will be able to

1. Demonstrate theneurologicaldysfunctions inbothuppermotorneuron and lowermotor neuron diseases.
2. Design the goals and treatment plan
3. Implement and assess progression of treatment plan.
4. To apply theoretical knowledgeofneurological physiotherapy in rehabilitation of neurological patients

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Neurological Assessment:	10
2	Evaluation and Management of Brain and Spinal Cord Disorders	15
3	Evaluation and Management of Cerebellar, Basal Ganglia, Brain stem and Muscle Disorders	15
4	Evaluation and Management of Peripheral Nerve Injuries and Disorders	10
5	Pre and post-surgical assessment and treatment Neurological conditions.	10

REFERENCE BOOKS:

1. DeJong's The Neurologic Examination. William W. Campbell 7th Edition.
2. Physical Rehabilitation, Susan O Sullivan, 6th Edition.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION PRACTICAL EXAMINATION (50 MARKS)

S.NO.	PSYCHO MOTOR DOMAIN	MARKS
1	ASSESSMENT TECHNIQUES	25Marks
2	TREATMENT TECHNIQUES	25 Marks

COURSE TITLE : RESEARCH PROJECT I COURSE CODE: BPT19706										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER			CREDITS				
L	T	P	L	T	P	TOT	L	T	P	TOT
-	--	6	-	-	90	90	-	-	6	2

Learning Outcomes:

At end of the course the candidate will be able to

1. Identify the research problem;
2. Perform a literature review & writing a theoretical/conceptual framework;
3. Select appropriate research design or approach to the problem

1. The students have to submit the research proposal duly signed by the respective committee members at end of the course.
2. The research work may be in the form of Reviews, Experimental, Non Experimental, Case series / Case studies.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

WRITTEN EXAMINATION (50 MARKS)

S.NO.	QUESTIONS	MARKS
1	Presentation	25 Marks
2	Viva	25 Marks

COURSE TITLE : TELE REHABILITATION COURSE CODE: BPT197E1										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER			CREDITS				
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Outcomes:

By the end of the course the students will be able to

1. Discuss the concept of telemedicine
2. Explain the principles of telemedicine
3. Use the technology in telemedicine

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Introduction to Telerehabilitation	08
2	Challenges and Trends Driving Telerehabilitation	7
3	Nonverbal Communication and Telerehabilitation	10
4	1. Telerehabilitation Interface Strategies for Enhancing Access to Health Services for Persons with Diverse Abilities and Preferences 2. Telerehabilitation as a Means of Health-Care Delivery 1. Electronic Record and Telerehabilitation 2. Remote Accessibility Assessment System	10
5	Tele-Ergonomics	10

RECOMMENDED BOOKS:

1. Sajeesh Kumar • Ellen R. Cohn, Telerehabilitation. Springer Publisher.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
25	75	100

COURSE TITLE : HOSPITAL AND HEALTHCARE SERVICES MARKETING COURSE CODE: BPT197E2										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER			CREDITS				
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Objectives:

End of this course the students :

1. Apply marketing in health care organizations without conflicting the professional ethics of the clinical professions and ultimately aiming customer satisfaction.
2. Definethe Market, target and focus everything from customer point of view and be customer oriented through consumer analysis and awareness creation.
3. Analyze wholeness of customer costs and price sensitivity; develop access to services;
4. Use promotional tools as communication tools which help to create awareness, knowledge
5. Use Social Marketing in marketing ideas and causes, which would change the behavior of target group Practice HealthServices
6. Use Public Relations

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**Introduction to health care sector and Services** Trends in Health care sector-Concept of Services - Importance of Hospital services Marketing-Service characteristics-Service Triangle-Challenges in Practicing Marketing in Healthcare Industry - Marketing Intelligence, Information and Research.	09
2	**Holistic Marketing** Holistic Marketing-Interactive marketing-External Marketing-Internal marketing – Scope- Objectives – strategies-Roles of a service employee.	09
3	**Market analysis and design of health care service products** Defining Market- Forecasting Demand -	09

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Market Segmentation and Targeting - Target Marketing-Positioning-Designing health care service products -New service development process-PLC-Physical evidence-Marketing Organization for Hospitals. Consumer Analysis -Consumer Buying Process-Buyer Behaviour-Consumer Adoption Process Service Quality Management-– GAP model, SERVQUAL model – Service recovery strategies	
4	**Strategic Marketing Mix Decisions** Product (Service) Decisions - Marketing Approaches to New Services Development- Service Mix Decision - Service Item Decision -Service Life Cycle Decision-physical evidence Pricing Decisions- Pricing Objectives in Healthcare- Pricing Strategy Place Decisions- Major Distribution Decisions-Strengthening Referral System Promotion Decisions-Sales Force in Healthcare Organizations- Advertising in Healthcare Industry Sales Promotion Practices in Healthcare Organizations-Publicity Practices-Service Portfolio Strategy - Market Expansion Strategy-Target Market Strategy- Competitive Positioning Strategy.	09
5	**Public Relations** Introduction to Public Relations - Meaning of Public Relations-Classification of Public from Healthcare Marketing Perspective- Evaluation of Public Relations - Public Relations Process-Identifying the Relevant Publics- Measuring Images and Attitude of the Relevant Public-Establishing Image and Attitude Goals for the Key Publics-Developing Cost Effective Public Relations Strategies-Implementing Actions and Evaluating Results-Community Opinion Surveys to Assess the Image of an Organization, Public Relations Tools - Materials: Written and Audiovisual - Media : News, Events, Speeches and Information Services-Social Marketing	09

RECOMMENDED BOOKS

1. Eric N.Berkonitz, 'Essentials of Health care Marketing' 4th edition, JB learning,2017.
2. Philip Kotler and Roberta N. Clarke, Marketing for Healthcare Organizations Prentice Hall Publication,2012
3. John F. O'Malley, Healthcare Marketing Sales and Services: An Executive Companion,Health Administration Press ISBN 1-56793-150-2
4. G.D. Kunder, How to Market Your Hospital Without Selling Your Philosophy,Prism Books Pvt. Ltd., Bangalore, 2000
5. Vora, 'Hospital management from service sector perspective' Jaypee Brothers Medical Publishers Pvt. Ltd., New Delhi,2016.
6. Roger Silver, Health Service Public Relations (Radcliffe Medical Press Ltd., Oxford, 1995) ISBN 1- 85775-028-4

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : CLINICAL TRAINING - VII **COURSE CODE: BPT19707**										
COURSE CREDIT										
HOURS / WEEK			**HOURSE**			**CREDITS**				
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
-	**-**	**6**	**-**	**-**	**90**	**90**	**-**	**-**	**6**	**2**

Learning Outcomes:

By end of the course the students will be able to

1.Explain the various treatment techniques at the various wards in the hospital
2.Schedule the patient treatment according to theircondition
3.Demonstrate the assessment techniques of various conditions

S.NO	**TOPIC**	**HOURS**
	1. Demographic data Collection 2. Socioeconomic historycollection 3. Social behavior and its influence on health 4. Schedule the patient treatment 5. Assessment andmanagement	

SCHEME OF EXAMINATION FOR THEORY

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

Sr. No	**Components**	**Marks**
1	2 case presentation	25 ×2=50

SEMESTER – VIII

COURSE CODE	COURSE TITLE			HOURS				CREDITS
	Core Course	DSE	Enhancement Course	Total Hours	L	T	P	
BPT19801	PT in Cardio Pulmonary Diseases	-	-	60	3	1	--	4
BPT19802	Community Based Physiotherapy - II	-	-	60	3	1	--	4
BPT19803	PT in Cardio Pulmonary Diseases & ICU Practical	-	-	60	--		4	2
BPT19804	Community Based Physiotherapy-IIPractical	-	-	60	--	--	4	2
BPT198E1	-	Pediatric Physiotherapy	-	45	2	1		3
BPT198E2	-	PT in Hand Condition		45	2	1		3
BPT19805	Evidence Based Practice	-	-	45	2	1		3
BPT19806	Research Project - II	-	-	90	--	--	6	2
BPT19807*	Clinical Training - VIII	-	-	90	-	-	6	2
	Library			15	1			
Total					**35**		**525**	**22**

***End semester examination will be conducted at the department and mark will be submitted to the University**

COURSE TITLE : PT IN CARDIO PULMONARY DISEASES COURSE CODE: BPT19801										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
3	1	-	45	15	-	60	3	1	-	4

Learning Outcome:

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

1. Discuss theassessment ofcardiacand respiratorysystemsforvarious General Medical and Surgical conditions.
2. Explain the monitoring of the patient in regard to treatment
3. Discuss on monitor the patient's vital signs
4. Identify the emergency drugs indication andcontra-indication,
5. Implementthe appropriate interventions tothepatient in intensivecareunit (ICU)
6. Design the physiotherapy interventions for cardio respiratory conditions.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Anatomical and Physiological differences between the Adult and Pediatric lung.Bedside assessment of the patient-Adult & Pediatric.Investigations and tests – Exercise tolerance Testing – Cardiac & Pulmonary, Radiographs, PFT, ABG, ECG, Hematological and Biochemical Tests. Physiotherapy techniques to increase lung volume – controlled mobilization, positioning, breathing exercises, Neurophysiological Facilitation of Respiration, Mechanical aids - Incentive Spirometry, CPAP,IPPB.Physiotherapy techniques to decrease the work of breathing – Measures to optimize the balance between energy supply and demand, positioning, Breathing re-education – Breathing control techniques, mechanical aids – IPPB, CPAP, BiPAP.	12
2	Physiotherapy techniques to clear secretions – Hydration, Humidification & Nebulisation, Mobilisation	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	and Breathing exercises, Postural Drainage, Manual techniques – Percussion, Vibration and Shaking, Rib Springing, ACBT, Autogenic Drainage, Mechanical Aids – PEP, Flutter, IPPB, Facilitation of Cough and Huff, Nasopharyngeal Suctioning. Drugtherapy – Drugs toprevent and treat inflammation, Drugs to treat Bronchospasm, Drugs to treat Breathlessness, Drugs to help sputum clearance, Drugs to inhibit coughing, Drugs to improve ventilation, Drugs toreducepulmonary hypertension, Drugdeliverydoses, Inhalers and Nebulisers.	
3	Neonatal and Pediatric Physiotherapy – Chest physiotherapy for children, The neonatal unit, Modifications of chest physiotherapy for specific neonatal disorders, Emergencies in the neonatal unit. Physiotherapy in Obstructive lungconditions. Physiotherapy in Restrictive lung conditions. Management of breathlessness	12
4	Pulmonary Rehabilitation. Physiotherapy following Lung surgeries Respiratory failure – Oxygen Therapy and Mechanical Ventilation. Physiotherapy management following cardiac surgeries. Cardiac Rehabilitation	12
5	Physiotherapy management following PVD. Abdominal Surgeries - Management of Pulmonary Restorative Dysfunction following surgical procedures on Abdomen and Thorax. Management of Amputations following Diabetes, PVD - Prosthesis in amputations of lower limbs following ulcers and gangrenes. Home program and education of family members in patient care. Treatment, Response to exercise and Implications of Physiotherapy in the following disease conditions: Hypertension, Diabetes, Renal Failure and Obesity.	12

RECOMMENDED BOOKS

1. Cash`s Text book for Physiotherapists in Chest, Heart & Vascular diseases-Jaypee bros. Publication
2. Cash`s text book in General Medical & Surgical conditions for Physio therapists
3. Chest Physical therapy & Pulmonary rehabilitation-by Donna Frownfilter
4. Physio Therapy in Cardio- Vascular rehabilitation-Webber
5. Cardiopulmonary Physical therapy by Irwin Scott.
6. Physiotherapy in respiratory care – Alexandra Hough

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : COMMUNITY BASED PHYSIOTHERAPY - II COURSE CODE: BPT19802										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
3	**1**	**-**	**45**	**15**	**-**	**60**	**3**	**1**	**-**	**4**

Learning Outcomes:

At end of the course the candidate will be able :

1. To Describe the normal and abnormal physiological events during the puberty, labor, puerperium, post – natal stage and menopause and their PT management.
2. To Discuss the various complications during pregnancy, labour, puerperium and post – natal stage, pre and post-menopausal stage and various aspects of urogenital dysfunction and their PT management in brief.
3. To perform clinical examination of pelvic floor
4. To perform clinical examination of pregnant woman.
5. To Describe Physiologyof aging process and its influenceonphysical fitness.
6. To perform Role of physiotherapist in geriatric rehabilitation.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Geriatrics- Physiology of Aging /degenerative changes- Musculoskeletal /Neuromotor /cardio – respiratory-/Metabolic, Endocrine, Cognitive, Immune systems. Role of Physio Therapy in Hospital based care, Half-way homes, Residential homes, Meals on wheels etc. Home for the aged, Institution based Geriatric Rehabilitation. Few conditions:- Alzheimer's disease, Dementia, Parkinson's Disease, Incontinence, Iatrogenic drug reactions, etc. Ethics of Geriatric Rehabilitation.	12
2	Anatomy and physiology of the female reproductive organs. Puberty dynamics Physiology of menstrual cycle – a. ovulation cycle, b. uterine cycle, c. Cx cycle, d. duration,	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	e. amount f. Hormonal regulation of menstruation, Hormonal disorders of females-obesity and female hormone	
3	Pregnancy a. Diagnosis of pregnancy b. Abortion c. Physiological changes during pregnancy d. Importance of antenatal care exercise e. High risk pregnancy, prenatal common complications – investigation and management f. Musculoskeletal disorders during pregnancy g. Multiple child birth h. Normal labor Child birth complications, investigation and management Normal puerperium, lactation and importance of post-natal exercises Family planning. Medical termination of pregnancy Infection of female genital tract including sexually transmitted diseases, low backache Prolapse of uterus and vagina	12
4	Principle of common gynaecological operations – hysterectomy, D&C, D&E, Pop smear Menopause: Its effect on emotions and musculoskeletal system Urogenital dysfunction – pre and post-natal condition Sterility: Pathophysiology, investigations, management, Malnutrition and deficiencies in females. Surgical procedures involving child birth. a. Definition, Indications and Managementofthefollowing surgical procedures – pelvic repair, caesarian section, nephrectomy, Hysterosalphyngography, Dilatation and Curettage, Laproscopy, Colposopy, Hysterectomy. Carcinoma of female reproductive organs – surgical management in brief Mastectomy – Simple, radical. Hysterectomy. Incontinence – Types, Causes, Assessment and Management.	12
5	Surgical procedures involving child birth. a. Definition, Indications and Management ofthefollowingsurgical procedures – pelvic repair, caesarian section, nephrectomy, Hysterosalphyngography, Dilatation and Curettage, Laproscopy, Colposopy, Hysterectomy.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Carcinoma of female reproductive organs – surgical management in brief Mastectomy – Simple, radical. Hysterectomy. Incontinence – Types, Causes, Assessment and Management. Women's health issues: focus on pregnancy:	

RECOMMENDED BOOKS

1. Physiotherapy in Gynaecological &Obstetrical conditions – by Poldon
2. Text book of Work Physiology - Astrand P A Rodahe K
3. Geriatrics Physiotherapy – By Andrew Guccione
4. Preventive &Social Medicine –by Park

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : PT IN CARDIOPULMONARY DISEASES & ICU PRACTICAL COURSE CODE: BPT19803										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER			CREDITS				
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	4	-	-	60	60	-	-	2	2

Learning Outcomes:

At end of the course the candidate will be able

1. To demonstrate the cardiology physical assessment
2. To demonstrate the respiratory physical assessment
3. To demonstrate treatment schedule forcardio respiratory conditions.
4. To implement and assess progression of treatment plan.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	**PHYSICAL ASSESSMENT IN CARDIORESPIRATORY DYSFUNCTION** Inspection posture (recumbent, erect, orthogenic), breathing pattern (rate, rhythm, use of accessory muscles), chest movement (symmetry intercostal and diaphragmatic components), chest deformity (Barrel chest, pigeon chest), Spinal deformity (scoliosis, kyphosis, kyphoscoliosis), sputum (colour type volume, consistency), cough (types, productive / non productive, presence of a normal cough reflex). Palpation, tactile and vocal fremitus, mobility of thoracic spine and rib cage. Percussion, dullness and hyperresonance. Auscultation, Normal and abnormal breath sounds& exercise tolerance testing	12
2	**RESPIRATORY SURGERY ASSESSMENT** Pre-operative: Assess patient's medical history, normal breathing pattern of patient, pulse, respiratory rate, BP, thoracic mobility, posture and patients exercise tolerance. Post-operative : Assess special instructions pertaining to operative procedure performed, type of incision,	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	blood pressure, pulse rate, respiration colour, time of last analgesic dose, drains, temperature, ECG, chest X-rays and blood gases.	
3	**CARDIAC SURGERY ASSESSMENT** Pre-operative: Demonstrate treatment techniques explanation to patient, care of incision, mechanical ventilation, breathing exercise,huffing and coughing, mobilization exercise, posturecorrection, graduated exercise programme. Post-operative : Assess : Special instructions pertaining to operative procedure performed, breath sounds, cyanosis, respiratory rate, temperature and pulse, blood pressure, drainage from pleural drain (bubbling or swinging), sputum expectorated, analgesia, movements of chest wall (symmetry) position of patient and effort of breathing, chest radiograph and blood gases.	12
4	**ICU ASSESSMENT** Special instructions pertaining to any operation performed, level of consciousness, colour, blood pressure, pulse, temperature, sputum expectorated (colour and quality) drugs (time last dose of analgesia given), ECG and blood gas results. Describe chest radiograph with respect to expansion of lungs, size of heart, presence of secretions and placement of chest tubes.	12
5	**TREATMENT TECHNIQUES** Deep breathing exercises, suctioning, active / assisted exercises to arm and leg, graduated exercise programme, segmental breathing exercises, vibrations, percussions, huffing and coughing, forced expiratory technique, full range active assisted arm exercises, ankle foot exercises, trunk exercises, posture correction, positioning of patient, IPPB and inhalation.	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	Postural drainage with use of adjuncts, graduated exercises., chest mobilisation exercises&relaxation positions.	

RECOMMENDED BOOKS

1. Cash`s Text bookfor Physiotherapists in Chest, Heart & Vascular diseases-Jaypee bros. Publication
2. Cash`s textbook in GeneralMedical& Surgical conditionsfor Physio therapists
3. Chest Physical therapy & Pulmonary rehabilitation-by Donna Frownfilter
4. Physio Therapy in Cardio- Vascular rehabilitation-Webber
5. Cardiopulmonary Physical therapy by Irwin Scott.
6. Physiotherapy in respiratory care – Alexandra Hough

SCHEME OF EXAMINATION	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

PRACTICAL EXAMINATION (50 MARKS)

S.NO.	TECHNIQUES	MARKS
1	ASSESSMENT TECHNIQUES	25Marks
2	TREATMENT TECHNIQUES	25 Marks

COURSE TITLE : COMMUNITY BASED PHYSIOTHERAPY – II PRACTICAL COURSE CODE: BPT19804										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	4	-	-	60	60	-	-	2	2

Learning Objectives:

At end of the course the candidate will be able

1. Explain the working principles of various health care set up.
2. Explain the disability screening
3. To demonstrate the geriatric assessment
4. To demonstrate the gynecological assessment
5. To demonstrate the obstetrics assessment
6. Toplan treatment schedule for geriatric population ,gynecological & obstetrics patients.
7. To implement and assess progression of treatmentplan.
8. To apply theoretical knowledge in rehabilitation.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	Field visits to urban and rural PHC's., Visits to regional rehabilitation training center, Regular mobile camps, Disability surveys in villages	12
2	Disability screening, Demonstration of Evaluation and Physiotherapy prescription techniques for musculoskeletal, neuromuscular, cardio-respiratory paediatric, gynecological and geriatric problems in community.	12
3	Demonstration of evaluation and prescription techniques for ambulatory and assistive devices .Fabrication of low cost assistive devices with locally available materials	12
4	Preconception care and tests done in preconception stagePhysiotherapy management in labourPost natal management following labour normal and caesarean section	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
5	Breast feeding problems and its PT management. Disorders of menstruation and its PT management. Gynaecological surgeries and its PT management	12

RECOMMENDED BOOKS

1. Physiotherapy in Gynaecological &Obstetrical conditions – by Poldon
2. Text book of Work Physiology - Astrand P A Rodahe K
3. Geriatrics Physiotherapy – By Andrew Guccione
4. Preventive &Social Medicine –by Park

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

PRACTICAL EXAMINATION (50 MARKS)

S.NO.	TECNIQUES	MARKS
1	ASSESSMENT TECHNIQUES	25Marks
2	TREATMENT TECHNIQUES	25 Marks

COURSE TITLE : PEDIATRIC PHYSIOTHERAPY COURSE CODE: BPT198E1										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**			**CREDITS**				
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
2	**1**	**-**	**30**	**15**	**-**	**45**	**2**	**1**	**-**	**3**

Learning Outcomes:

1. Describe the normal neurodevelopment, with specific reference to Locomotion
2. Explain the Embryology of nervous system, Embryology of cardiovascular, pulmonary & musculoskeletal system ,
3. Discuss Developmental &congenital anomalies, Deformities of vertebral column, deformities of chest wall

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	a) Embryology of nervous system, Embryology of cardiovascular, pulmonary & musculoskeletal system , Developmental deformities &congenital anomalies, Deformities of vertebral column, deformities of chest wall b) Congenital dislocation of hip,CTEV, vertical talus, Blount disease, Perthe's disease, slipped capital femoral epiphysis, limb length discrepancies and Osteogenesis Imperfecta. c) Traumatic injuries in child–fractures, dislocations, epiphyseal injuries	9
2	a) Assessment of Reflex & Reactions b) Cerebral palsy -assessment & management with approaches, Roods, Vojta, Sensory integration, N.D.T c) Attentiondeficit Hyperactivedisorder, Autism	9
3	a) Gravitational insecurity, Mental retardation, Epilepsy b) Genetic disorder – Down's syndrome, Marfan's syndrome c) Movement disorder – Chorea, Athetosis, Dystonia, Choreoathetosis, Ataxia	9

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	d) Disorder of muscle – Muscular dystrophy (Duchenne's, Becker's, Limb girdle, Facio-scapulohumeral, Spinal muscular atrophy)	
4	a) Developmental anomalies – Spina bifida, hydrocephalus, cranio-vertebral junctionanomalies b) Traumatic head injury c) Neonatal ICU, Paediatric ICU, Complications of low birth Weight d) Anatomical & physiological differences ofcardio-vascular & respiratory system in neonates, childhood & adults	9
5	a) Fetal circulation,.Congenital heart disease – pathodynamics, clinical presentation, investigation, medico-surgical & physiotherapy management of cyanotic & acyanotic heart disease , Rheumatic heart disease b) Respiratory disorder in childhood – IRDS, Bronchopulmonary dysplasia, pneumonia, lung abscess, asthma, cystic fibrosis, bronchitis, bronchiectasis, bronchiolitis, pertusis, CROUP, epiglotitis, chronic lung disease, primary ciliary dyskinesia, fatigue, sleep apnoea, hyperventilation syndrome. c) 3. Role of Orthotics in Paediatric conditions.	9

RECOMMENDED BOOKS

1 Paediatric physical Therapy- Stephen Tecklin
2 Physical therapy for children –Campbell
3 Nelson Textbook of Paediatrics
4 Handbook of Paediatric physical therapy-Toby M Long

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : PT IN HAND CONDITIONS COURSE CODE: BPT198E2										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Outcomes:

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

1. Be able to identify, discuss & analyse, the Hand dysfunction in terms of Biomechanical, Kinesiological and Biophysical basis & co-relate the same with the provisional diagnosis, routine radiological & Electro-physiological investigations and arrive at appropriate functional diagnosis with clinical reasoning.
2. Explain the appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained.
3. Recognize the implication of dysfunction on the Neuro- Musculoskeletal system on hand function and the student's clinical decision making for rehabilitation.
4. Use recent Technique/ approaches to treat & train patients with hand dysfunction in children, adults & geriatrics

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	1. Generalupperextremity examination 2. Sensory examination of hand 3. Motor Examination of hand 4. Functional Evaluation ofhand	9
2	1. Outcome measures of hand 2. PTManagementof Flexortendoninjuries 3. PT Management of Extensor tendon injuries 4. PTManagementof Burnthand deformities	9
3	1. PTManagementof Arthritichand deformities 2. PT Management of Crush injuries 3. PTManagement of Peripheral Nerve Injuries-median, radial, ulnar, musculocutaneous, axillary	9

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
	4. PT Management of Entrapment neuropathies- cubital tunnel,carpal tunnel, supinator tunnel, pronator teressyndrome	
4	1. PT Management of Brachial Plexus Palsies 2. PTManagement of Fractures ofphalanges 3. PTManagement of Complex Regional Pain Syndrome	9
5	3. PT Management of Upper limb Orthosis and training 4. Preparation of splints using POP, Orthoplast, thermoplastic, Taping for wrist and hand conditions	9

RECOMMENDED BOOKS

1. Rehabilitation of Hand; J.M. Hunter [C.V.Mobsy]
2. The Hand; Fundamental of therapy (2nd edn); Judith Boscheinen Morrin & Victoria Davey [Butter worth Heinemann]
3. Examination of hand & wrist; Tubiana [Mobsy publications]

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : EVIDENCE BASED PRACTICE COURSE CODE: BPT19805										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
2	1	-	30	15	-	45	2	1	-	3

Learning Outcomes:

At end of the course the candidate will be able to

1. Apply administration principles in physiotherapy
2. Organize a physiotherapy department
3. Learn teaching techniques.
4. Learn academic teaching and clinical teaching.

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
1	1. Introduction to Evidence Based Practice: Definitions, Evidence Based Practice 2. Concepts of Evidence based Physiotherapy: Awareness, Consultation, Judgement, and Creativity	12
2	1. Evidence Based Practitioner: The Reflective Practitioner, The E Model, Using the E Model 2. Finding the Evidence: Measuring outcomes in Evidence Based Practice, Measuring Health Outcomes, Measuring clinical outcomes, Inferential statistics and Causation	12
3	1. Searching for the Evidence: Asking Questions, Identifying different sources ofevidence, Electronic Bibliographic databases and World Wide Web, Conducting a literature search. Step by-step search for evidence 2. Assessing the Evidence: Evaluating the evidence; Levels of evidence in research using quantitative methods, Levels of evidence classification system, Outcome Measurement, Biostatistics, The critical review of research using qualitative methods	12

UNITS	TITLE OF CONTENT	HOURS OF TEACHING / LEARNING
4	1. Systematically reviewing the evidence: Stages of systematic reviews, Meta-analysis, The Cochrane collaboration 2. Economic evaluation of the evidence: Types of economic evaluation, conducting economic evaluation, critically reviewing economic evaluation, locating economic evaluation in the literature	12
5	1. Using the evidence: Building evidence in practice; Critically Appraised Topics (CATs), CAT format, Using CATs, Drawbacks of CATs 2. Development of Evidence based knowledge, The Individual Professional, Professionals within a discipline, and Professionals across disciplines	12

RECOMMENDED BOOKS

1. Evidence-based Medicine,David Sackett,
2. Evidence-Based Medicine: How to Practice and Teach EBM, Sharon E. Straus MD , 5th Edition.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
30	70	100

COURSE TITLE : RESEARCH PROJECT II COURSE CODE: BPT19806										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	--	6	-	-	90	90	-	-	6	2

Learning Outcomes:

At end of the course the candidate will be able to

1. Collect and analyze thedata and/or designing and validating thedesign;
2. Draw conclusions and give recommendations.
3. Demonstrate an understanding of the ethical issues associated with practitioner research
4. Communication skills to justify and interpret theoretical propositions, methodologies, conclusions and decisions to technical and non technical audiences

1. The students have to submit the research project duly signed bythe respective Guide and Head of the Institution at end of the course.
2. The research work may be in the form of Reviews, Experimental, Non Experimental, Case series / Case studies.

SCHEME OF EXAMINATION

IA	FINAL EXAM	TOTAL
50	50	50

UNIVERSITY EXAMINATION

1. The End semester examination will be conducted with one Internal examiner and one external examiner

WRITTEN EXAMINATION (50 MARKS)

S.NO.	QUESTIONS	MARKS
1	Presentation	25 Marks
2	Viva	25marks

COURSE TITLE : CLINICAL TRAINING - VIII **COURSE CODE: BPT19807**										
COURSE CREDIT										
HOURS / WEEK			**TOTAL HOURS PER SEMESTER**				**CREDITS**			
L	**T**	**P**	**L**	**T**	**P**	**TOT**	**L**	**T**	**P**	**TOT**
-	**-**	**6**	**-**	**-**	**90**	**90**	**-**	**-**	**2**	**2**

Learning Outcomes:

By end of the course the students will be able to

1. Explain the various treatment techniques at the various wards in the hospital
2. Schedule the patient treatment according to theircondition
3. Demonstrate the assessment techniques of various conditions

S.NO	**TOPIC**	**HOURS**
	1. Demographic data Collection 2. Socioeconomic history collection 3. Social behavior and its influence on health 4. Schedule the patient treatment 5. Assessment & Treatment techniques of various condition	

SCHEME OF EXAMINATION FOR THEORY

IA	FINAL EXAM	TOTAL
50	50	100

UNIVERSITY EXAMINATION

Sr. No	**Components**	**Marks**
1	2 case presentation	25 ×2=50

COMPULSORY ROTATORY INTERNSHIP

COURSE TITLE : INTERNSHIP - I COURSE CODE: BPT19901										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	45	-	-	45	540	-	-	12	12

Evaluation of internees and award of credits: All internees will be assessed based on their satisfactory attendance, performance in the postings/ research labs and the presentation of the logbook. The mode of assessments and frequency will be prescribed in the respective programs. The candidates will earn the prescribed credits as stated in their regulations.

COURSE TITLE : INTERNSHIP - II COURSE CODE: BPT19902										
COURSE CREDIT										
HOURS / WEEK			TOTAL HOURS PER SEMESTER				CREDITS			
L	T	P	L	T	P	TOT	L	T	P	TOT
-	-	45	-	-	45	540	-	-	12	12

Evaluation of internees and award of credits: All internees will be assessed based on their satisfactory attendance, performance in the postings/ research labs and the presentation of the logbook. The mode of assessments and frequency will be prescribed in the respective programs. The candidates will earn the prescribed credits as stated in their regulations.

A total of 24 credit points should be obtained at the end of this internship