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

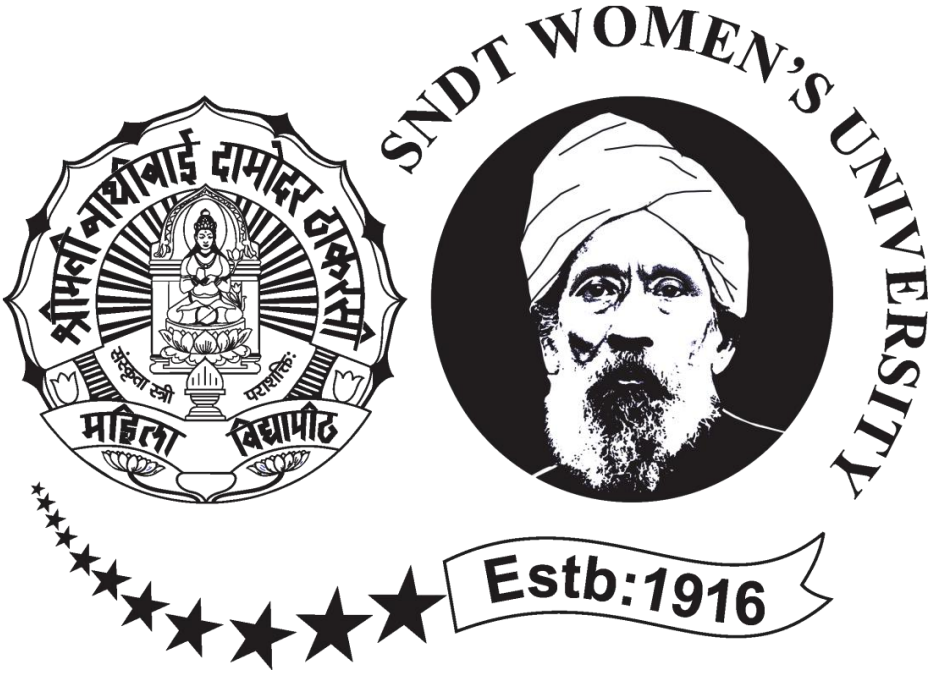
SYLLABUS AND RULES

For the course of

BACHELOR OF PHYSIOTHERAPY

(B.P.T.)

EFFECTIVE FROM THE YEAR: 2020 – 2021



SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY

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

INFORMATION / RULES AND REGULATIONS

UNIVERSITY AT A GLANCE:

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

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

Vision:

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

Mission:

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

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

Goals:

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

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

Special features of the University:

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

PREAMBLE FOR B.P.T. COURSE

By Definition, Physiotherapy is a branch of modern Medical Science which includes Examination, Assessment, Interpretation, Physical Diagnosis, Planning and Execution of Treatment and Advice to any person for the purpose of Preventing, Correcting, Alleviating and Limiting Dysfunction, Acute and Chronic bodilymalfunction including life saving measures via Chest Physiotherapy in the Intensive Care Unit, curing Physical Disorders or Disability, promoting Physical Fitness, facilitating Healing and Pain relief and Treatment of Physical and Psychological Disorders through modulating Psychological and Physical response using Physical Agents, Activities and Devices including Exercise, Mobilization, Manipulations, Therapeutic Ultrasound, Electrical and Thermal Agents and Electrotherapy for Diagnosis, Treatment and Prevention.

(Definition as per the Maharashtra State Council for Occupational therapy & Physiotherapy, 2004)

'Physiotherapist' is a qualified professional who has acquired all the above mentioned Knowledge and Skills for entry into practice after being awarded a Bachelor Degree in the subject of " Physiotherapy" from a recognized Institute affiliated to the University conducting a fulltime course not less than four years and six months of Internship.

Physiotherapy or Physical Therapy (P.T.) is a **Movement Science** with an established theoretical and scientific base and widespread clinical applications in the **Prevention, Restoration &Rehabilitation, Maintenance and Promotion of optimal physical function.** Physiotherapists **diagnose and manage Movement Dysfunction** and enhance Physical and Functional abilities.

This physical dysfunction may be the sequelae of involvement of any of the systems like Musculoskeletal, Neurological, Cardiovascular, Respiratory or other body systems. These practitioners contribute to society and the profession through Practice, Teaching, Administration, and the discovery and application of new knowledge about Physiotherapy experiences of sufficient excellence and breadth by research to allow the acquisition and application of essential Knowledge, Skills, and Behaviors as applied to the practice of Physiotherapy.

Learning experiences are provided under the guidance and supervision of competent faculty, in both, Classroom as well as in Clinic. The designed curriculum will prepare the entry-to-practice Physiotherapist (PT), to be an Autonomous, Effective, Safe and Compassionate professional, who practices collaboratively in a variety of healthcare set ups such as Neonatal to Geriatric, from Critical Care to Community Fitness to Sports training and is responsive to the current and future needs of the health care system.

VISION: To create a best possible environment to prepare Physiotherapist who shall lead to serve & heal in a variety of Healthcare and social settings to provide best quality of life to an individual.

MISSION: To graduate knowledgeable, service-oriented, self-assured, adaptable, reflective practitioners who, by virtue of critical and integrative thinking along with clinical reasoning, lifelong learning, and ethical values, render independent judgments concerning patient /person needs those are supported by evidence; promote the health of the patient or person; and enhance the Professional, Contextual, and Collaborative foundations for Physiotherapy practice.

RULES FOR B.P.T. ADMISSION FROM THE ACADEMIC YEAR 2020-21 ONWARDS

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

QUALIFYING EXAMINATION

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

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

CRITERIA OF ELIGIBILITY FOR ADMISSION

1. The minimum requirement of aggregate marks is of at least 45% in Physics, Chemistry & Biology in Theory & Practical examination for H.S.C.E. at the qualifying examination for admission to the first year B. Physiotherapy Course.
2. The merit order shall be determined on the following basis by the University:-

2.1. The aggregate marks of at least 45% in Physics, Chemistry & Biology for Higher Secondary certificate Examination at qualifying examination.

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

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

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

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

3. Eligible candidates should have completed the age of 17 years on 31st December of the year of her joining the college.
4. The admission of candidates to a Physiotherapy Course shall be decided and granted on the basis of admission criteria by the University.
5. In case of any dispute about admission of candidates to Physiotherapy Course, the interpretation and the decision of the University / college management shall be final.

6. If any of the statements made in the application form or any information/document supplied by the candidate in connection with her application or admission, later on at any time is found to be false or incorrect or misguiding, or if at any time that the candidate has cancelled any information/fact in connection with her application her admission shall be cancelled by the University/College Management without any notice thereof and fees shall be forfeited and she may be expelled and prosecuted.

ADMISSION CRITERIA

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

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

Entrance test	**100 marks**

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

Total:	**100 marks**

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

DURATION OF COURSE:

The total duration of Professional Degree Course in Bachelor of Physiotherapy (B.P.T.) approved by the University only for girl candidate is $4^1/_2$ (Four and half) year including six months' of internship so as to meet the growing demands of the profession globally.

MEDIUM OF STUDY:

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

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

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

SYLLABUS & TRANSCRIPT HOURS:

Semester system is being introduced from 2008-09 on credit system basis. Modified Syllabus introduced from 2014-15 onwards with 6954 Transcript hours.

COMMENCEMENT OF SEMESTER EXAMINATION:

October and April of calendar year.

WORKING DAYS IN A SEMESTER:

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

VACATION AND LEAVE:

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

ATTENDENCE:

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

TERM WORK EVALUATION:

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

STANDARD OF PASSING THE EXAMINATION:

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

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

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

CREDITS CALCULATION:

As per the norms of University, 15 Hrs. of Theory is accredited as 1 credit. 30 Hrs. of Practical is accredited as 1 credit.

RETENTION OF THE CANDIDATE

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

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

The candidate is allowed to go to the fourth semester if she clears 4 papers of the third semester.

The candidate is allowed to go to the fifth semester if she clears 4 papers of the fourth semester.

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

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

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

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

PAPER SETTERS / EXAMINERS / MODERATORS

- The panels of question paper setter / Examiner / Moderator are nominated by University through Board of Examination (BOE) in Physiotherapy.
- Internal examiners are nominated among the teaching faculty of the Institute / college based on recommendation of the Principal of the college.

QUESTION PAPER PATTERN
TERM WORK:

Duration 3 hours **TOTAL = 100 marks.**

Question 1 is compulsory. Answer any 4 from Questions 2 to 7.

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

UNIVERSITY EXAMINATION PATTERN FOR SUBJECTS WITH ONLY THEORY EXAMINATION.

EXTERNAL EXAMINATION: (THEORY)

[A] Duration 3 hours **TOTAL = 60 marks**

Question 1 is compulsory. Answer any 4 from Questions 2 to 7.

Q.1. Multiple Choice Questions		(1 Mark × 12 = 12)
Q.2. Short Answers	(6 out of 8)	(2 Marks × 6 = 12)
Q.3. Short Answers	(6 out of 8)	(2 Marks × 6 = 12)
Q.4. Short Essays	(3 out of 5)	(4 Marks × 3 = 12)
Q.5. Short Essays	(3 out of 5)	(4 Marks × 3 = 12)
Q.6. Long Essay	(1 out of 2)	(12 Marks × 1 = 12)
Q.7. Long Essay	(1 out of 2)	(12 Marks × 1 = 12)

[B] Duration 3 hours **TOTAL = 45 marks**

Question 1 is compulsory. Answer any 4 from Questions 2 to 7.

Q.1. Multiple Choice Questions		(1 Mark × 9 = 9)
Q.2. Short Answers	(6 out of 8)	(1.5 Marks × 6 = 9)
Q.3. Short Answers	(6 out of 8)	(1.5 Marks × 6 = 9)
Q.4. Short Essays	(3 out of 5)	(3 Marks × 3 = 9)
Q.5. Short Essays	(3 out of 5)	(3 Marks × 3 = 9)
Q.6. Long Essay	(1 out of 2)	(9 Marks × 1 = 9)
Q.7. Long Essay	(1 out of 2)	(9 Marks × 1 = 9)

[C] Duration 3 hours **TOTAL = 30 marks**

Question 1 is compulsory. Answer any 4 from Questions 2 to 7.

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

[D] Duration 3hours **TOTAL = 15 marks**

Question 1 is compulsory. Answer any 4 from Questions 2 to 7.

Q.1. Multiple Choice Questions		(1 Mark × 3 = 3)
Q.2. Short Answers	(3 out of 5)	(1 Marks × 3 = 3)
Q.3. Short Answers	(3 out of 5)	(1 Marks × 3 = 3)
Q.4. Short Essays	(2 out of 4)	(1.5 Marks ×2 = 3)
Q.5. Short Essays	(2 out of 4)	(1.5 Marks ×2 = 3)
Q.6. Long Essay	(1 out of 2)	(3 Marks × 1 = 3)
Q.7. Long Essay	(1 out of 2)	(3 Marks × 1 = 3)

UNIVERSITY EXAMINATION PATTERN FOR SUBJECTS WITH THEORY AND PRACTICAL EXAMINATION.

As per the subject specification.

COURSE OF INSTRUCTION (TRANSCRIPT HRS.) FOR BACHELOR OF PHYSIOTHERAPY (B.P.T.):

SEMESTER - I

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
1101	HUMAN ANATOMY – I	3	90	6	-	-
1201	HUMAN ANATOMY – I **(PRACTICAL)**	3	-	-	60	2
1102	HUMAN PHYSIOLOGY-I	3	90	6	-	-
1202	HUMAN PHYSIOLOGY-I **(PRACTICAL)**	3	-	-	60	2
1103	BIO-MEDICAL PHYSICS AND BASIC ELEMENTS OF MATHEMATICS	5	150	10	-	-
1104	ENGLISH COMPOSITION AND ORAL COMMUNICATION SKILLS	3	90	6	-	-
ANATOMY LAB		3	-	-	60	2
PHYSIOLOGY LAB		2	-	-	30	1
ORIENTATION TO PHYSIOTHERAPY OPD		2	-	-	30	1
TOTAL		**27**	**420**	**28**	**240**	**8**

SEMESTER - II

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
2101	HUMAN ANATOMY – II	3	90	6	-	-
2201	HUMAN ANATOMY - II**(PRACTICAL)**	4	-	-	90	3
2102	HUMAN PHYSIOLOGY-II	3	90	6	-	-
2202	HUMAN PHYSIOLOGY- II **(PRACTICAL)**	4	-	-	90	3
2103	BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS	3	90	6	-	-
2203	BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS **(PRACTICAL)**	4	-	-	90	3
2104	GENETICS & MICROBIOLOGY *	3	90	6	-	-
Visit to Anatomy museum , Physiology lab & microbiology lab		2	-	-	30	1
*** MARKS DISTRIBUTION**: GENETICS & MICROBIOLOGY: EACH SUBJECT CARRIES 30MARKS		-	-	-	-	-
TOTAL		**26**	**360**	**24**	**300**	**10**

SEMESTER – III

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
3101	THERAPEUTIC EXERCISE – I	3	90	6	-	-
3201	THERAPEUTIC EXERCISE - I **(PRACTICAL)**	4	-	-	90	3
3102	PHRMACOLOGY AND BIOCHEMISTRY *	4	120	8	-	-
3103	ALTERNATIVE MEDICINE	2	60	2	-	-
3104	SOCIOLOGY , ENVIRONMENTAL STUDIES, & PSYCHOLOGY	4	120	8	-	-
VISIT TO EXERCISE THERAPY DEPARTMENT		4	-	-	90	3
VISIT TO PHRMACOLOGICAL LABORATORY AND BIOCHEMISTRY DEPARTMENT		3	-	-	60	2
VISIT TO YOGA CENTER		3	-	-	30	1
*** MARKS DISTRIBUTION**: PHRMACOLOGY AND BIOCHEMISTRY – EACH SUBJECT CARRIES 60 HOURS]		-	-	-	-	-
TOTAL		**27**	**390**	**24**	**270**	**9**

SEMESTER - IV

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
4101	ORTHOPAEDICS	4	120	8	-	-
4201	ORTHOPAEDICS **(PRACTICAL)**	3	-	-	60	2
4102	NEUROSCIENCES AND PSYCHIATRY	5	150	10	-	-
4202	NEUROSCIENCES **(PRACTICAL)**	3	-	-	60	2
4103	GENERAL MEDICINE, PEADIATRICS AND COMMUNITY MEDICINE	6	180	12	-	-
4104	PATHOLOGY	3	90	6	-	-
TOTAL		**24**	**540**	**36**	**120**	**4**

SEMESTER – V

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
5101	THERAPEUTIC EXERCISE II	4	120	8	-	-
5201	THERAPEUTIC EXERCISE II **(PRACTICAL)**	3	-	-	60	2
5102	ELECTROTHERAPY (High Frequency)	3	90	6	-	-
5202	ELECTROTHERAPY (High Frequency) **(PRACTICAL)**	3	-	-	60	2
5103	BIOKINESIOLOGY	4	120	8	-	-
5203	BIOKINESIOLOGY **(PRACTICAL)**	3	-	-	60	2
5104	GENERAL SURGERYAND OBSTETRICS & GYNAECOLOGY	4	120	8	-	-
Supervised clinical training in OPD =90 hours		-	-	-	90	6
TOTAL		**24**	**450**	**30**	**270**	**12**

SEMESTER – VI

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
6101	PHYSICAL AND FUNCTIONAL DIAGNOSIS	3	90	6	-	-
6201	PHYSICAL AND FUNCTIONAL DIAGNOSIS **(PRACTICAL)**	4	-	-	90	3
6102	ELECTROTHERAPY (Medium & Low Frequency)	3	90	6	-	-
6202	ELECTROTHERAPY (Medium & Low Frequency) **(PRACTICAL)**	3	-	-	60	2
6103	ETHICS-MANAGEMENT AND INTRODUCTION TO RESEARCH METHODOLOGY, BIO-STATISTICS	6	180	12	-	-
6104	ALLIED HEALTH SCIENCES FOR PHYSIOTHERAPISTS	4	120	8	-	-
Supervised clinical training in Hospital, wards 180 hours and Visit to Orthotics and Prosthetics lab		4	-	-	90	3
TOTAL		**27**	**480**	**32**	**240**	**8**

SEMESTER – VII

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
7101	PHYSIOTHERAPY IN WOMENS HEALTH& GERIATRICS	2	60	4	-	-
7201	PHYSIOTHERAPY IN WOMENS HEALTH & GERIATRICS**(PRACTICAL)**	4	-	-	90	3
7102	PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS	4	120	8	-	-
7202	PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS **(PRACTICAL)**	3	-	-	60	2
7103	SPORTS PHYSIOTHERAPY	2	60	4	-	-
7203	SPORTS PHYSIOTHERAPY **(PRACTICAL)**	4			90	3
7104	PAIN MANAGEMENT	3	90	6		
7204	PAIN MANAGEMENT **(PRACTICAL)**	2	-	-	30	1
Project work -1		1	-	-	30	1
Physiotherapy OPD postings		2	-	-	30	1
Continuing Physiotherapy Educational Program [CPE]		1	-	-	30	1
International /National / State Conference.		1	-	-	30	1
TOTAL		**29**	**330**	**22**	**390**	**13**

SEMESTER – VIII

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
8101	PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS	4	120	8	-	-
8201	PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS **(PRACTICAL)**	3	-	-	60	2
8102	PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS	4	120	8	-	-
8202	PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS **(PRACTICAL)**	3	-	-	60	2
8103	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS	2	60	4	-	-
8203	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS **(PRACTICAL)**	4	-	-	90	3
8104	REHABILITATION	2	60	10	-	-
8204	REHABILITATION **(PRACTICAL)**	2	-	-	30	1
Physiotherapy Opd Posting		4	-	-	90	3
Continuing Physiotherapy Educational Program [CPE]		1	-	-	30	1
TOTAL		**29**	**360**	**30**	**360**	**12**

SEMESTER	Theory		Practical	
	Hrs.	Credits	Hrs.	Credits
SEMESTER - I	420	28	240	8
SEMESTER - II	360	24	300	10
SEMESTER - III	390	24	270	9
SEMESTER - IV	540	36	120	4
SEMESTER - V	450	30	270	12
SEMESTER - VI	480	32	240	8
SEMESTER - VII	330	22	390	13
SEMESTER - VIII	360	30	360	12
TOTAL HRS. OF I,II,III,IV,V,VI,VII,VIII SEM.	**3330**	**226**	**2190**	**76**
INTERNSHIP:- Six months rotational program	**-**	**-**	**1194**	**-**
TRANSCRIPT HOURS.	**3330**	**226**	**3384**	**76**
TOTAL TRANSCRIPT HOURS AND CREDITS.	**6714 - Hrs.**		**302 - Credits**	

SCHEME OF EXAMINATION FOR B.PHYSIOTHERAPY:

SEMESTER - I

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
1101	HUMAN ANATOMY – I	3	100	100	200
1201	HUMAN ANATOMY – I **(PRACTICAL)**	-	100	100	200
1102	HUMAN PHYSIOLOGY-I	3	100	100	200
1202	HUMAN PHYSIOLOGY-I **(PRACTICAL)**	-	100	100	200
1103	BIO-MEDICAL PHYSICS AND BASIC ELEMENTS OF MATHEMATICS	3	100	100	200
1104	ENGLISH COMPOSITION AND ORAL COMMUNICATION SKILLS	3	100	100	200
ANATOMY LAB		-	-	-	-
PHYSIOLOGY LAB		-	-	-	-
ORIENTATION TO PHYSIOTHERAPY OPD		-	-	-	-
TOTAL		**-**	**600**	**600**	**1200**

SEMESTER - II

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
2101	HUMAN ANATOMY – II	3	100	100	200
2201	HUMAN ANATOMY - II**(PRACTICAL)**	-	100	100	200
2102	HUMAN PHYSIOLOGY-II	3	100	100	200
2202	HUMAN PHYSIOLOGY- II **(PRACTICAL)**	-	100	100	200
2103	BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS	3	100	100	200
2203	BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS **(PRACTICAL)**	-	100	100	200
2104	GENETICS & MICROBIOLOGY *	3	100	100	200
Visit to Anatomy museum , Physiology lab & microbiology lab		-	-	-	-
*** MARKS DISTRIBUTION**: GENETICS & MICROBIOLOGY: EACH SUBJECT CARRIES 30MARKS		-	-	-	-
TOTAL		**-**	**700**	**700**	**1400**

SEMESTER – III

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
3101	THERAPEUTIC EXERCISE – I	3	100	100	200
3201	THERAPEUTIC EXERCISE - I **(PRACTICAL)**	-	100	100	200
3102	PHRMACOLOGY AND BIOCHEMISTRY *	3	100	100	200
3103	ALTERNATIVE MEDICINE	3	100	100	200
3104	SOCIOLOGY , ENVIRONMENTAL STUDIES, & PSYCHOLOGY	3	100	100	200
VISIT TO EXERCISE THERAPY DEPARTMENT		-	-	-	-
VISIT TO PHRMACOLOGICAL LABORATORY AND BIOCHEMISTRY DEPARTMENT		-	-	-	-
VISIT TO YOGA CENTER		-	-	-	-
*** MARKS DISTRIBUTION**: PHRMACOLOGY AND BIOCHEMISTRY – EACH SUBJECT CARRIES 60 HOURS]		-	-	-	-
TOTAL		**-**	**500**	**500**	**1000**

SEMESTER - IV

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
4101	ORTHOPAEDICS	3	100	100	200
4201	ORTHOPAEDICS **(PRACTICAL)**	-	100	100	200
4102	NEUROSCIENCES AND PSYCHIATRY	3	100	100	200
4202	NEUROSCIENCES **(PRACTICAL)**	-	100	100	200
4103	GENERAL MEDICINE, PEADIATRICS AND COMMUNITY MEDICINE	3	100	100	200
4104	PATHOLOGY	3	100	100	200
TOTAL		**-**	**600**	**600**	**1200**

SEMESTER – V

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
5101	THERAPEUTIC EXERCISE II	3	100	100	200
5201	THERAPEUTIC EXERCISE II **(PRACTICAL)**	-	100	100	200
5102	ELECTROTHERAPY (High Frequency)	3	100	100	200
5202	ELECTROTHERAPY (High Frequency) **(PRACTICAL)**	-	100	100	200
5103	BIOKINESIOLOGY	3	100	100	200
5203	BIOKINESIOLOGY **(PRACTICAL)**	-	100	100	200
5104	GENERAL SURGERYAND OBSTETRICS & GYNAECOLOGY	3	100	100	200
Supervised clinical training in OPD =90 hours		-	-	-	-
TOTAL		**-**	**700**	**700**	**1400**

SEMESTER – VI

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
6101	PHYSICAL AND FUNCTIONAL DIAGNOSIS	3	100	100	200
6201	PHYSICAL AND FUNCTIONAL DIAGNOSIS **(PRACTICAL)**	-	100	100	200
6102	ELECTROTHERAPY (Medium & Low Frequency)	3	100	100	200
6202	ELECTROTHERAPY (Medium & Low Frequency) **(PRACTICAL)**	-	100	100	200
6103	ETHICS-MANAGEMENT AND INTRODUCTION TO RESEARCH METHODOLOGY, BIO-STATISTICS	3	100	100	200
6104	ALLIED HEALTH SCIENCES FOR PHYSIOTHERAPISTS	3	100	100	200
Supervised clinical training in Hospital, wards 180 hours and Visit to Orthotics and Prosthetics lab		-	-	-	-
TOTAL		**-**	**600**	**600**	**1200**

SEMESTER – VII

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
7101	PHYSIOTHERAPY IN WOMENS HEALTH& GERIATRICS	3	100	100	200
7201	PHYSIOTHERAPY IN WOMENS HEALTH & GERIATRICS**(PRACTICAL)**	-	100	100	200
7102	PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS	3	100	100	200
7202	PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS **(PRACTICAL)**	-	100	100	200
7103	SPORTS PHYSIOTHERAPY	3	100	100	200
7203	SPORTS PHYSIOTHERAPY **(PRACTICAL)**	-	100	100	200
7104	PAIN MANAGEMENT	3	100	100	200
7204	PAIN MANAGEMENT **(PRACTICAL)**	-	100	100	200
Project work -1		-	-	-	-
Physiotherapy OPD postings		-	-	-	-
Continuing Physiotherapy Educational Program [CPE]		-	-	-	-
International /National / State Conference.		-	-	-	-
TOTAL		-	**800**	**800**	**1600**

SEMESTER – VIII

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
8101	PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS	3	100	100	200
8201	PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS **(PRACTICAL)**	-	100	100	200
8102	PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS	3	100	100	200
8202	PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS **(PRACTICAL)**	-	100	100	200
8103	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS	3	100	100	200
8203	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS **(PRACTICAL)**	-	100	100	200
8104	REHABILITATION	3	100	100	200
8204	REHABILITATION **(PRACTICAL)**	-	100	100	200
Physiotherapy Opd Posting		-	-	-	-
Continuing Physiotherapy Educational Program [CPE]		-	-	-	-
TOTAL		-	**800**	**800**	**1600**

SYLLABUS FRAMEWORK

SEMESTER	FRAMEWORK
I	• This semester includes, Basic Medical subjects which are essential for Physiotherapy Learning and Practice like Human Anatomy I and Human Physiology I. • This semester includes, General Essential subjects like Biomedical Physics and Basic Elements of Mathematics, English and Communication Skills. These are included to fulfill the general credit requirement for the Profession and to be at par with International Standards.
II	• This semester includes, Basic Medical subjects which are essential for Physiotherapy Learning and Practice like Human anatomy II and Human physiology II. • This semester includes, Basic Physiotherapy subjects like Basics of Therapeutic Exercise and Biomechanics which are essential for Physiotherapy Learning and Practice. • This semester includes, basic Para-clinical subjects which are essential for Physiotherapy Learning and Practice like Genetics and Microbiology.
III	• This semester includes, Physiotherapy subject, Therapeutic Exercise I which is essential for Physiotherapy Learning and Practice. • This semester includes, Basic Para-clinical subjects which are essential for Physiotherapy Learning and Practice like Pharmacology and Biochemistry. • This semester also includes, Alternative Medicine (Acupuncture, Ayurveda, Yoga, Naturopathy, etc). • This semester includes, General Essential subjects like Sociology, Environmental Studies and Psychology. These are included to fulfill the general credit requirement for the Profession and to be at par with International Standards.

IV	• This semester includes, Core Medical subjects which are essential for Physiotherapy Learning and Practice like Orthopaedics, Neurosciences, General Medicine, Pediatric Community Medicine and Pathology.
V	• This semester includes, Core Physiotherapy subjects like Therapeutic Exercise II, Electrotherapy (High Frequency) Bio-Kinesiology which are essential for Physiotherapy Learning and Practice. • This semester includes, Core Medical subjects which are essential for Physiotherapy Learning and Practice like General Surgery and Obstetrics and Gynecology.
VI	• This semester includes, Applied Physiotherapy subjects like Physical and Functional Diagnosis and Allied Health Sciences for Physiotherapists. • This semester includes, Core Physiotherapy subjects like Electrotherapy (Low & Medium Frequency) which is essential for Physiotherapy Learning and Practice. • This semester includes, Ethics Management and Introduction to Research Methodology and Bio-Statistics. These are included to fulfill the general credit requirement for the Profession and to be at par with International Standards.
VII	• This semester includes, Physiotherapy Specialty subjects like Physiotherapy in Women's Health, Sports Physiotherapy and Physiotherapy in Neurological conditions and Pain management.
VIII	• This semester includes Physiotherapy Specialty subjects like Physiotherapy for Orthopedic Conditions, Cardio Vascular and Pulmonary Conditions, Medical and Surgical Conditions and Rehabilitation.

N.**B.:** **From Semester - I to Semester - VIII the stress is imposed over the students to be able to use her cognitive knowledge into practical implication.**

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

SEMESTER - I

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
1101	HUMAN ANATOMY – I	3	90	6	-	-
1201	HUMAN ANATOMY – I **(PRACTICAL)**	3	-	-	60	2
1102	HUMAN PHYSIOLOGY-I	3	90	6	-	-
1202	HUMAN PHYSIOLOGY-I **(PRACTICAL)**	3	-	-	60	2
1103	BIO-MEDICAL PHYSICS AND BASIC ELEMENTS OF MATHEMATICS	5	150	10	-	-
1104	ENGLISH COMPOSITION AND ORAL COMMUNICATION SKILLS	3	90	6	-	-
ANATOMY LAB		3	-	-	60	2
PHYSIOLOGY LAB		2	-	-	30	1
ORIENTATION TO PHYSIOTHERAPY OPD		2	-	-	30	1
TOTAL		**27**	**420**	**28**	**240**	**8**

SCHEME OF EXAMINATION FOR B.PHYSIOTHERAPY:

SEMESTER - I

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
1101	HUMAN ANATOMY – I	3	100	100	200
1201	HUMAN ANATOMY – I **(PRACTICAL)**	-	100	100	200
1102	HUMAN PHYSIOLOGY-I	3	100	100	200
1202	HUMAN PHYSIOLOGY-I **(PRACTICAL)**	-	100	100	200
1103	BIO-MEDICAL PHYSICS AND BASIC ELEMENTS OF MATHEMATICS	3	100	100	200
1104	ENGLISH COMPOSITION AND ORAL COMMUNICATION SKILLS	3	100	100	200
ANATOMY LAB		-	-	-	-
PHYSIOLOGY LAB		-	-	-	-
ORIENTATION TO PHYSIOTHERAPY OPD		-	-	-	-
TOTAL		**-**	**600**	**600**	**1200**

HUMAN ANATOMY – I

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
1101	HUMAN ANATOMY – I	3	90	6	100	100	3
1201	HUMAN ANATOMY – I **(PRACTICAL)**	3	60	2	100	100	-

COURSE OBJECTIVES:

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

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

Identify various microscopic structure of tissues and organs in the human body and co-relate with their functions

COURSE OUTCOMES:

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

1. Identify and describe the structure of Musculo-Skeletal System.
2. Identify bony land marks, muscle contour.
3. Understand the Anatomical basis of various clinical conditions.

TEXT BOOKS & REFERENCE BOOKS: HUMAN ANATOMY - I

1. Gray's Anatomy,38th edition; by Peter L. Williams, Churchill Livingstone
2. Grant's Atlas of Anatomy, Anne MR, Ming J. Lee; 10th Edition.
3. Cunningham's Manual of Practical Anatomy, By G. J. Romans 15th edition, Vol:1,2,3; Oxford Publications
4. Anatomy of Head, Neck and Brain by Vishram Singh, 1st edition Elsevier.
5. Human Anatomy by B.D. Chaurasia, Vol. 1,2,3; 3rd edition; CBS Publications
6. Textbook of Anatomy by Inderbir Singh; 4th edition; Jaypee Publications
7. Handbook of Osteology by Poddar; 11th edition; Scientific Book Company
8. Principles of Anatomy and Physiology by Tortora; 8th edition; Harper & Row Publications
9. Clinical Anatomy for Medical Students by Richard Snell, 6th edition, Lippin Cott, Williams & Wilkins
10. Anatomy of Central Nervous System by Poddar, 7th edition, Scientific Book Company
11. Anatomy & Physiology by Ross & Wilsons, 8th edition, Churchill Livingston

SYLLABUS - HUMAN ANATOMY – I – (150 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage (%)
1	**GENERAL ANATOMY:** fascia, muscles, bones, joints, nerve, vessels.	**10**	8.80
1.1	Definitions and subdivisions.	(2)	
1.2	Planes of Human Body.	(2)	
1.3	System of Human Body.	(2)	
1.4	The cell – the unit of structure and function.	(4)	
2	**GENERAL HISTOLOGY** -Types of Connective tissue.	**13**	11.44
3	**ARTHROLOGY**	**37**	32.56
3.1	Classification of Joints.	(3)	
3.2	Construction of Joints.	(5)	
3.3	Motions of Joints.	(3)	
3.4	Articulations - Articular Surfaces, types of joints, motions of upper and lower extremities. Trunk, Head, Hip.	(26)	
4	**MYOLOGY**	**80**	70.40
4.1	Types of Muscle Tissue. Classification of Muscles.	(8)	
4.2	Muscles of (With Origin, Insertion, Nerve Supply & Action)		
	Upper Extremity	(22)	
	Lower Extremity	(22)	
	Trunk	(9)	
	Eye	(3)	
	Face	(7)	
4.3	Pelvic floor muscles.	(9)	
5	**RADIOLOGY**- Principles of radiography	**10**	8.80
	Identification of gross anatomical features in plain radiographs, Radiographs of a) Upper extremity, b) Lower extremity, c) Abdomen, d) Thorax, e) Head, Face, Neck		
	TOTAL	**150**	

PRACTICAL WORK:.

[A] Dissection:

1. Demonstration of dissection of Upper and Lower Extremities and Trunk Musculature.
2. Identification and Description of: Musculo - Skeletal Structures.

[B] Surface Anatomy

1. Surface Marking of:
   Bony Landmarks and Muscle contour of the Skeletal System.
2. Radiogram reading.

HUMAN PHYSIOLOGY – I

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
1102	HUMAN PHYSIOLOGY - I	3	90	6	100	100	3
1202	HUMAN PHYSIOLOGY – I **(PRACTICAL)**	3	60	2	100	100	-

COURSE OBJECTIVES:

This course which runs concurrently with the anatomy course helps the students to understand the basis of normal functions of various structures with special emphasis to Cardiovascular, Musculoskeletal and Nervous system.

COURSE OUTCOMES:

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

1. Describe the functional classification of Muscle, Nerve and Brain. Regulation of Muscle Tone, Posture, Equilibrium, Co-Ordination, Heart Rate, Blood Pressure, Cardiac Functions.
2. Demonstrate the Skills of Assessment of, Blood pressure, Sensations, Heart rate, Superficial and Deep Reflexes Co-Ordination.
3. Study various functions of Neuromuscular, Nervous and Cardiovascular systems.
4. Study Body Fluid and Electrolyte Imbalance, Temperature Regulation and Blood – Composition and its functions.

TEXT BOOKS & REFERENCE BOOKS: HUMAN PHYSIOLOGY - I

1. Principles of Anatomy & Physiology, Tortora, 8th Edition; Harper & Row Publication
2. Textbook of Medical Physiology by Guyton & Hall, 11th Edition; Elsevier Publication
3. Review of Medical Physiology by Ganong 21st Edition, Mac Graw Hill Publication
4. Concise Medical Physiology by Chaudhari, 4th Edition; New Central Book Agency
5. Human Physiology by Sembulingam, 5th edition; Jaypee Publishers
6. Human Physiology, Chatterjee. Vol: 1&2; 10th Edition; Medical & Allied Agency
7. Essentials of Medical Physiology, Mahapatra, 2nd Edition; Current Book International
8. Practical Physiology by Vijaya Joshi; Vora Medical Publication
9. Samson & Wright's Applied Physiology

SYLLABUS - HUMAN PHYSIOLOGY – I– (150 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage (%)
1	**GENERAL PHYSIOLOGY:** Cell, Blood, Nerve, Muscle.	**8**	7.04
2	**NERVOUS SYSTEM**	**53**	46.64
2.1	Types and properties of receptors, types of sensations and muscle spindle.	(7)	
2.2	Synapse and Synaptic transmission, Reflexes and properties of reflex.	(5)	
2.3	Tracts of Spinal Cord.	(9)	
2.4	Descending Tracts and Ascending Tracts.	(7)	
2.5	Hemi section and complete section of Spinal Cord, Upper and Lower Motor Neuron Paralysis.	(5)	
2.6	Structure, connections and functions of various parts of Brain.	(12)	
2.7	Physiology of Muscle Tone, Posture and Equilibrium and Co-ordination.	(3)	
2.8	Functions of Autonomic Nervous System.	(3)	
2.9	Cerebrospinal Fluid and its circulation.	(2)	
3	**SPECIAL SENSES**	**22**	19.36
3.1	Broad features of Eye, errors of refraction, lesions of Visual pathways.	(7)	
3.2	Mechanism of Hearing and Vestibular apparatus.	(12)	
2.3	Functions of the Skin.	(3)	
4	**BODY FLUID AND ELECTROLYTE BALANCE AND TEMPERATURE REGULATION**	**7**	6.16
5	**BLOOD**	**22**	19.36
5.1	Composition of blood, Plasma, Protein formation and their functions.	(4)	
5.2	Structure, formation and functions of R.B.C.	(3)	
5.3	Structure, formation and function of W.B.C. and Platelets.	(4)	
5.4	Coagulation and its defects of Bleeding, Clotting time.	(4)	
5.5	Blood groups and their significance Rh factor.	(2)	
5.6	Reticular Endothelial System. Structure and functions of Spleen.	(2)	
5.7	Hemoglobin and E.S.R.	(3)	
6	**CARDIO – VASCULAR SYSTEM**	**38**	33.44
6.1	Properties of Heart Muscle and Nerve supply of Heart function of Arteries, Arterioles, Capillaries and Veins.	(6)	
6.2	Cardiac Cycle and Heart Sounds.	(6)	
6.3	Factors affecting Cardiac Output and its measurement.	(6)	
6.4	Heart Rate and its regulation, Cardio Vascular Reflexes.	(6)	
6.5	Blood pressure, its regulation and Physiological variations, Changes during muscular exercise, Peripheral resistance, factors controlling Blood Pressure	(8)	
6.6	Basics of ECG.	(6)	
	TOTAL	**150**	

PRACTICAL WORK:

1. Haemoglobinometer and Total R.B.C. Count, calculation of blood indices.
2. Total W.B.C. Count.
3. Preparation and staining of Blood smears, determination of differential W.B.C. Count.
4. Blood Grouping.
5. Erythrocyte Sedimentation Rate (ESR).
6. Bleeding and clotting time.
7. Electrocardiogram(ECG)
8. Superficial and Deep Tendon Reflexes
9. Refractive Errors
10. Incentive Spirometer
11. PFT
12. Physical Fitness- Cardiac efficiency test like Harvard Step Test, Breath holding.
13. Blood pressure- effect of change in posture and exercise.

BIO-MEDICAL PHYSICS AND BASIC ELEMENTS OF MATHEMATICS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
1103	BIO-MEDICAL PHYSICS AND BASIC ELEMENTS OF MATHEMATICS.	5	150	10	100	100	3

COURSE OBJECTIVES:

In this course the students will learn the principles of BIOMEDICAL physics and its application in various electrical modalities used in Electrotherapy. Also includes physics related to Biomedical/ Electrotherapeutic Equipments, Biomechanics and Exercises, Also student learns to apply Mathematics, which are basically essential for Physiotherapists.

COURSE OUTCOMES:

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

1. Describe all the Physical Agents and their use in Electrotherapy modalities.
2. Demonstrate the mechanics related to human body functions.
3. Orientation to the Electrotherapeutic equipments & their production & functions.
4. Apply Mathematics in Clinical Practice and Research.

TEXT BOOKS & REFERENCE BOOKS: BIO-MEDICAL PHYSICS

1. Clayton's Electrotherapy by Forster & Palanstanga- 8th Edition; Jaypee Publications
2. Electrotherapy Explained by Low & Reed; 4th Edition, Butterworth & Lewis Publication.
3. Basis of Electrotherapy- Subhash Khatri 1st Edition. Jaypee Brothers.
4. Electrotherapy for Physiotherapists by Virendra Kr.Khokhar: Bharat Bharti Prakashan & Co.
5. Electrotherapy Simplified by Basanta kumar Nanda; Jaypee Publishers.

TEXT BOOKS & REFERENCE BOOKS: BASIC ELEMENTS OF MATHEMATICS

1. Barron's G.R.E. – Golgottia Publications, 2009 edition
2. Kaplan's G.R.E. Preparation Guide

SYLLABUS – BIO-MEDICAL PHYSICS – (90 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**GENERAL PHYSICS**	**12**	13.33
1.1	Mechanics - Principles of work, Definition, Mechanical Advantage, Levers, Pulley and Springs.	(3)	
1.2	Fluid mechanics - Principle of Archimedes, Law of Floatation, Hydrostatic Pressure, Surface Tension, Buoyancy Flow and Turbulent Flow, Physical properties of Water.	(3)	
1.3	Friction - Static and Dynamic Friction	(2)	
1.4	Analysis of forces - Gravity, COG, LOG, BOS, Reaction Forces, Newton's Law of Reaction, Equilibrium, Newton's Law of Inertia, Objects in Motion, Newton's Law of Acceleration.	(3)	
1.5	Elasticity.	(1)	
2	**HEAT**	**12**	13.33
2.1	Physical properties of Heat	(3)	
2.2	Physiological transmission of Heat	(3)	
2.3	Radiant Energy	(3)	
2.4	Laws governing Radiation, Joule's Law of Heat production,	(2)	
2.5	Superficial Heating Agents	(1)	
3	**SOUND**	**12**	13.33
3.1	Physics of Sound	(3)	
3.2	Resonance and Velocity of Sound	(3)	
3.3	Ultrasonic-Production and Application	(3)	
3.4	Recording and Reproduction of Sound	(3)	
4	**LIGHT**	**12**	13.33
4.1	Physical properties of Light	(3)	
4.2	Electromagnetic Spectrum	(3)	
4.3	LASER and its Application	(3)	
4.4	Fiber Optics	(3)	
5	**ELECTRICITY**	**11**	12.22
5.1	Static Electricity, PD and EMF, current electricity, units of electricity, Farad, Volt, Ampere, Coulomb, Watt, Resistance - Ohm's law, transmission of Electrical Energy through Solids, Liquids, Gases and Vacuum.	(6)	
5.2	Types of currents- DC, AC, Modified currents, wiring of Houses, Switches, Earth Leakage Circuit Breaker, Fuse, Electric Shock	(5)	
6	**MAGNETISM**	**11**	12.22
6.1	Properties of Magnets, Electromagnetic Induction, Magnetic effect of an Electric Field	(5)	
6.2	Moving coil Milli Ammeter, Voltmeter, Effects of Magnetic Field over Human Body.	(6)	
7	**ELECTRONICS**	**11**	12.23

7.1	Transformers, Choke Coil	(2)	
7.2	Electric and Thermionic Valves	(3)	
7.3	Semiconductors	(3)	
7.4	Metal Valve Rectifier, Rectification of AC Currents	(2)	
7.5	Transistor, Amplifier, Condensers.	(1)	
8	**MODERN PHYSICS**	**9**	
8.1	Production and properties of IRR and SWD	(3)	
8.2	Principles of High Frequency Currents	(1)	10.00
8.3	Direct current for the treatment of patients	(3)	
8.4	Production of Modified Direct Current, Faradic and Sinusoidal Apparatus	(2)	
	TOTAL	**90**	

SYLLABUS – BASIC ELEMENTS OF MATHEMATICS – (60 hrs.)

Sr. No	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	**INTRODUCTION TO GENERAL MATHEMATICS.**	**20**	12.33
	Integers, Odd, Even, Prime, Natural, Whole Numbers	(1)	
	Fractions –Multiply, Dividing, Adding, Subtractions of Fractions, converting mixed no. into Fractions.	(3)	
	Decimals – Adding, Subtracting, Multiplying, Dividing, Converting Decimal to Percentage.	(3)	
	Exponents- Multiplication with Exponents, Division with Exponents. Associative and Distributive Laws.	(1)	
	Data Interpretation -Line Graphs -Bar Graphs -Circle Graphs	(3)	
	Binary System and Septal System.	(1)	
	Brief introduction to Calculus Trigonometry.	(5)	
	Most commonly used formulas and Laws used in Mathematics.	(3)	
2.	**ARITHMETIC AND ALGEBRA.**	**13**	8.01
	Basic Arithmetic concepts	(1)	
	Fractions and Decimals	(1)	
	Percents	(1)	
	Ratios and Proportions	(1)	
	Averages	(2)	
	Median, Mode, Ranges	(1)	
	Standard Deviations	(2)	
	Factorials	(1)	
	Permutations and Combinations	(2)	
	Polynomials	(1)	
3.	**GEOMETRY**	**20**	12.33
	Degrees, Lines, and Angles. Vertical Angles and Parallel Lines	(3)	
	Triangles—Equilaterals, Isosceles, Right Triangles, Angle-Side relationships in Triangles, Perimeter of Triangle, Area of the Triangle, Impossible Triangles, Pythagoras Triangle, Special Triangles	(5)	
	Quadrilaterals and other Polygons Polygons, Quadrilateral, Rectangle, Square, Pentagons, Hexagons, Octagons, Decagons, Trapezium, Parallelogram Areas Perimeters	(7)	
	Circles, Radius, Diameters, Circumference of Circle, Area of Circle	(1)	
	Solid Geometry	(1)	
	Co-Ordinate Geometry	(3)	
4.	**COUNTING AND PROBABILITY**	**7**	4.31
	Counting Principles	(1)	
	Venn Diagrams	(3)	
	Probability-Laws of Probability	(3)	
	TOTAL	**60**	

ENGLISH COMPOSITION AND ORAL COMMUNICATION SKILLS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
1104	ENGLISH COMPOSITION AND ORAL COMMUNICATION SKILLS	3	90	6	100	100	3

COURSE OBJECTIVES:

In this course the student will learn knowledge of prefixes and suffixes, Medical Terminology and the specialized vocabulary of the subjects in Physiotherapy and Development of study skills needed for working and organizing thoughts in English.

English Composition will develop students' abilities to think, organize and express their ideas clearly and effectively in writing. This will incorporates reading, research and critical thinking. Emphasis is placed on the various forms of expository writing such as process, description, narration, comparison analysis, persuasion and argumentation. A research paper is required. Numerous in-class writing activities are required in addition to extended essays written outside of class. Upon successful completion of this the student will be expected to:

1. Understand communication theory and the roles audiences play in the writing process.
2. Apply critical reading and thinking skills to the writing process.
3. Demonstrate an awareness of language as a tool for learning and communication.
4. Develop strategies for making independent, critical evaluations of student and published texts.
5. Research and critically evaluate information to produce writing with MLA formal documentation, which consists of in-text citations and final list of all sources cited.
6. Apply strategies for the composition process such as drafting, collaboration, revision and peer evaluation to produce written documents.
7. Write well-organized essays with a firm thesis and a clear introduction, body and conclusion.
8. Engage in pre-writing activities, including narrowing a topic, generating ideas, determining the audience and the relationship between audience and content and setting an appropriate tone.
9. Demonstrate an understanding of the various rhetorical modes, including argumentation and analysis and apply that understanding in various writing environments, including an essay test.
10. Support a thesis statement with valid reasons and evidence.
11. Follow the conventions of standard written English in sentence structure, punctuation, grammar and usage and spelling.
12. Recognize and develop styles appropriate to varied writing situations.
13. Equip the students to comprehend lectures, text-books and reference materials on subjects in Physiotherapy.
14. Equip the students with the knowledge of prefixes and suffixes, which can be used as combining forms in compounded words in Medical Terminology.
15. Equip the students with the knowledge of medical terminology and the specialized vocabulary of the subjects in Physiotherapy.

16. Equip the students with the knowledge of the terms used in reporting their observations of the symptoms and reactions of patterns.
17. Help the development of study skills needed for working and organizing thoughts in English.
18. Help the students to focus on the issues in conversation and documentation and to express themselves in precise terms.
19. Widen the student's horizons through an exposure to imaginative literature.
20. Write and express ideas in routine academic, social and professional contexts.

TEXT BOOKS & REFERENCE BOOKS: ENGLISH COMPOSITION AND ORAL COMMUNICATION SKILLS

1. Grammar and Composition by Wren and Martin. S.Chand Publications, regular and multicolor publication
2. Spoken English by - Sashi kumar and Dhannija.
3. Encyclopedia of English Grammar & Composition, Dr. Kavita Khurana.
4. Better English, revised edition, Norman Lewis.
5. Contemporary English Grammar, JD Murthy, 12th edition, 2010.
6. Comprehensive High School English Grammar & Composition, H.S. Bhatia, 26th edition, 2010.
7. My Blue Book of Grammar, JD Joseph, 5th edition, Sheth Publication, 2008.
8. Letter for all Occasions, Anand Ganguly, Goodwill's Publishing House

SYLLABUS-

ENGLISH COMPOSITION AND ORAL COMMUNICATION SKILLS–(**90 hrs.)**

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Sentence	**5**	7.33
2	Parts of Speech	**5**	7.33
3	Articles	**5**	7.33
4	Voice- Active, Passive	**5**	7.33
5	Prefixes and Suffixes	**5**	7.33
6	Idioms and Phrases, Quotations	**5**	7.33
7	Synonyms –Antonyms, Paronyms, Homonyms	**10**	14.66
8	Precise Writing	**7**	10.26
9	Group Discussion/Public Speech	**7**	10.26
10	Report Writing	**6**	8.80
11	Letter Writing-Medical and General	**5**	7.33
12	Development of Speaking Skills	**5**	7.33
13	**ENGLISH COMPOSITION:** Topical areas of study will include: Reading and thinking critically, Following conventions of standard written English, Generating ideas, Invention, drafting, revising and editing, Identifying an audience, Gathering, evaluating and using sources, Writing essay exams, Conducing library and other research methods, Developing a thesis, Paraphrasing, summarizing and quoting, Organizing an essay, Documenting sources, Developing style, Using rhetorical modes including exposition, argumentation and analysis, Avoiding plagiarism	**20**	29.33
	TOTAL	**90**	

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

SEMESTER - II

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
2101	HUMAN ANATOMY – II	3	90	6	-	-
2201	HUMAN ANATOMY - II**(PRACTICAL)**	4	-	-	90	3
2102	HUMAN PHYSIOLOGY-II	3	90	6	-	-
2202	HUMAN PHYSIOLOGY- II **(PRACTICAL)**	4	-	-	90	3
2103	BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS	3	90	6	-	-
2203	BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS **(PRACTICAL)**	4	-	-	90	3
2104	GENETICS & MICROBIOLOGY *	3	90	6	-	-
Visit to Anatomy museum , Physiology lab & microbiology lab		2	-	-	30	1
*** MARKS DISTRIBUTION**: GENETICS & MICROBIOLOGY: EACH SUBJECT CARRIES 30MARKS		-	-	-	-	-
TOTAL		**26**	**360**	**24**	**300**	**10**

SCHEME OF EXAMINATION FOR B.PHYSIOTHERAPY:

SEMESTER - II

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
2101	HUMAN ANATOMY – II	3	100	100	200
2201	HUMAN ANATOMY - II**(PRACTICAL)**	-	100	100	200
2102	HUMAN PHYSIOLOGY-II	3	100	100	200
2202	HUMAN PHYSIOLOGY- II **(PRACTICAL)**	-	100	100	200
2103	BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS	3	100	100	200
2203	BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS **(PRACTICAL)**	-	100	100	200
2104	GENETICS & MICROBIOLOGY *	3	100	100	200
Visit to Anatomy museum , Physiology lab & microbiology lab		-	-	-	-
*** MARKS DISTRIBUTION**: GENETICS & MICROBIOLOGY: EACH SUBJECT CARRIES 30MARKS		-	-	-	-
TOTAL		**-**	**700**	**700**	**1400**

HUMAN ANATOMY – II

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
2101	HUMAN ANATOMY – II	3	90	6	100	100	3
2201	HUMAN ANATOMY – II **(PRACTICAL)**	4	90	3	100	100	-

COURSE OBJECTIVES:

The study of Human Anatomy will include identification of all gross Anatomical Structures. Particular emphasis will be placed on description of Bones, Joints, Muscles, Nervous System and Cardio-Pulmonary Systems.

In addition student must observe dissections of Human Body to identify various organs and structures.

COURSE OUTCOMES:

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

1. Identify and describe the structure of Central and Peripheral Nervous System.
2. Identify and describe briefly the Cardio Vascular and Respiratory System, Reproductive System, Endocrine System, Digestive System.
3. Identify bony land marks, muscle contour and major visceral organs.

TEXT BOOKS & REFERENCE BOOKS: HUMAN ANATOMY – II

1. Human Anatomy by B.D. Chaurasia, Vol. 1,2,3; 3rd edition; CBS publications
2. Textbook of Anatomy by Inderbir Singh; 4th edition; Jaypee Publications
3. Handbook of Osteology by Poddar; 11th edition; Scientific Book Company
4. Principles of Anatomy and Physiology by Tortora; 8th edition; Harper & Row Publications
5. Cunningham's Manual of Practical Anatomy; 15th edition, Vol:1,2,3; Oxford Publications By G. J. Romans
6. Clinical Anatomy for Medical Students by Richard Snell, 6th edition, Lippin Cott, Williams & Wilkins
7. Anatomy of Central Nervous System by Poddar, 7th edition, Scientific Book Company
8. Anatomy & Physiology by Ross & Wilsons, 8th edition, Churchill Livingston
9. Anatomy of Head, Neck and Brain by Vishram Singh, 1st edition Elsevier.
10. Gray's Anatomy, 38th edition; Churchill Livingstone by peter Williams

SYLLABUS - HUMAN ANATOMY – II– (180 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**HISTOLOGY**	**15**	11.00
	Cell, tissues of the body Epithelium, Connective Tissue, Cartilage, Bone, Blood, Lymph, Muscles, Nerves, Vessels.		
2	**GENERAL EMBRYOLOGY: (Gross anatomy)**	**5**	3.66
	Ovum, Spermatozoa, Fertilization, differentiation, development of Musculoskeletal System, Central Nervous System.		
3	**OSTEOLOGY**	**30**	22.00
3.1	Terminology - Anatomical position, surface relationship of parts of the body, proximal, distal etc.	(8)	
3.2	Bones: Type of bones, formation, function, growth and repair, structure of long Bone, Vertebral Column, types of Vertebrae, Bones of Extremities and Bony Landmarks.	(22)	
4	**CARDIOVASCULAR SYSTEM**	**20**	14.66
4.1	Blood, lymph, tissue fluid – Characteristics, Composition, Function.		
4.2	The heart, main Arteries, Veins, Capillaries.		
4.3	Lymphatic Circulation.		
5	**RESPIRATORY SYSTEM:**	**20**	14.66
5.1	Anatomy of Respiratory Organs Air Passages, Lungs, Bronchial Tree.		
5.2	Relation with Diaphragm and Thoracic Cage.		
6	**DIGESTIVE SYSTEM:**	**10**	7.33
6.1	Anatomy of Digestive Organs – Oesophagus, Stomach, Intestine, Rectum.		
6.2	The Digestive Glands.		
7	**NERVOUS SYSTEM:**	**25**	18.33
7.1	Nerve tissue – Neuron, Nerve Fibers, Synapse, End-Organs.		
7.2	Spinal Cord, Brain – their structures, divisions.		
7.3	Peripheral and cranial nerves and their distribution, special emphasis on nerve supply to voluntary muscles, segmental distribution. 5^{th} and 7^{th} Cranial Nerves in details.		
7.4	Sensory Organs / Receptors.		
7.5	Autonomic Nervous System – Sympathetic, Parasympathetic (Gross anatomy.)		
8	**URINARY SYSTEM: (Gross Anatomy)**	**10**	7.33
	Anatomy of Urinary Organs – Kidneys, Ureter, Urinary Bladder.		
9	**ENDOCRINE SYSTEM**	**15**	11.00
	Gross anatomy of Glands.		
10	**REPRODUCTIVE SYSTEM**	**15**	11.00
	Reproductive system – Male and Female Reproductive Organs.		
11	**SPECIAL SENSORY ORGANS AND SENSATIONS**	**15**	11.00
	Emphasis on Skin, Ear and Eyes. Smell and Taste (in brief)		
	TOTAL	**180**	

PRACTICAL WORK:

1. Identification and description of:
   a) Central Nervous System and Peripheral Nervous System.
   b) Major Visceral Organs.
2. Surface Marking of:
   Bony Landmarks and Muscle Contour of the Skeletal System.
   & Thoracic and Abdominal Viscera.
3. Radiogram reading.

HUMAN PHYSIOLOGY – II

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
2102	HUMAN PHYSIOLOGY - II	3	90	6	100	100	3
2202	HUMAN PHYSIOLOGY – II **(PRACTICAL)**	4	90	3	100	100	-

COURSE OBJECTIVES :

This course which runs concurrently with the anatomy course helps the students to understand the basis of normal human functions of various structures with special emphasis to Respiratory, Digestive, Endocrine, Reproductive and Excretory Systems.

COURSE OUTCOMES :

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

1. Demonstrate the skills of Assessment of Breath Sounds, Respiratory Rate and Pulmonary Function Tests.
2. Study the various functions of Digestive, Respiratory, Reproductive, Endocrine And Excretory System.
3. Study the importance of Nutrition.
4. Analyse physiological response and adaptation to environmental stresses-with special emphasis on physical activity, altitude and temperature.

TEXT BOOKS & REFERENCE BOOKS: HUMAN PHYSIOLOGY – II

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

SYLLABUS - HUMAN PHYSIOLOGY – II– (180 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
2	**NEURO – MUSCULAR PHYSIOLOGY**	**30**	22.00
2.1	Structure and function of Muscle and Nerve cells	(3)	
2.2	Classification of Muscle and Nerve fibers.	(4)	
2.3	Cell membranes, ionic transport and action potential and its propagation, factors affecting Muscle Tension.	(4)	
2.4	Neuromuscular Transmission, Motor Units, Synapse, Reflex Physiology.	(8)	
2.5	Degeneration and Regeneration of nerve fibers, Reaction of Degeneration, Muscle contraction mechanics.	(8)	
2.6	Muscle fatigue, Clonus, Tetanus.	(3)	
1	**RESPIRATORY SYSTEM:**	**35**	25.66
1.1	Mechanism of Respiration	(6)	
1.2	Intra-pleural and Intra Pulmonary Pressure.	(6)	
1.3	Lung Volumes and Capacities, Pulmonary Function Test.	(6)	
1.4	0_2 and CO_2 carriage and their exchange in tissues and lungs.	(6)	
1.5	Nervous and chemical regulation of respiration – Respiratory Centers.	(6)	
1.6	Respiratory status – Anoxia, Asphyxia, Cyanosis, Acclimatization.	(5)	
2	**DIGESTIVE SYSTEM**	**15**	11.00
2.1	General introduction.	(3)	
2.2	Composition, function and regulation Of Salivary, Gastric, Pancreatic, Intestinal and Biliary Secretion.	(6)	
2.3	Movements of Gastrointestinal Tract.	(6)	
3	**NUTRITION (In brief)**	**20**	14.66
3.1	Digestion, absorption and Metabolism of Carbohydrates	(4)	
3.2	Digestion, absorption and Metabolism of Fats	(4)	
3.3	Digestion, absorption and Metabolism of Proteins	(4)	
3.4	Sources, functions and resources of Vitamins and Minerals.	(4)	
3.5	Balanced Diet in different age groups and occupation.	(4)	
4	**ENDOCRINE SYSTEM:**	**30**	22.00
	Physiological functions in brief of the following:		
4.1	Anterior Pituitary.	(5)	
4.2	Post Pituitary and Parathyroid.	(5)	
4.3	Thyroid.	(5)	
4.4	Adrenal Medulla. Thymus.	(5)	
4.5	Adrenal Cortex.	(5)	
4.6	Pancreas and Blood Sugar Regulation.	(5)	

5	**REPRODUCTIVE SYSTEM**	**30**	22.00
5.1	Puberty.	(7)	
5.2	Male Sex Hormones and their Functions, Spermatogenesis.	(7)	
5.3	Female Sex Hormones and Functions, Menstrual Cycle, Ovulation and Climacteric and Menopause	(8)	
5.4	Pregnancy, Functions of Placenta and Lactation.	(8)	
6	**EXCRETORY SYSTEM:**	**20**	14.66
6.1	Functions of Kidney and Renal Circulation.	(5)	
6.2	Mechanism of formation of urine,	(5)	
6.3	Physiology of Micturation.	(5)	
6.4	Renal Function Test.	(5)	
	TOTAL	**180**	

PRACTICAL WORK:

Demonstration and practice

1. Artificial Respiration.
2. Pulmonary Function Tests.
3. Breath Sounds, Respiratory Rate and Chest Expansion.
4. Blood pressure and Pulse Rate.
5. Anthropometry.
6. Diet Charting.

BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
2103	BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS	3	90	6	100	100	3
2203	BASICS OF THERAPEUTIC EXERCISE AND BIOMECHANICS **(PRACTICAL)**	4	90	3	100	100	-

BASICS OF THERAPEUTIC EXERCISE

COURSE OBJECTIVES:

In this course the student will learn the application of Principles of Physics to Human Movement and simple skills of assessment of skeletal joint movement.

COURSE OUTCOMES:

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

1. Describe body levers and various physical principles and its applications to body movement.
2. Identify and describe the various exercise equipment and its uses in exercise therapy practice.
3. Demonstrate the different Techniques on models and describe their effects.
4. Perform and to be master of different Massage Techniques over models and described their uses, effects and applications.
5. Acquire the skill of assessment of ROM of joints by goniometry
6. Describe and acquire the skill of use of various tools of the therapeutic gymnasium.

TEXT BOOKS & REFERENCE BOOKS: BASICS OF THERAPEUTIC EXERCISE

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

SYLLABUS - BASICS OF THERAPEUTIC EXERCISE– (90 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage (%)
1	**INTRODUCTION**	**12**	13.33
1.1	Introduction to Exercise Therapy	(4)	
1.2	Physiological and Psychological Effects of Exercise	(8)	
2	**BIOMECHANICS**	**21**	23.33
2.1	Axes, Planes, Body Levers, Equilibrium, endular movements and Physics of Hydrotherapy	(8)	
2.2	Fundamentals of Starting and Derived Positions, muscle work to maintain particular position	(13)	
3	**JOINT MOBILITY**	**21**	23.33
3.1	Causes of Restriction of ROM – Distinguish between Skin, Muscles, Capsular Contracture	(21)	
4	**THERAPEUTIC GYMNESIUM**	**21**	23.33
4.1	Walking Aids – Introduction to Crutches, Walkers, Tripods, Canes, Parallel Bars, and Wheel Chairs.	(8)	
4.2	Use of apparatus in Exercise Therapy	(4)	
4.3	Therapeutic gymnasium-Apparatus small, soft and large like Balls, Bands, Edges, Rolls, Putty's, Trampoline, Foam Roller, Slide Boards, Peanut Ball, Balance Equipments, Flex bar, Latex Bar, Finger Exerciser, Pilates Equipment, Theraband and Tubes etc	(9)	
5	POSTURE- Definition, Types, Normal Posture (including Pediatrics), factors influencing Posture -Brief introduction to Gait	**15**	16.68
	PRACTICALS - Axes, planes, body levers, equilibrium, friction, pendular movements, physics of hydrotherapy. - Goniometry. - Walking aids- crutches, walkers, tripods, canes, parallel bars, wheel chairs. - Use of apparatus in exercise therapy. - Therapeutic gymnasium- apparatus small, soft and large like balls, Physio balls, bands, edges, rolls, putty's, trampoline, foam roller, slide boards, peanut ball, balance equipments, flex bar, latex bar, finger exerciser, pilates equipment, Theraband, tubes, etc. - Normal posture. - Introduction to gait, to practice starting and derived positions.		
	TOTAL	**90**	

BASICS OF BIOMECHANICS

COURSE OBJECTIVES:

This course mainly focuses on mechanical principles of body analysis, therapeutic applications, and learning skills.

COURSE OUTCOMES:

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

1. Analyze musculoskeletal movement in terms of Biomechanics and will be able to apply such Biomechanical Principles to evaluation methods & treatment modes.
2. Study basic concepts of Stability, Motion and Force.
3. Study Joint Mechanics and Mechanics of Muscular Action.
4. This course mainly focuses on mechanical principles of Physiotherapeutic and learning skills in the same aspect.

TEXT BOOKS & REFERENCE BOOKS: BIO MECHANICS

1. Joint structure and function- Cynthia Norkins, 4th Edition, Jaypee Publication
2. Clinical Kinesiology – Brunnstrom, 5th Edition, Jaypee Publication
3. Kinesiology by K Wells, 6th Edition; Saunders Publication
4. Clinical Kinesiology for Physiotherapy Assistant by Lippert, 3rd Edition
5. Bio-Mechanics of Musculoskeletal System by Nigg, 2nd Edition, John Wiley Publication
6. Basic Bio-mechanics of Musculoskeletal System by Frenkle, 3rd edition, Lippincott Williams & Wilkins
7. Kinesiology 2nd edition by Carol A.Oatis Lippincott Williams & Wilkins
8. Basic Biomechanics by Susan J Hall 5th edition

SYLLABUS –BASICS OF BIOMECHANICS– (90 hrs.)

Sr. No	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Introduction to Biomechanics Kinetic and Kinematic concepts for analyzing human motion – basic concepts of COG, Planes and Axis of Motion, Forms and Description of Motion, Force, Gravity, Vectors, Inertia, Mass, Density, Weight, Torque, Pressure, Work, Power, Energy, Endurance.	**5**	5.55
2	Mechanical loads on Human Body, Effects of loading Biomechanics of Growth and Development-composition and structure of Bone Tissues, Bone Growth and Development, Bone Response to Stress, Osteoporosis. Biomechanical Principles-Mechanical Properties of Materials, Bones, Skeletal Muscles, Cartilage, Tendon, Ligaments, Joints.	**7**	7.78
3	**BASIC CONCEPTS**	**5**	5.55
	Centre of Gravity, Planes and Axes of Motion (Mechanical & Anatomical).	(5)	
4	**PRINCIPLES OF STABILITY**	**15**	16.67
	Base of Support, Height of Centre of Gravity, Line of Gravity.	(5)	
	Mass of body, Impact of Forces, Friction.	(5)	
	Segmentation, Visual Factors, Psychological Factors, Physiological Factors.	(5)	
5	**PRINCIPLES OF MOTION**	**12**	13.33
	Cause of Motion, kinds of Motion, Motions experienced by body	(6)	
	Laws of Motion, Centripetal and Centrifugal forces	(6)	
6	**MECHANICS OF JOINT MOTION**	**6**	6.67
	Structure of Joint, Types of Joint, Types of Movement	(6)	
7	**MECHANICS OF MUSCULAR ACTION**	**10**	11.11
	Classification of Muscles, Line of Pull	(5)	
	Types of Contractions, Role of Muscles, Tendon Action of two Joint Motion	(5)	
8	**MUSCULO-SKELETAL MECHANICS**	**6**	6.67
	Anatomical Levers & pulleys , Anatomical Wheel and Axle,	(6)	
9	**FORCE AND WORK**	**14**	15.56
	Magnitude of force, Point of Application, Direction of Force and Resistance Arm of Lever, Perpendicular Distance	(4)	
	Composite effect of two or more forces methods of determining the components of Force and Work	(4)	
	Movements of body as a whole, movements of segments of the body in Air, Water and Surface	(6)	
10	**SKILLED MOVEMENTS**	**10**	11.11
	Cycling, Running, Ballistic Movements, Volitional Movements	(10)	
	PRACTICALS - Kinetics, kinematics, COG, planes and axis of motion, force, gravity, vectors, inertia, mass, density, weight, torque, pressure, friction, work, power, energy, endurance. - Structure of bone tissues, osteoporosis. - Segmentation. - Laws of		

	motion, centripetal and centrifugal forces. - Structure of joint, types of joint, types of movement. - Classification of muscles, line of pull. - Tendon action of two joint motions. - Anatomical levers, anatomical wheel and axle, anatomical pulley. - Demonstration- rope climbing, cycling, running, ballistic movements, volitional movements.		
	TOTAL	**90**	

GENETICS AND MICROBIOLOGY

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
2104	GENETICS AND MICROBIOLOGY	3	90	6	100	100	3

GENETICS

COURSE OBJECTIVES:

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

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

COURSE OUTCOMES:

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

TEXT BOOKS & REFERENCE BOOKS: GENETICS

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

SYLLABUS - : GENETICS – (45 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Embryology and Development of Musculoskeletal System	**6**	9.86
2.	Embryology and Development of Nervous System	**6**	9.86
3.	Embryology and Development of Cardiovascular System	**6**	9.86
4	**MULTIPLE ALLELES AND GENES** i) Inheritance of ABO Blood groups in Man. ii) Rh factor and Erythroblastosis foetalis in Man. iii) Multiple genes-Skin Pigmentation in Man.	**6**	9.86
5	**SEX DETERMINATION AND SEX LINKED INHERITANCE**	**8**	13.10
	A) Sex determination i) Autosomes and Allosomes (sex chromosomes) ii) Chromosomal methods of Sex Determination – XO, XY (Man), ZZ, ZW. iii) Bridge's ratio theory of Genic Balance.	(4)	
	B) Sex linked inheritance i) Sex linked inheritance in man – Colorblindness, Hemophilia, Hypertrichosis and Baldness.	(4)	
6	**MUTATION -** Gene Mutations – Sickle Cell Anemia	**4**	6.57
7	**HUMAN GENETICS -** i) Syndromes – Turner's, Klinefelter's, Down's and Cat – Cry. ii) In Born errors of metabolism –Phenylketonuria (PKU), Alkaptonuria and Albinism. iii) Human Pedigree Analysis with symbols used.	**5**	8.22
8	**Human genome project, Genetics and health, Bio informatics**	**4**	6.57
	TOTAL	**45**	

MICROBIOLOGY

COURSE OBJECTIVES:

This course follows the Basics of Microbiology of Common diseases.

COURSE OUTCOMES:

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

1. Demonstrate an Understanding of the Microbiology of common diseases that Therapist would encounter in their daily practice.
2. Understand how to protect themselves and the patients from Nasocomial infections during their interactions.

TEXT BOOKS & REFERENCE BOOKS: MICROBIOLOGY

1. Textbook of Microbiology by Anantnarayan. 4th Edition. Orient Longman
2. Medical Microbiology by Irving. 1st Edition. Taylor and Francis.
3. Text Book of Microbiology by Chakroborty. 2nd edition. New central books.
4. Textbook of Microbiology by Arora. 2nd Edition. CBS Publications.
5. Short Text Book of Medical Microbiology by – Satish Gupta. Jaypee Publication
6. Pharmacology & Pharmaco-Therapeutics by Satoskar Bhandar 19th Edition. Popular.
7. Essentials of Medical Pharmacology- Tripathi 4th Edition. Jaypee Publications
8. Pharmacology for Physiotherapists: Barbara Elsevier Publications.

SYLLABUS – MICROBIOLOGY– (45 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	General Microbiology a) Introduction b) Classification of Micro-Organisms c) Morphology of Bacteria d) Sterilization and Disinfection e) Immunity – Antigen and Antibodies, General overview of antigen – antibody reaction and practical application, Natural & Acquired Immunity.	**20**	32.88
2.	a) Classification Morphology and Physiology of Micro-organisms. Bacteria, Viruses, HIV Protozoa, Spirochetes, Helminthes and Fungi Pathogenesis and Laboratory Diagnosis. b) Disinfection and Sterilization Hospital Infection c) Immunology: Antigen Antibody reaction, Hypersensitivity reaction and Auto – Immune D d) Immune – Prophylaxis e) Hepatitis	**25**	41.11
	PRACTICALS – Visit to Microbiology Laboratory.		
	TOTAL	**45**	

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

SEMESTER – III

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
3101	THERAPEUTIC EXERCISE – I	3	90	6	-	-
3201	THERAPEUTIC EXERCISE - I **(PRACTICAL)**	4	-	-	90	3
3102	PHRMACOLOGY AND BIOCHEMISTRY *	4	120	8	-	-
3103	ALTERNATIVE MEDICINE	2	60	2	-	-
3104	SOCIOLOGY , ENVIRONMENTAL STUDIES, & PSYCHOLOGY	4	120	8	-	-
VISIT TO EXERCISE THERAPY DEPARTMENT		4	-	-	90	3
VISIT TO PHRMACOLOGICAL LABORATORY AND BIOCHEMISTRY DEPARTMENT		3	-	-	60	2
VISIT TO YOGA CENTER		3	-	-	30	1
*** MARKS DISTRIBUTION**: PHRMACOLOGY AND BIOCHEMISTRY – EACH SUBJECT CARRIES 60 HOURS]		-	-	-	-	-
TOTAL		**27**	**390**	**24**	**270**	**9**

SCHEME OF EXAMINATION FOR B.PHYSIOTHERAPY:

SEMESTER – III

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
3101	THERAPEUTIC EXERCISE – I	3	100	100	200
3201	THERAPEUTIC EXERCISE - I **(PRACTICAL)**	-	100	100	200
3102	PHRMACOLOGY AND BIOCHEMISTRY *	3	100	100	200
3103	ALTERNATIVE MEDICINE	3	100	100	200
3104	SOCIOLOGY , ENVIRONMENTAL STUDIES, & PSYCHOLOGY	3	100	100	200
VISIT TO EXERCISE THERAPY DEPARTMENT		-	-	-	-
VISIT TO PHRMACOLOGICAL LABORATORY AND BIOCHEMISTRY DEPARTMENT		-	-	-	-
VISIT TO YOGA CENTER		-	-	-	-
*** MARKS DISTRIBUTION**: PHRMACOLOGY AND BIOCHEMISTRY – EACH SUBJECT CARRIES 60 HOURS]		-	-	-	-
TOTAL		-	**500**	**500**	**1000**

THERAPEUTIC EXERCISE – I

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
3101	THERAPEUTIC EXERCISE – I	3	90	6	100	100	3
3201	THERAPEUTIC EXERCISE - I **(PRACTICAL)**	4	90	3	100	100	-

COURSE OBJECTIVES:

This course mainly focuses on mechanical Principles of Physiotherapeutic and learning skills in the same aspect.

COURSE OUTCOMES:

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

1. Analyze musculoskeletal movements in terms of Biomechanics and will be able to apply such Biomechanical Principles to evaluation methods & treatment modes.
2. Acquire skill to quantify group and individual muscle strength & power.
3. Gain knowledge of Biophysical & Physiological effects; therapeutic uses, merits & demerits & contraindications and skills of application of stretching and traction to improve soft tissue mobility.
4. Gain skill to apply modes of Therapeutic Exercise & tools of Therapeutic Gymnasium for assessment and treatment of mobility and muscle strength.
5. Describe Mechanics and Physiology of Breathing.
6. Acquire the skill of assessment of ROM of joints by goniometry
7. To understand the basic principles and application of soft tissue manipulation.

TEXT BOOKS & REFERENCE BOOKS: THERAPEUTIC EXERCISE

1. Measurement of Joint Motion – A Guide to Goniometry by Cynthia Norkins, 2nd Edition; Jaypee Publication
2. Principles of Exercise Therapy by Dena Gardiner, 4th Edition, CBS Publication
3. Practical Exercise Therapy by Margarett Hollis, 4th Edition; Blackwell Sciences Publication
4. Therapeutic Exercise by Kisner & Colby, 4th Edition; Jaypee Publication
5. Therapeutic Exercise by Laxminarayan; 1st Edition; Jaypee Publication
6. Therapeutic Exercise by Huber, Elsevier Publication
7. Principles and Practices of Therapeutic Massage – Akhonry Gourang Sinha, Jaypee Publication 2nd edition
8. Therapeutic Massage - Margaret Hollis; Blackwell Sciences Publication 2nd edition
9. Handbook of Clinical Massage by Mario & Paul, 2nd Edition, Churchill Livingstone
10. Massage Therapy – Principles and Practice by Susan 2nd Edition, Elsevier Publication
11. Therapeutic Exercise – Sydney Litch, E Litch publication

SYLLABUS: THERAPEUTIC EXERCISE - I – (180 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**CLASSIFICATION OF MOVEMENTS**	**24**	17.60
	Active Movements – Definition, Types, Techniques, Effects and Uses.	(5)	
	Passive Movements – Definitions, Types, Techniques, Effects and Uses.	(4)	
	Free Exercises – Classifications, Techniques, Effects and Uses.	(4)	
	Resisted Exercise	(5)	
	Group Exercise – Advantages and Disadvantages of Group exercise.	(3)	
	Limb Length and Girth Measurement	(3)	
2	POSTURE	**15**	11.00
	Posture –Normal and Abnormal Assessment and Correction of Posture	(15)	
3	Stretching- Introduction to Therapeutic Exercise-Definition, Role, Effects on specific tissues Flexibility-Types, Factors affecting flexibility, Flexibility exercises, Stretching- Hypomobility, Contractures, Properties of soft tissues in response to immobilization and stretch. Stretching-Determinants, Types, Effects of Stretching, Guidelines and precautions for Stretching -Adjuncts to Stretching -Stretching of individual muscles of upper limb, lower limb, trunk	**30**	22.00
4	Impaired muscle performance- -Strength, Power, Work, Endurance -Factors affecting muscle performance -Trick Movements -Causes of decreased muscle performance -Physiological Adaptations to Training	**5**	3.66
5	Strengthening Exercises- Principles of Resisted Exercises Determinants of Resisted Exercises Types of Resisted Exercises Precautions of Resisted Exercises Contraindications to Resisted Exercises Regimens of Resisted Exercises Equipment for Resistance Training	**20**	14.66
6	Relaxation-Definition, General and Local Relaxation	**10**	7.33
7	ROM and Goniometry Goniometry – Types of Goniometers – Bubble & Gravity	**16**	11.73

	Goniometers. Types of ROM Exercises, Indication and Goals of ROM, Limitations, Precautions and Contraindications to ROM Exercises, Principles and Procedures of ROM exercises, Self Assisted ROM		
8	**SOFT TISSUE MANIPULATION**	**60**	44.00
8.1	Introduction, Brief History, Definitions	(2)	
8.2	Equipment Used In Massage	(3)	
8.3	Classification of Massage-Techniques	(6)	
8.4	Complementary and Adjunctive Therapies to Massage (Hydrotherapy, Reflexology and Spa)	(15)	
8.5	Physiological Effects, Therapeutic Uses and Contraindications to General Massage	(11)	
8.6	Massage and Manipulation Techniques and its Effects, Uses and Contraindications	(10)	
8.7	Massage for Upper Limb, Lower Limb, Face and Back	(6)	
8.8	Brief Introduction to Bindgeweb Massage, Core Myofascial Therapy, Heller Work, Langers line, Neuromuscular Therapy, Osteopathy, Chiropractice, Rolfing, Swedish Massage, Muscle Rolling, Muscle Shaking	(5)	
8.9	Massage in Sports	(2)	
	PRACTICALS - Active movements, passive movements, Free exercises, resisted exercises, group exercises, limb length and girth measurement. - Assessment of normal and abnormal posture and correction of posture. - Stretching of individual muscles of upper limb, lower limb, and trunk. - Trick movements. - Strengthening exercises. - Relaxation-general and local. - ROM and goniometry practical implementation. - Soft tissue manipulation: massage techniques, complementary and adjunctive therapies (hydrotherapy, reflexology, spa), massage and manipulation techniques, massage for upper limb, lower limb, face and back, Bindgeweb massage, core myofacial therapy, Rolfing, Swedish massage, muscle rolling, muscle shaking, massage in sports.		
	TOTAL	**180**	

PHARMACOLOGY AND BIOCHEMISTRY

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
3102	PHARMACOLOGY AND BIOCHEMISTRY	4	120	8	100	100	3
MARKS DISTRIBUTION: PHRMACOLOGY AND BIOCHEMISTRY – EACH SUBJECT CARRIES 30 MARKS							

PHARMACOLOGY

COURSE OBJECTIVES:

In this course students will be able to understand the Pharmacological Management of the common diseases which Physiotherapist encounters in their regular Practice.

Identify whether the pharmacological effects of the drug interferes with therapeutic response of Physiotherapy and vice versa.

COURSE OUTCOMES:

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

1. Know the effect of drugs on various pathological disorders, their effects and side effects.
2. Enables to use Pharmacological Measures in Rehabilitation within frame work of State Laws Governing the Physiotherapy Profession.

TEXT BOOKS & REFERENCE BOOKS: PHARMACOLOGY

1. Pharmacology & Pharmaco-Therapeutics by Satoskar Bhandar 19th edition. Popular.
2. Essentials of Medical Pharmacology by Tripathi 4th edition. Jaypee Publications.
3. Pharmacology for Physiotherapists by Barbara Gladson; Elsevier publications.
4. Pharmacology for Physiotherapists by K V Ramesh; Jaypee Publications.

SYLLABUS – PHARMACOLOGY– (60 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	General Principles of Pharmacology Definitions, Drug Nomenclature, Pharmacopea, Sources of drugs and Routes of Administration, Elements of Prescription, Drug Naming and Classification	**3**	3.70
2	Pharmacodynamics – Pharmacokinetics - Adverse Drug Reactions	**3**	3.70
3	Drug acting on ANS-Glaucoma, Myasthenia Gravis Skeletal Muscle Relaxants-Introduction, Classification, Central and Peripheral Skeletal Muscle Relaxants, NMJ blockers, Direct Muscle Relaxants, Implications to Physiotherapy	**5**	6.16
4	Drugs acting on Sympathetic Nervous System Introduction, Synthesis of Adrenergic Neurotransmitter, Adrenergic Receptors, General Adrenergic actions, Classification of Sympathomimetics, Catecholamine's, Non-Catecholamine's, Alpha and beta Adrenergic blockers, Implications to Physiotherapy	**6**	7.40
5	Haemopoietic system-Antianaemic drugs, Topical coagulants, Anticoagulants, Fibrinolytics	**4**	4.93
6	Diuretics-Classification, Exercise and Diuretics	**2**	2.46
7	Drugs for Hyperlipidemias	**2**	2.46
8	Antihypertensive drugs, Antianginal drugs, Drugs for Cardiac Arrthmias and Cardiac Failure	**4**	4.93
9	Drug Therapy and Exercises	**2**	2.46
10	Sedative and Hypnotics	**2**	2.46
11	Antiepileptic	**2**	2.46
12	General Anesthetics	**1**	1.23
13	Nonsteroidal Anti-inflammatory Drugs-opioid analgesics, Steroids and Analgesics, Neuroleptics	**4**	4.93
14	Antidepressants	**1**	1.23
15	Autocoids-Seritonin, Prostaglandins, Antihistamines	**2**	2.46
16	Respiratory Pharmacology-Anti Tussive, Anti Asthmatics, and Exercise and Antiasthematic Drugs	**2**	2.46
17	GIT and Pharmacology-Digestan`ts, Antiemetic, Antacids, H2 Receptor blockers, Proton Pump Inhibitors, Mucosal Productive, Purgatives, Anti diarrheal	**5**	6.16
18	Anti Tuberculosis drugs, Anti Malarial drugs, Anti Helminthic drugs, Anti Bacterial drugs, Cancer Therapy Antiviral drugs, Antifungal drugs, Immuno Modulators, Drugs for Diabetes Mellitus, Hormones, Sex-Steroids, Anti Parkinsonism drugs	**10**	12.33
	PRACTICALS – Visit to Pharmacology Laboratory.		
	TOTAL	**60**	

BIOCHEMISTRY

COURSE OBJECTIVES:

This course follows the basics of Biochemistry in Nutrition (Carbohydrate, Fat, Protein, Minerals and Vitamins) and Biochemical Reactions

COURSE OUTCOMES:

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

1. Acquire knowledge about Chemical composition of Nutrients.
2. Acquire knowledge about various Metabolic Reactions in the body.

TEXT BOOKS & REFERENCE BOOKS: BASICS OF BIOCHEMISTRY

1. Biochemistry for Physiotherapy and Allied Health Sciences students by Beena V Shetty, Nandini M. Jaypee Publications
2. Concise Medical Bio-Chemistry 3rd Edition, by Sucheta Dandekar: Elsevier
3. Biochemistry-Instant Notes for Medical Students by Chittiprol, Jaypee Publications
4. Fundamentals of BIOCHEMISTRY by Dr.A.C.Deb New Central Book Agency
5. Biochemistry 2nd Edition by U.Satyanarayan Books and Allied ltd

SYLLABUS – BIOCHEMISTRY– (60 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage (%)
1	Digestion and Absorption	**2**	2.46
2	Carbohydrates-Classification, Function and Carbohydrate Metabolism	**9**	11.10
3	Proteins-Classification of Amino acids, Importance, Protein Metabolism	**9**	11.10
4	Lipids-Classification, Importance and Lipid Metabolism	**6**	7.40
5	Nucleic Acid	**1**	1.20
6	Enzymes	**1**	1.20
7	Vitamins	**2**	2.46
8	Minerals	**2**	2.46
9	Diet and Nutrition	**4**	4.93
10	Hormones and Neurotransmitters	**2**	2.46
11	Acid Base Balance	**1**	1.20
12	Water and Electrolyte Balance	**2**	2.46
13	Common Biochemical Tests- Sugar Profile, Lipid Profile, Cardiac Profile, Liver Function Test, Renal Function Test, Thyroid Profile	**4**	4.93
14	Introduction to Hydrogen ion concentration and its biological significance, Buffering systems (Phosphate, Bi-Carbonate, Protein), Acid Base Balance (acidosis, alkalosis). Osmosis and its significance and application, Common functional groups in bio-chemistry, Dissociation of water, PH of various Biological Fluids, Colloids and Crystalloids –phases, classification, properties and biological importance of colloids, Diffusion Donnan Equilibrium, Viscosity, Surface Tension, Adsorption, Isotopes, Polarization.	**15**	18.50
	TOTAL	**60**	

ALTERNATIVE MEDICINE

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
3103	ALTERNATIVE MEDICINE	2	60	4	100	100	3

COURSE OBJECTIVES:

This course mainly focuses on applications of principles of Yoga, Acupuncture, Magneto Therapy, Naturopathy, Ayurveda and Reflexology for Therapeutic purpose used in conjunction with Physiotherapeutic measures.

COURSE OUTCOMES:

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

1. Use principles and techniques of Alternative Medicine in their treatment technique for a better outcome. Especially knowledge of alternative medicine is used in subsidiary to Physiotherapeutic Pain Relief measures.
2. Describe Physiological Principles and acquire the skill of performing pranayama, yogasanas, Reiki, Acupuncture & Accupressure.
3. Be able to describe principals of yoga its types, its physiological and psychosomatic effects and demonstrate standard yoga postures used by beginners.

TEXT BOOKS & REFERENCE BOOKS: ALTERNATIVE MEDICINE

1. Alternative Therapies by Swati Bhagat. 1st Edition. Jaypee Publications.
2. Yogic Exercises by Datta Ray. 1st Edition. Jaypee Publications.
3. Acupuncture and Trigger Points by Peter. 3rd Edition. Elsevier.
4. Acupressure in Clinical Applications by John. 1st Edition. B & H Publications.
5. The Program for Reversing Heart Disease – The Ornish Spectrum by Dean Ornish

SYLLABUS - ALTERNATIVE MEDICINE– (60 hrs.)

Sr. No.	Topic and Details	No. of hrs. Assigned	Weightage in percentage(%)
1.	**Yogasanas & Pranayama** a) Physiological & Therapeutic Principles of Yoga. b) Yogasanas for Physical Culture, Relaxation and Meditation. c) Application of Yogasanas in Physical Fitness, Flexibility, Cardiac Rehabilitation and Neuromotor Learning. d) Pranayama and Respiratory Physiology. e) Kriyas and their physiological Significance. Therapeutic application of yoga. f) Yoga – A Holistic Approach	**20**	44.00
2.	**Acupuncture & Accupresure** Definition, Principles, Techniques, Physiological effects, Indications, Contra-Indications, Dangers & Integration of Acupuncture& Accupressure with Physiotherapy	**15**	33.00
3.	Introduction to **Magneto therapy**	**5**	11.00
4.	Introduction to **Naturopathy**	**5**	11.00
5.	Introduction to **Ayurvedic Medicine**	**5**	11.00
6.	Introduction to Tai-Chi, Reiki and Pranic Healing, Reflexology, Vipassana, Sujok.	**10**	22.00
	PRACTICALS - Practical demonstration of yogasanas, relaxation, meditation, pranayama, kriyas, Acupuncture, acupressure, magneto therapy, tai-chi, reiki, pranic healing, reflexology, vipassana, Sujok. - To attend the camps.		
	TOTAL	**60**	

SOCIOLOGY, ENVIORMENTAL STUDIES AND PSYCOLOGY

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
3104	SOCIOLOGY,ENVIORMENTAL STUDIES AND PSYCHOLOGY	4	120	8	100	100	3

SOCIOLOGY

COURSE OBJECTIVES:

The subject will introduce the student to the basic sociological concepts. Principles and social processes, social institutions in relation to the individual. Family, Community and the various social factors affecting the family in Rural and Urban Communities.

COURSE OUTCOME:

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

1. Understand the role of family and community in the development of human behavior.
2. Develop a holistic outlook towards the structure of the society and community resources.
3. Understand the social and economic aspects of community that influences the health of the people.
4. Assess the social problems and participate in social planning.
5. Identify social institution and resources.
6. Understand the significance of social interaction in the process of Rehabilitation.

TEXT BOOKS & REFERENCE BOOKS: SOCIOLOGY

1. An Introduction to Sociology by - Sachdeva and Bhushan, 32nd Edition, Kitab Mahal Publication
2. Textbook of Sociology for Physiotherapy Students by KP Neeraja, 1st Edition, Jaypee Publication
3. Sociology for Physiotherapists by Dibyendunarayana Bid, 1st Edition, Jaypee Publication
4. Textbook of Sociology by Mimkoff, 3rd Edition, Houghton & Miffiline Company

SYLLABUS - SOCIOLOGY– (60 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**INTRODUCTION**	**8**	9.86
1.1	Meaning – Definition and scope of Sociology.	(2)	
1.2	Its relation with Anthropology, Psychology, Social Psychology and Ethics.	(2)	
1.3	Methods of Sociology – Case study, Social Survey, Questionnaire, Interview and Opinion poll methods.	(2)	
1.4	Importance of its study with special reference to Health Care Professionals.	(2)	
2	**SOCIAL FACTORS IN HEALTH AND DISEASE**	**4**	4.93
2.1	The meaning of social factors.	(2)	
2.2	The role of social factors in health and illness.	(2)	
3	**SOCIALIZATION**	**6**	7.40
3.1	Meaning and Nature of Socialization	(2)	
3.2	Primary, Secondary and Anticipatory Socialization.	(2)	
3.3	Agencies of Socialization.	(2)	
4	**SOCIAL GROUPS**	**6**	7.40
4.1	Concept of Social Groups, influence of formal and informal groups on health and sickness.	(3)	
4.2	The role of primary groups and secondary groups in the Hospital and Rehabilitation Settings.	(3)	
5	**FAMILY**	**12**	14.80
5.1	The Family.	(2)	
5.2	Meaning and Definition.	(1)	
5.3	Functions.	(3)	
5.4	Types.	(2)	
5.5	Changing family patterns.	(1)	
5.6	Influence of family on the individuals Health, Family and Nutrition. The effects of sickness on family are Psychosomatic Disease and their importance to Physiotherapy.	(3)	
6	**COMMUNITY**	**2**	2.46
6.1	Rural community – Meaning and features – Health Hazards of Ruralites.	(1)	
6.2	Urban community – Meaning and features – Health Hazards of Urbanites.	(1)	
7	**CULTURE AND HEALTH**	**4**	4.93
7.1	Concept of Culture.	(1)	
7.2	Culture and Behavior.	(1)	
7.3	Cultural Meaning of Sickness.	(1)	
7.4	Culture and Health Disorders.	(1)	
8	**SOCIAL CHANGE**	**7**	8.63
8.1	Meaning of Social Changes.	(1)	
8.2	Factors of Social Change.	(1)	
8.3	Human Adaptation and Social change.	(1)	

8.4	Social Change and Stress.	(1)	
8.5	Social Change and Deviance.	(1)	
8.6	Social Change and Health Program.	(1)	
8.7	The role of Social planning in the improvement of health and in Rehabilitation.	(1)	
9	**SOCIAL PROBLEM OF DISABLED:**	**7**	
	Consequences of the following Social Problems in relation to Sickness and Disability. Remedies to prevent the following problems.		
9.1	Population Explosion.	(1)	
9.2	Poverty and Unemployment.	(1)	8.63
9.3	Beggary.	(1)	
9.4	Juvenile Delinquency.	(1)	
9.5	Prostitution.	(1)	
9.6	Alcoholism.	(1)	
9.7	Problems of Women in Employment.	(1)	
10	**SOCIAL SECURITY**	**2**	
	Social Security and Social Legislation in relation to disabled.	(2)	2.46
11	**SOCIAL WORKER**	**2**	
	Meaning of Social Work. The Role of a Medical Social Worker.	(2)	2.46
	TOTAL	**60**	

ENVIRONMENTAL STUDIES

COURSE OBJECTIVES:

This course follows the basic principles of Environmental Sciences and makes the students ready for the upcoming problems the planet earth is facing and going to face in future i.e. waste disposal, deforestation, global warming, ozone depletion and biodiversity. At the end of the course the student will have basic knowledge on Natural Resources, Pollution, Ecosystem, Biodiversity.

COURSE OUTCOME:

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

1. Make student well aware of Environmental Pollution and its Harmful effects
2. Make use of Alternative Sources of Energy
3. Know his/her duties and responsibilities in society
4. Make use of Bio-Degradable substitution

TEXT BOOKS & REFERENCE BOOKS: ENVIRONMENTAL STUDIES

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

SYLLABUS - ENVIRONMENTAL STUDIES– (30 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	**THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES** Definition, Scope and Importance Need for public awareness	**4**	4.93
2.	**RENEWABLE AND NON-RENEWABLE RESOURCES:** Natural resources and associated problems. a) Forest Resources: Use and over- Exploitation, Deforestation, case studies. Timber extraction, mining, dams and their effects on forest and Tribal People. b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams- benefits and problems. c) Mineral resources: Use and Exploitation, Environmental effects of extracting and using mineral resources, case studies. d) Food resources: World food problems, change caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. e) Energy Resources: Growing energy needs renewable and nonrenewable energy sources use of alternate energy sources. Case studies. f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	**6**	7.40
3.	**ECOSYSTEMS** • Concept of an Ecosystem • Structure and function of an Ecosystem • Procedures, Consumers and Decomposers • Energy flow in the ecosystem • Ecological Succession • Food chains, Food webs and Ecological Pyramids. • Introduction, types, characteristic features, structure and function of the following ecosystem:- a. Forest Ecosystem b. Grassland Ecosystem c. Desert Ecosystem Aquatic Ecosystem (ponds, streams, lakes, rivers, oceans, estuaries)	**4**	4.93

4.	**BIODIVERSITY AND ITS CONSERVATION** • Introduction- Definition: Genetic, Species and Ecosystem Diversity. • Biogeographical classification of India. • Value of Biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. • Biodiversity at global, national and local levels. • India as a mega-diversity nation. • Hot-spots of Biodiversity. • Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts. • Endangered and Endemic species of India. Conservation of Biodiversity: In-situ and Ex-situ Conservation of Biodiversity.	**4**	4.93
5.	**ENVIRONMENTAL POLLUTION** Definition • Causes, effects and control measures of :- b. Air pollution c. Water pollution d. Soil pollution e. Marine pollution f. Noise pollution g. Thermal pollution h. Nuclear hazards • Solid waste Management: Causes, Effects and Control measures of Urban and Industrial wastes. • Role of an individual in prevention of pollution. • Pollution case studies. Disaster management: Floods, Earthquake, Cyclone and Landslides.	**4**	4.93
6.	**SOCIAL ISSUES AND THE ENVIRONMENT** • From Unsustainable to Sustainable development • Urban Problems related to Energy • Water conservation, Rain Water Harvesting, Watershed Management. • Resettlement and Rehabilitation of people: its problems and concerns. Case studies. • Environmental Ethics; Issues and possible solutions. • Climate change, Global warming, Acid rain, Ozone layer depletion, Nuclear Accidents and Holocaust. Case studies. • Wasteland Reclamation • Consumerism and Waste products. • Environment Protection Act. • Air (Prevention and Control of Pollution) Act. • Water (Prevention and control of Pollution) Act. • Wildlife Protection Act.	**4**	4.93

	• Forest Conservation Act. • Issues involved in Enforcement of Environmental Legislation. Public awareness.		
7.	**HUMAN POPULATION AND THE ENVIRONMENT** • Population Growth, Variation among nations. • Population Explosion- Family Welfare Programme. • Environment and Human Health. • Human Rights. • Value Education. • HIV/AIDS • Women and Child welfare. • Role of Information Technology in Environment and Human Health. Case studies.	**2**	2.46
8.	**FIELD WORK** • Visit to a local to document environmental assets river/ forest/ grassland/ hill/ mountain. • Visit to a local polluted site- Urban/ Rural/ Industrial/ Agricultural • Study of Common Plants, Insects, Birds. Study of simple Ecosystems-Pond, River, Hill Slopes, etc.	**2**	2.46
	TOTAL	**30**	

PSYCHOLOGY

COURSE OBJECTIVES:

The aim of the course is to help the student to understand the interpersonal behavior and to enable them to apply the Principles of Psychology in the Practice of Physiotherapy.

COURSE OUTCOMES:

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

1. Understand the Importance of Psychology in personal and professional life.
2. Know the Biological and Psychological basis of Human Behavior.
3. Understand the Cognitive and Affective behavior.
4. Develop an understanding of self and others.
5. Identify Psychological needs of patients.

TEXT BOOKS & REFERENCE BOOKS: PSYCHOLOGY

1. Introduction to Psychology by – Morgan and King, 7th Edition, Tata MacGraw Hill Edition
2. General Psychology by – S.K.Mangal Jaypee Publications.
3. Introduction to Psychology by Munns, 5th Edition, AITBS Publication
4. Psychology and Sociology for GNM and BPT students by Jacob Anthikad 2nd Edition Jaypee Publications.
5. Psychology for Physiotherapists-Thangmani R.A and D N Bid. Jaypee Publications.

SYLLABUS - PSYCHOLOGY– (30 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	INTRODUCTION ➢ Meaning of Psychology/ need in Physiotherapy. ➢ Development of Psychology as Sciences. ➢ Scope, Branches of Psychology. ➢ Relationship with other subjects. ➢ Application of Psychology in Physiotherapy Practice. ➢ Importance of Psychology in interpersonal behavior. ➢ Role of Physiotherapy clinical psychology. Significance of individual difference.	**5**	6.16
2	BIOLOGICAL BASIS OF BEHAVIOR ➢ In-heritance of Behavior. ➢ Basic Genetic mechanism. ➢ Sensory process – Normal and Abnormal. Attention and Distraction	**3**	3.70
3	ATTENTION-meaning, types, factors determining Attention	**1**	1.23
4	PERCEPTION-Meaning, Principles, Abnormalities	**2**	2.46
5	PERSONALITY-Meaning,Development,Classification,Theories,Assessment	**2**	2.46
6	ATTITUDES-Meaning and Theories, doctor- patient relationship/ expectations and attitudes.	**2**	2.46
7	MOTIVATION-Meaning, Types and Theories	**2**	2.46
8	LEARNING-Meaning, Theories	**2**	2.46
9	THINKING-Meaning, Types	**2**	2.46
10	INTELLIGENCE-Meaning, Types, Theories and Assessment	**2**	2.46
11	MEMORY-Meaning, Types, Theories-Perception-Forgetting, Methods of Improving Memory	**3**	3.70
12	LEADERSHIP-characteristics of Leader,Syles,Categories	**2**	2.46
13	Defense Mechanism	**3**	3.70
14	Social Psychology	**1**	1.23
15	Development Psychology	**1**	1.23
	PRACTICALS - To develop communication skills for identifying variation in – attention, perception, personality, attitudes, motivation, learning, thinking, intelligence, memory, leadership. - Application of psychology in physiotherapy practice – to be acquainted with different I.Q. tests.		
	TOTAL	**30**	

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

SEMESTER - IV

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
4101	ORTHOPAEDICS	4	120	8	-	-
4201	ORTHOPAEDICS **(PRACTICAL)**	3	-	-	60	2
4102	NEUROSCIENCES AND PSYCHIATRY	5	150	10	-	-
4202	NEUROSCIENCES **(PRACTICAL)**	3	-	-	60	2
4103	GENERAL MEDICINE, PEADIATRICS AND COMMUNITY MEDICINE	6	180	12	-	-
4104	PATHOLOGY	3	90	6	-	-
TOTAL		**24**	**540**	**36**	**120**	**4**

SCHEME OF EXAMINATION FOR B.PHYSIOTHERAPY:

SEMESTER - IV

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
4101	ORTHOPAEDICS	3	100	100	200
4201	ORTHOPAEDICS **(PRACTICAL)**	-	100	100	200
4102	NEUROSCIENCES AND PSYCHIATRY	3	100	100	200
4202	NEUROSCIENCES **(PRACTICAL)**	-	100	100	200
4103	GENERAL MEDICINE, PEADIATRICS AND COMMUNITY MEDICINE	3	100	100	200
4104	PATHOLOGY	3	100	100	200
TOTAL		-	**600**	**600**	**1200**

ORTHOPAEDICS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
4101	ORTHOPAEDICS	4	120	8	100	100	3
4201	ORTHOPAEDICS **(PRACTICAL)**	3	60	2	100	100	-

COURSE OBJECTIVES:

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

COURSE OUTCOMES:

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

1. Gain Knowledge Regarding Evaluation and Assessment of various Orthopedic conditions and Diagnostic Procedures which emphasize on radiology and Special Tests.
2. Gain Knowledge Regarding Etiology, Pathology, Clinical features and Management of various Orthopedic Conditions and their differential Diagnosis and Functional Disabilities caused by them.
3. Understand the goals of Conservative and Surgical treatment of various Orthopedic conditions which Physiotherapy will be an important component of overall treatment.

TEXT BOOKS & REFERENCE BOOKS: CLINICAL ORTHOPAEDICS

1. Essentials of Orthopedics by Dr .J Maheshwari 3rd Edition Mehta Publications.
2. Orthopedics in Primary Care – Andrew. J. Carr , 2nd edition
3. Clinical Orthopedic diagnosis – Sureshwar Pandey , 2nd edition
4. Essential Orthopedic and Physiotherapy- Jayant Joshi.
5. Plastic Surgery – Principles and techniques by – Pramod Kumar.
6. Physiotherapy in Orthopedics by Coutts Atkinson's. Churchill Livingstone Publications,
7. The Problem Knee- Malcom 2nd Edition. Jaypee Publications.
8. Physiotherapy in Deformity Correction & Pain relief. Iru dayrai . Jaypee Publications.
9. Functional Fracture Bracing- Augusto Sarmiento. Lippincott publications.
10. Current Therapy of Trauma. Donald Lewis4th edition. Mosby Publications.
11. Practical Orthopedics-Kakkad- Jaypee Publications.
12. Orthopedics- LN Vora Churchill Livingstone.
13. Shoulder Pain –Calliet 3rd Edition Jaypee.
14. Outline of Orthopedics by John Crawford 13th Edition Churchill Livingstone.
15. Textbook of Orthopedics by John Ebenezer 2nd Edition. Jaypee.
16. Textbook of Orthopedics by Kalava. Paras Publications.
17. Cash textbook of Orthopedics and Physiotherapists by Tidwell. Elsevier. 1st edition
18. Apley's Textbook of Orthopedics and Fractures by Apley's 7th Edition B/H Publications. Saunders
19. Neuromuscular Skeletal Examination & Assessment Nicola Petty. 3rd Edition Elsevier.
20. Orthopedic Musculoskeletal Testing and Examination. David Magee.5th Edition.
21. Foot and Ankle Pain. Rene Calliet. 2nd edition Jaypee Publications.

SYLLABUS - ORTHOPAEDICS– (180 hrs.)

Sr. No	Topic and details	No. of hrs Assigned	Weightage in percentage(%)
	Traumatic Orthopedics		
1.	Introduction to Orthopedic Trauma-Fracture(Definition Causes, Type Classification and Facture with Eponyms)	**5**	2.78
2.	Type of Bone and Stages of Bone Healing	**4**	2.22
3.	Treatment of Fracture– General Principles of Treatment, Various Methods of Fracture Management (Operative and Non Operative Method)	**7**	3.89
4.	Complications of Fracture	**5**	2.78
5.	Injuries to the Joints- Subluxation and Dislocations (Definition Classification, Patho-Anatomy, Diagnosis, Complication and Treatment)	**9**	5.00
6.	Fracture in Children- Relevant Anatomy, Type, Diagnosis, Treatment and Complication.	**5**	2.78
7.	Peripheral Nerve Injuries-(Mechanism of Injury, Classification Diagnosis, Treatment.	**9**	5.00
8.	Injuries of Upper limb Bones and Joints and its Management-(Shoulder, Elbow, Wrist, Hand)	**17**	9.44
9.	Injuries of Lower limb bone and Joints and its Management-(Hip, Knee, Ankle, Foot)	**17**	9.44
10.	Injuries of Spine and its Management-(Cervical, Thoracic, Lumbar, Sacrum, Coccyx)	**15**	8.33
11.	Injuries to the Pelvis and its Management	**6**	3.33
12.	Injuries to the Soft Tissues-Ligament, Muscle, Bursa, Capsule, Tendon, Ganglion)	**6**	3.33
	Non Traumatic Orthopedics		
13.	Congenital Disorders and its Management-Trunk, Upper limb lower limb and Congenital Absence of part of long bone.	**15**	8.33
14	Developmental disorders and its Management-Achondroplasia, Dysplasia, Ontogenesis Imperfecta, Paget's Disease	**6**	3.33
15	Metabolic Bone Disorder- Rickets, Scurvy, Osteomalacia and Osteoporosis	**7**	3.89
16	Bone and Joint infection-Osteomyelitis, Tuberculosis (Spine, Hip, Knee, Shoulder), Septic Arthritis	**7**	3.89
17	Degenerative Disorder-	**8**	4.44
17.1	OA(Osteoarthritis)	(2)	
17.2	Spondylosis,	(2)	
17.3	Spondylolisthesis,	(2)	
17.4	Spondylolysis (Cervical and Lumbar Spine),	(2)	
18	Inflammatory Disorders-	**8**	4.44
18.1	RA(Rheumatoid Arthritia)	(2)	
18.2	AS(Ankylosing Spondylitis)	(2)	

18.3	Seronegative Spondyloarthritis,	(1)	
18.4	SLE,	(1)	
18.5	Polyarthritis and Hemophilia	(2)	
19	Bone Tumor-General Principles of Bone Tumor and its Management)	**4**	2.22
20	Amputation- Definition, Causes, Type, Principles and Levels of Amputation and Complications,	**10**	5.56
21	Prosthetics and Orthotics in Orthopedic Practice	**5**	2.78
22	Introduction to Orthopedic Surgeries-Arthroplasty, Arthroscopy, Tendon Transfer and Reconstructive Surgeries.	**5**	2.78
	PRACTICALS - assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions.		
	TOTAL	**180**	

NEUROSCIENCES AND PSYCHIATRY

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
4102	NEUROSCIENCES	5	150	10	100	100	3
4202	NEUROSCIENCES **(PRACTICAL)**	3	60	2	100	100	-

COURSE OBJECTIVES:

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

The course provides a basic understanding of the normal and abnormal human behavior and the Principles of Psychiatry and also helps the student to manage patients with behavioral changes and Psychiatric Disease condition in the hospital and the community.

COURSE OUTCOMES:

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

1. Gain knowledge regarding evaluation and assessment of various Neurological Conditions and Diagnostic Procedures like C.T. Scan, MRI and Radiography.
2. Gain knowledge regarding Etiology, Pathology, Clinical features and management of various Neurological Conditions, their Differential Diagnosis and Functional Disabilities caused by them.
3. Understand the Goals of Pharmacological and Surgical Interventions used in various Neurological Conditions in which Physiotherapy will be an important component of overall treatment.
4. Know the Historical Development and trends of Psychiatry.
5. Understand the concepts of Normal and Abnormal Human Behavior.
6. Understand the Elementary Theories and Psychodynamics of Abnormal Behavior.
7. Understand the course, Symptomatology, Investigation, Complications, Management with various Therapeutic Modalities of common Psychiatric Conditions.
8. Develop ability to render comprehensive care to patients with various Psychiatric conditions and Deviant Behavior.

TEXT BOOKS & REFERENCE BOOKS: CLINICAL NEUROLOGY

1. Neurological Examination by Fuller. 3rd edition. Churchill Livingstone.
2. Neurology and Neurosurgery Illustrated by Kenneth W. Lindsay, Lan Bone, 3th Edition, Churchill Livingstone
3. Principles and Practice of Medicine by Davidson.20th edition. Churchill Livingstone.
4. Neurological Examination by Bickerstaff's. 6th edition. Blackwell science.
5. Clinical Neuro-Physiology by A.K.Misra, 1st Edition, Elsevier
6. Clinical Psychiatry, Mayol – gloss; 3rd Edition, AITBS

7. Psychiatry, James Scully, 4th Edition, Lippinkot Williams & Wilkins
8. A short Textbook of Psychiatry, Ahuja; 5th Edition – Jaypee
9. Handbook of Psychiatry, Dr. L.P. Shah, 3rd Edition, Uni U.C.B. Pvt. Ltd
10. Clinical Neurology by David A Greenberg, 5th Edition, McGraw-Hill.
11. Textbook of Clinical Neurology by Christopher G. Goetz, 3rd Edition, Saunders.
12. Adams and Victor's Principles of Neurology by Allan H. Ropper, 9th Edition, McGraw-Hill.
13. Brain's Diseases of the Nervous System by Micheal Donaghy, 4th Edition, and Oxford University Press.
14. Merritt's Neurology by Lewis P. Rowland, 10th Edition, Lippincott Williams and Wilkins.

SYLLABUS - NEUROSCIENCES– (210 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	General approach to History and Examination: Nervous System- History and Examination, Conscious Level Assessment, Higher Cerebral Function, Cranial Nerve Examination, Examination of Unconscious Patient.	**8**	5.02
2.	Investigations of the Central and Peripheral nervous system: Principles, Methods, Views, Normal/Abnormal Values/Features, Types of following Investigative Procedures- Skull X-ray, CT, MRI, Evoked Potentials, Lumbar Puncture, CSF Examination, EMG, NCV.	**5**	3.14
3.	Brief Description of Headache, Migraine, Raised Intra-Cranial Pressure.	**3**	1.88
4.	**Disorders of special senses:**	**12**	7.54
4.1	Neuro-ophthalmology: Assessment of Visual Function – Acuity, Field, Color 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.	(5)	
4.2	Deafness, Vertigo and Imbalance: Physiology of Hearing, Disorders of Hearing, Examination & Investigations of Hearing, Tests of Vestibular Function, Vertigo, Peripheral Vestibular Disorders and Central Vestibular Vertigo.	(6)	
4.3	Abnormalities of Smell and Taste: Olfaction and Gustation.	(1)	
5.	**Nerve and muscle diseases:**	**38**	23.88
5.1	Lower Cranial Nerve Paralysis – Etiology, Clinical Features, Investigations, and Management of following Disorders - Lesions in Trigeminal Nerve, Trigeminal Neuralgia, Trigeminal Sensory Neuropathy, Lesions in Facial Nerve, Facial Palsy, Bell's Palsy, Hemi Facial Spasm, Glossopharangeal Neuralgia, Lesions of Vagus Nerve, Lesions of Spinal Accessory Nerve, Lesions of Hypoglossal Nerve. Dysphagia – Swallowing Mechanisms, Causes of Dysphagia, Symptoms, Examination, and Management of Dysphagia.	(3)	
5.2	Polyneuropathy – Classification of Polyneuropathies, Hereditary Motor Sensory Neuropathy, Hereditary 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.	(6)	
5.3	Focal Peripheral Neuropathy: Clinical Diagnosis of Focal Neuropathy, Neurotomesis, Axonotmesis, Neuropraxia. Etiology, Risk Factors, Classification, Neurological Signs	(8)	

	& Symptoms, Investigations, Management, of Following Disorders – RSD, Nerve Tumors, Brachial Plexus Palsy, Thoracic Outlet Syndrome, Lumbosacral Plexus Lesions, Phrenic & Intercostals 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, Pudendal Nerve Palsy.		
5.4	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.	(5)	
5.5	Poliomyelitis: Acute poliomyelitis, Vaccine related Poliomyelitis, Post-polio weakness.	(4)	
5.6	Disorders of Neuromuscular Junction – Etiology, Classification, Signs & Symptoms, Investigations, Management, of Following Disorders Myasthenia Gravis, Eaton-Lambert Syndrome, and Botulism.	(5)	
5.7	Muscle Diseases: Classification, Investigations, Imaging Methods, Muscle Biopsy, Management of Muscle Diseases, Genetic Counseling. Classification, Etiology, Signs & Symptoms of Following Disorders – Muscular Dystrophy, Myotonic Dystrophy, Myopathy, Non-Dystrophic Myotonia.	(7)	
6.	**Structural Diseases Affecting Brain, Spinal Cord and Nerve Roots:**	**24**	
6.1	Head Injury: Etiology, Classification, Clinical Signs & Symptoms, Investigations, Differential Diagnosis, Medical Management, Surgical Management and Complications.	(6)	
6.2	Brain Tumors and Spinal Tumors: Classification, Clinical Features, Investigations, Medical and Surgical Management.	(6)	
6.3	Spinal Cord Disorders: Functions of Tracts, Definition, Etiology, Risk Factors, Pathophysiology, 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 Sarcaidosis.	(12)	15.08

7.	Higher Cortical, Neuro Psychological and Neurobehavioral Disorders: 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, Pathophysiology, Classification, Clinical Signs & Symptoms, Investigations, Differential Diagnosis, Management of Perceptual Disorders and Speech Disorders.	**10**	6.28
8.	**Vascular, Demyelinating, Inflammatory, and Degenerative Disorders of Brain:**	**25**	15.71
8.1	Cerebro-Vascular Diseases: Define Stroke, TIA, RIA, Stroke in Evolution, Multi Infarct Dementia and Lacunar Infarct. Classification of Stroke – 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.	(8)	
8.2	Multiple Sclerosis - Etiology, Pathophysiology, Classification, Clinical Signs & Symptoms, Investigations, Differential Diagnosis, Medical Management, and Complications.	(5)	
8.3	Cerebellar and Coordination Disorders: Etiology, Pathophysiology, Classification, Clinical Signs & Symptoms, Investigations, Differential Diagnosis, Management of Congenital Ataxia, Friedreich's Ataxia, Ataxia Talengiectasia, Metabolic Ataxia, Hereditary Cerebellar Ataxia.	(6)	
8.4	Movement Disorders: Definition, Etiology, Risk Factors, Pathophysiology, Classification, Clinical Signs & Symptoms, Investigations, Differential Diagnosis, Medical Management, Surgical Management and Complications of Following Disorders–Parkinson's Disease, Dystonia, Chorea, Ballism, Athetosis, Tics, Myoclonus & Wilson's Disease.	(6)	
9.	Infections Of Brain and Spinal Cord: Etiology, Pathophysiology, Classification, Clinical Signs & Symptoms, Investigations, Differential Diagnosis, Medical Management, Surgical Management and Complications of Following Disorders – Meningitis, Encephalitis, Syphilis, Tabes Dorsalis, Complications of Systemic Infections on Nervous System – Septic Encephalopathy, AIDS, Rheumatic Fever, Brucellosis, Tetanus, and Pertussis.	**16**	10.05
10.	**PEDIATRIC NEUROLOGY**	**12**	7.54
	Neural Development, Etiology, Pathophysiology, Classification, Clinical Signs & 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.		
11.	**NEURO-SURGERY** Introduction, Indications and Complications of following Neuro Surgeries: Craniotomy, Cranioplasty, Stereotactic Surgery, Deep Brain Stimulation, Burr-Hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Microvascular Decompression Surgery, Endarterectomy, Embolization, Pituitary Surgery, Ablative Surgery - Thalamotomy and Pallidotomy, Coiling of Aneurysm, Clipping of Aneurysm, and Neural Implantation.	**12**	7.54
12.	**PSYCHIATRY**	**45**	28.28
12-1	Introduction: History and Present Trends of Psychiatry. Scope and Role of Mental Health Care. Concepts and Views on Normal, Abnormal Human Behavior.	(4)	
12-2	Psychodynamics of Abnormal Human Behavior Orientation to 4 Basic Theories Relevant to Behavior formation (Sigmund Freud, Eric Erickson, Jean Piaget, Mcklein) Causes of Abnormal Behavior. Psychiatric Disorders and their Classification	(5)	
12-3	Psycho-Neurotic Disorders Anxiety Neurosis, Phobic Neurosis, Hysterical Neurosis, Obsessive Compulsive Disorders, Hyperchondriac Neurosis, Post Traumatic Disorder	(4)	
12-4	Psychotic Disorders Organic Psychosis Functional Psychosis – Schizophrenia Major Affective Disorders – Depression, Mania, Maniac Depressive Psychosis	(4)	
12-5	Psycho Physiological Disorders Concepts of Psychosomatic Conditions and Anorexia Nervosa, Bulimia, Obesity	(5)	
12-6	Personality Disorders Paranoid Personality Disorders Antisocial Personality Disorders Borderline Personality Disorders	(4)	
12-7	Substance Abuse Disorders Alcoholic Abuse, Dependence Drug Abuse, Dependence	(4)	
12-8	Psychiatric Emergencies Suicidal Behavior Aggressive Behavior Hallucinations, Alcohol, Withdrawal	(5)	

12-9	Child Psychology Habit Disorders Childhood Schizophrenia Autism Bedwetting, Encopresis, Hyperkinetic Disorder. Stammering / Stuttering Juvenile Delinquency. Psychiatric Problems in Mental Retardation Child Guidance Clinic	(5)	
12-10	Community Mental Health • Identification of Psychological Crisis Situation and Intervention • Promotion of Mental Health. • Prevention of Potential Problems of Mental Health in Community. • Rehabilitation of Mentally Ill in the Community. • Approaches to Community Mental Health in India. • Psychological Care Of Geriatric Patients	(5)	
	PRACTICALS - assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions.		
	TOTAL	**210**	

GENERAL MEDICINE AND PAEDIATRICS AND COMMUNITY MEDICINE

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
4103	GENERAL MEDICINE AND PAEDIATRICS AND COMMUNITY MEDICINE	6	180	12	100	100	3

COURSE OBJECTIVES :

This course follows basic courses on Anatomy, Physiology and Pathology. It covers relevant aspects of General Medicine with diseases of various systems of the human body like Cardio Vascular Systems Respiratory System, Endocrine System etc. and areas of Pediatrics, Geriatrics Dermatology etc. Practical's mainly includes bedside demonstration in hospital ward and in Medical OPD.

COURSE OUTCOMES:

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

1. Gain knowledge regarding assessment of various General Medical conditions, with emphasis on 'Cardio respiratory' assessment & various diagnostic procedures used.
2. Gain knowledge regarding Etiology, Pathology, Clinical Features & Treatment of various diseases & their Resultant Functional Disabilities.
3. Understand the limitations imposed by the diseases on any Therapy that may be prescribed.
4. Understand about the goals of Pharmacological & Surgical Therapy imparted in the diseases in which Physical or Occupational Therapy will be important component of overall treatment.

TEXT BOOKS & REFERENCE BOOKS: GENERAL MEDICINE

1. Principles and Practice of Medicine by – Davidson, 20th Edition, Churchill Livingston
2. Practical Medicine by – P J Mehta, 16th Edition
3. Prep Manual of Medicine by – Sandip Chatwal, 1st Edition, Jaypee Publications
4. API Textbook of Medicine by – Siddharth M. Shah, 7th Edition
5. Manual of Practical Medicine by – Algappan, 2nd Edition.
6. Essential Pediatrics 5th edition – O.P. Ghai Mehta publications.
7. A Hand Book of Pediatrics. Compiled by Avinash G. Desai.
8. Achar's Textbook of Pediatrics- 3rd edition BY J.Yiskidinath AB Desai. Orient Longman publishers.
9. Physiotherapy and the Growing Child by Vronne, R Burns, Julie MacDonald- Saunders Publications.

SYLLABUS - GENERAL MEDICINE– (60 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Approach to the Patient, History taking, Physical Examination, Diagnosis and Management	**5**	6.16
2.	**Cardiovascular System-**	**10**	12.33
2.1	Signs and Symptoms of Cardiovascular Diseases	(1)	
2.2	Aging and Cardiovascular System	(1)	
2.3	Ischemic Heart Disease, Hypertension, Angina Pectoris, Myocardial Infarction,Congestive Cardiac Failure, Myopcarditis, Endocarditis, Pericarditis Congenital Heart Diseases, Valvular Heart Diseases, Peripheral Vascular Diseases(Diseases Of Artery, Vein and Lymphatic System) Rheumatic Heart Diseases	(8)	
3.	**Respiratory System**	**10**	12.33
3.1	Signs and Symptoms of Respiratory Diseases	(1)	
3.2	Aging and Respiratory System	(1)	
3.3	Infectious and Inflammatory Diseases-Pneumonia, Tuberculosis, Lung Abscess, Acute bronchitis	(1)	
3.4	Obstructive Diseases-COPD, Chronic Bronchitis, Emphysema, Bronchial Asthma, Bronchiectasis	(2)	
3.5	Restrictive Lung Disease-Pulmonary Fibrosis, Systemic Sclerosis	(1)	
3.6	Environmental and Occupational Diseases-Pneumoconiosis	(1)	
3.7	Congenital Disorders-Cystic Fibrosis Pulmonary Edema, ARDS, Lung Cancer	(1)	
3.8	Disorders of Pleura-Pleurisy, Pleural effusion, Pleural Emphysema, Pleural Fibrosis	(2)	
4.	**Hematology-** Signs and Symptoms of Hematological System Anaemias, Leukamias, Haemophilias Endocrine and Metabolic System- Signs and Symptoms of Endocrine System Effects of Aging	**5**	6.16
5.	**Disease of Endocrine System**: Diabetes Insipidus, Hypothyroidism, Hyperthyroidism, Hyperparathyriodism, Hypoparathyriodism, Addisons Disease, Cushing Syndrome, Diabetes Mellitus	**6**	7.40
6.	**Integumentary System-**	**5**	6.16
6.1	Signs and Symptoms of Skin Diseases	(1)	
6.2	Aging and Integumentary System	(1)	
6.3	Eczema and Dermatitis, Cellulitis, Herpes Zoster, Skin Cancer, Psoriasis, SLE Polymyositis and Dermatomyositis Integumentary Ulcers Pressure Ulcers, Vitiligo, Candidiasis	(3)	

7.	**Infectious Diseases-**	**7**	8.60
7.1	Common Signs and Symptoms of Infectious Diseases	(2)	
7.2	Viral-Japanese Encephalitis,H1N1 (Swine Flu)	(1)	
7.3	Bacterial-Tetanus, Cholera, Leprosy, Typhoid, Botulism	(1)	
7.4	Protozoal-Malaria, Amoebiasis	(2)	
7.5	Helminths-Cystisarcosis, Ascariasis, Filariasis	(1)	
8.	Obesity-Etiology and Management	**4**	4.90
9.	Common Geriatric Disorders and their Management	**4**	4.90
10.	AIDS &Leprosy	**4**	4.90
	PRACTICALS - assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions.		
	TOTAL	**60**	

SYLLABUS - PEDIATRICS– (60 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Neuro Development, Integration of Reflexes & Milestones	**6**	3.70
2	CNS Involvement in children – Tubercular Meningitis & other Infective Conditions	**2**	1.20
3	Birth Trauma/ Intrauterine & Early Infancy conditions Cerebral Palsy – Types, Methods of Evaluation – Management	**4**	2.40
4	Mental Retardation – Etiological factors; Types, Symptomatology & Treatment	**4**	2.40
5	Childhood Obesity & its Complications	**3**	1.85
6	Hereditary Neuromuscular Disorders – DOWN'S SYNDROME	**3**	1.85
7	Congenital Neuromuscular Disorders including Spinal Dysraphism	**3**	1.85
8	Peripheral Neuromuscular Disorders including Polio, Spinal Muscular Atrophies, Muscular Dystrophies, Myopathy	**5**	3.08
9	Malnutrition & Vitamin Deficiency Associated Systemic Conditions – Rickets, Skin Conditions; Deficiency Neuromuscular Conditions	**6**	3.70
10	Respiratory Conditions; Asthma, TB, Bronchiectasis, Neuromuscular Conditions	**6**	3.70
11	Acute Pediatric Respiratory Distress Syndrome – Intensive Pediatric Care	**5**	3.08
12	Intensive Neonatological & Pediatric Surgical Care	**4**	2.40
13	Congenital Cardiovascular Problems – Management	**3**	1.85
14	Cardio - Respiratory Rehabilitation in Children	**3**	1.85
15	Epileptic Disorders	**3**	1.85
	PRACTICALS - assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions.		
	TOTAL	**60**	

COMMUNITY MEDICINE

COURSE OBJECTIVES:

This course follows the basic concept of Health and Diseases prevailing in the society and various medical professionals in the Rehabilitation of patients in Community.

COURSE OUTCOMES:

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

1. Gain knowledge regarding concept of Health and Diseases prevailing in the Society.
2. Demonstrate an understanding of the influence of Social and Environmental factors on Health of the Individual and Society.
3. Understand the role of various medical professionals in the Rehabilitation of patients in Community

TEXT BOOKS & REFERENCE BOOKS: COMMUNITY MEDICINE

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

SYLLABUS - COMMUNITY MEDICINE – (60 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	General Concepts of Health & Diseases / Epidemiology / Anthropology/ Habitat & Nutrition	**5**	3.08
2	Health Care Delivery System in India, National and International Health Agencies	**5**	3.08
3	Vaccination, Immunization, Disease Prevention and Control	**3**	1.85
4	Health Problems of Vulnerable Groups- Women, Children & Aged	**3**	3.08
5	Occupational Health Hazards- Accidents Compensation Acts	**5**	3.08
6	Demography and Family Planning	**5**	3.08
7	Health Programmes in India	**7**	4.31
8	Communicable Disease-Prevention/ Control	**5**	3.08
9	Introduction to C.B.R.	**2**	1.23
10	Disaster Management	**5**	3.08
11	Environmental Health and Hygiene, Hospital Waste Management, Universal safety precautions	**7**	4.31
12	Rehabilitation Team Approach-Role of Physio Therapy/ Occupational Therapy/ Speech & Hearing / P & O/ Social Worker / Clinical Psychologist/ Vocational Trainer, Multi- Purpose Health Worker	**5**	3.08
13	Medical Ethics and Research	**3**	1.85
	PRACTICALS - Visit to NGO/ Government set up.		
	TOTAL	**60**	

PATHOLOGY

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
4104	PATHOLOGY	3	90	6	100	100	3

COURSE OBJECTIVES:

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

1. To describe the Pathology of disease and consequence of injury to the connective tissue in detail.
2. To describe in brief regarding the Pathology of other systems.
3. Relate knowledge of pathology with patient population.

COURSE OUTCOMES :

This subject includes the theoretical aspects in depth, the understanding of Pathology of Muscle, Bone, Joints, Cardiopulmonary and Central Nervous System and Inflammation, Repair And Healing. In addition it also includes knowledge in brief of the Pathology of other systems of human body.

TEXT BOOKS & REFERENCE BOOKS: PATHOLOGY

1. Pathology by Harsh Mohan. 5th Edition. Jaypee Publications
2. Basic Pathology by Kumar, Robbins. 7th Edition. Elsevier.
3. Handbook of Clinical Pathology by Chakroborty 4th Edition. Academic Publications.
4. Pathology of Disease by Naik. 1st Edition. Jaypee Publications.

SYLLABUS – PATHOLOGY– (90 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Infectious diseases - Clostridium, Strepto and Staphylococci, Hepatitis, Herpes, Varisella Zoster, Thypoid, Cholera, Pneumonia, Meningitis, Endocarditis, Gangrene, Tetanus, Botulism, Tuberculosis, Leprosy, Poliomyelitis, Dengue, Bird Flu(Swine Flu), Filariasis	**5**	7.33
2	Integumentary System-Dermatitis, Eczema, Cellulitis, Herpes Zoster, Psoriasis, SLE, Polymyositis and Dematomyositis, Burns, Pressure Ulcers, Vitiligo	**5**	7.33
3	Endocrinology and Metabolic-Pituitary Disorders, Thyroid Disorders, Addison's Disease, Diabetes, Metabolic Syndromes	**7**	10.26
4	Cardiovascular System- IHD, Coronary Artery Disease, Angina Pectoris, Hypertension, Myocardial Infarction, Congestive Heart Failure, Myocardial Disease, Congenital Heart Disease, Valvular Heart Disease, Burgers Disease, Deep, Vein Thrombosis, Varicose Vein, Venous Insufficiency, Vasomotor Disease, Lymphatic-Lymphedema	**13**	19.06
5	Hematological System-Anemia, Hemophilia, Thrombocytopenia, Sickle Cell disease	**6**	8.80
6	Respiratory System-Pneumonia, Tuberculosis, COPD, Lung abscess, Asthma, Bronchiectasis, Restrictive Lung Diseases, Cystic fibrosis, Atelectasis, Pulmonary edema, Acute Respiratory Distress Syndrome, Lung Carcinoma, Pneumothorax, Pleural Effusion, Emphysema, Occupational Lung Diseases	**13**	19.06
7	Gastrointestinal System- Gastro esophageal Reflex, Gastritis, Peptic ulcer, Gastric Cancer, Irritable Bowel Syndrome, Hernias, Hemorrhoids	**4**	5.86
8	Ascites, Hepatitis, Cirrhosis, Cholelithiasis, Cholecystitis	**3**	4.40
9	Excretory System-Urinary Tract Infection, Renal Calculi, Glomerular disease, Urinary Incontinence, Urinary bladder	**5**	7.33
10	Reproductive System-Prostatitis, BPH, Testicular Torsion, Erectile Dysfunction, Menopause, Endometriosis, Uterine Fibroids, Cervical Cancer, Pelvic Inflammatory Disease, Uterine Prolapsed, Breast Cancer (Fibroadenoma)	**6**	8.80
11	Musculoskeletal –RA, Osteomyelitis, Septic Arthritis, Ankylosis Spondylitis, Gout, Myositis Ossificans, Heterotrophic Ossificans, Myofascial Pain Syndromes, Disc Degeneration, Juvenile Rheumatoid Arthritis, Osteonecrosis, Perthe's Disease	**9**	13.20
12	Genetic and Developmental Disorders- Down's Syndrome, Spina Bifida, CDH, CTEV, Muscular Dystrophies, Spinal Muscular Atrophy, Osteogenesis Imperfecta	**5**	7.33

13	Metabolic disorders- Osteoporosis, Osteomalacia, Paget's disease Central Nervous System -Motor Neuron Disease, Alzeimer's Disease, Dementia, Multiple Sclerosis, Myasthenia Gravis, Parkinsonism, Stroke, Traumatic Brain Injury, Heredity Neuropathy, Nerve Injuries	**9**	13.20
	PRACTICALS – Visit to Pathology Laboratory.		
	TOTAL	**90**	

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

SEMESTER – V

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
5101	THERAPEUTIC EXERCISE II	4	120	8	-	-
5201	THERAPEUTIC EXERCISE II **(PRACTICAL)**	3	-	-	60	2
5102	ELECTROTHERAPY (High Frequency)	3	90	6	-	-
5202	ELECTROTHERAPY (High Frequency) **(PRACTICAL)**	3	-	-	60	2
5103	BIOKINESIOLOGY	4	120	8	-	-
5203	BIOKINESIOLOGY **(PRACTICAL)**	3	-	-	60	2
5104	GENERAL SURGERYAND OBSTETRICS & GYNAECOLOGY	4	120	8	-	-
Supervised clinical training in OPD =90 hours		-	-	-	90	6
TOTAL		**24**	**450**	**30**	**270**	**12**

SCHEME OF EXAMINATION FOR B.PHYSIOTHERAPY:

SEMESTER – V

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
5101	THERAPEUTIC EXERCISE II	3	100	100	200
5201	THERAPEUTIC EXERCISE II **(PRACTICAL)**	-	100	100	200
5102	ELECTROTHERAPY (High Frequency)	3	100	100	200
5202	ELECTROTHERAPY (High Frequency) **(PRACTICAL)**	-	100	100	200
5103	BIOKINESIOLOGY	3	100	100	200
5203	BIOKINESIOLOGY **(PRACTICAL)**	-	100	100	200
5104	GENERAL SURGERYAND OBSTETRICS & GYNAECOLOGY	3	100	100	200
Supervised clinical training in OPD =90 hours		-	-	-	-
TOTAL		-	**700**	**700**	**1400**

THERAPEUTIC EXERCISE –II

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
5101	THERAPEUTIC EXERCISE - II	4	120	8	100	100	3
5201	THERAPEUTIC EXERCISE - II **(PRACTICAL)**	3	60	2	100	100	-

COURSE OBJECTIVES:

This course mainly focuses on Mechanical Principles of Physiotherapeutic and learning skills in the same aspect.

COURSE OUTCOMES:

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

1. Describe Kinesiological aspects of Posture, Gait and Ambulation and Various Activities of Daily Living.
2. Acquire Skill for Bronchial Hygiene.
3. Acquire skill to manage a patient in Group Therapy and designing Home Exercise Programme.
4. To gain basic concepts of Manual Therapy.
5. To gain knowledge for Exercise Planning and Prescription.
6. To gain knowledge of Various Exercise Equipments.
7. Acquire the skill of demonstrating Postural Drainage.
8. Acquire the knowledge of musculoskeletal movements during Normal Gait and Activities of Daily Living.
9. Describe physiological responses and principles of Aerobic Exercise for general fitness and demonstrates fitness skills.

TEXT BOOKS & REFERENCE BOOKS: THERAPEUTIC EXERCISE - II

1. Measurement of Joint Motion – A Guide to Goniometry by Cynthia Norkins, 2nd Edition; Jaypee Publication
2. Principles of Exercise Therapy by Dena Gardiner, 4th Edition, CBS Publication
3. Practical Exercise Therapy by Margarett Hollis, 4th Edition; Blackwell Sciences Publication
4. Therapeutic Exercise by Kisner & Colby, 4th Edition; Jaypee Publication
5. Therapeutic Exercise by Laxminarayana; 1st Edition; Jaypee Publication
6. Therapeutic Exercise by Huber, Elsevier Publication
7. Therapeutic Exercise – Sydney Litchp publisher E. Litch
8. NAGS, SNAGS and MWMS- Brian Mulligan
9. Yoga and Rehabilitation by Nilima Patel, Jaypee Publication

SYLLABUS - THERAPEUTIC EXERCISE – II– (180 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Functional Re-Education of Various Activities of Daily Living and Mat Exercises	**8**	5.86
2.	Postural Correction by Strengthening of Muscles, Mobilization of Trunk, Relaxation, Active Correction, Passive Correction, Postural Awareness.	**8**	5.86
3.	Suspension Therapy	**5**	3.66
4.	Hydrotherapy	**3**	2.20
5.	Postural Drainage	**5**	3.66
6.	Traction	**8**	5.86
7.	Gait Training	**8**	5.86
8.	Balance Training	**5**	3.66
9.	Aerobics Training	**5**	3.66
10.	Isometric, Isotonic, Isokinetic and Eccentric Exercises, Open and Closed Chain Exercises	**4**	2.93
11.	Educating Patients and Care-givers on Exercise Programme	**3**	2.20
12.	Designing Home Exercise Programme	**3**	2.20
13.	Group Exercises	**3**	2.20
14	Wheel Chair Training	**5**	3.66
15	Compression Therapy, Principles of Self Management and Exercise Instruction	**3**	2.20
16	ROM through Functional Patterns	**5**	3.66
17	Mobilization- Introduction,Arthrokinematics,Indications,Limitations, Techniques, Contraindications and Precautions	**8**	5.86
18	Co-Ordination and Proprioceptive Training, Cardiac Training, MMT, Breathing Exercises,	**10**	7.33
19	Functional Progression for Exercises in Spine and Extremities	**4**	2.93
20	Veterinary Physiotherapy(Animal Rehabilitation)	**2**	1.46
	Advanced Exercise Therapeutics	**75**	55.00
21.	Introduction to Various Schools of Manipulations: Maitland, Kaltenborn, Cyriax, Mulligan, Mckenzie	(11)	
22.	Brief Introduction to Vestibular Exercises, PNF, Post Isometric Relaxation, Positional Release Techniques, Muscle Energy Techniques, Neural Mobilization, Flossing, Tendon Gliding exercises, Plyometrics, Pilates, Yoga Therapy, Myofascial Release, Intra Muscular Stimulation (IMS), Dry Needling(DN)- (to be practiced under expert's supervision)	(16)	
23.	Vestibular Ball, Continuous Passive Motion Machine, Treadmill, Bicycle Ergometry, Dynamometer, Gait Trainer	(14)	
24.	Exercises for Obese	(4)	
25.	Inhibitory and Facilitatory Techniques	(6)	
26.	Principles Of Exercise Planning and Prescription	(6)	
27.	Energy Conservation Techniques	(3)	

28.	Exercises for Spine	(4)	
29.	Introduction to Therapeutic Exercises for following- Exercises for Obese, Arthritis, Pediatrics, Geriatrics, OBG	(6)	
30.	Physical Agents and Electrotherapeutic Interventions used as adjunctive to Therapeutic Exercises	(5)	
	PRACTICALS - Functional Re-Education, Activities of Daily Living and Mat Exercises. - Postural Correction, Strengthening of Muscles, Mobilization of Trunk, Relaxation, Active Correction, Passive Correction. - Suspension Therapy. - Postural Drainage. – Traction. - Gait Training. - Balance Training - Aerobics Training - Isometric, Isotonic, Isokinetic and Eccentric Exercises, Open and Closed Chain Exercises - Home Exercise Programme - Group exercises - Wheel chair training - Compression therapy - Co-Ordination and Balance and Proprioceptive Training, Aerobic Training and Cardiac Training, Aquatic Rehabilitation, MMT, Breathing Exercises, Postural Drainage - Manipulations: Maitland, Kaltenborn, Cyriax, Mulligan, McKenzie - Vestibular Exercises, PNF, Post Isometric Relaxation, Positional Release Techniques, Muscle Energy Techniques, Neural Mobilization, Flossing, Tendon Gliding exercises, Plyometrics, Pilates, Yoga Therapy, Myofascial Release, Inhibitory and Facilitatory Techniques, Intra Muscular Stimulation (IMS), Dry Needling(DN). - Vestibular Ball, Continuous Passive Motion Machine, Treadmill, Bicycle Ergometry, Dynamometer, Traction, Gait Trainer - Exercises for Obese, Arthritis, Pediatrics, Geriatrics, OBG - Physical Agents and Electrotherapeutic Interventions.		
	TOTAL	**180**	

ELECTROTHERAPY (High Frequency)

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
5102	ELECTROTHERAPY (High Frequency)	3	90	6	100	100	3
5202	ELECTROTHERAPY .(High Frequency) **(PRACTICAL)**	3	60	2	100	100	-

COURSE OBJECTIVES:

At the end of the course the students will learn the Physiological Principles, Therapeutic Uses, Indications, Contraindications of Therapeutic Electrical Agents / High Frequency Currents.

COURSE OUTCOMES:

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

1. List the Indications, Contraindications of Various types of Electrical Agents / High Frequency Currents.
2. Demonstrate the different Electrotherapeutic Technique and be able to describe their Effects and Uses.
3. Acquire knowledge of various superficial thermal agents, their physiological and therapeutic effects, merits and demerits.

TEXT BOOKS & REFERENCE BOOKS: ELECTROTHERAPY (HIGH FREQUENCY)

1. Practical in Electrotherapy by Joseph Kahn Churchill Livingstone.
2. Electrotherapy for Physiotherapy by Virendra Khokhar Bharti and Prakashan Publications. 2nd Edition.
3. Clayton's Electrotherapy (Theory and Practice), Aibs Publications. 8th edition
4. Electrotherapy Explained by John Low and Reed 3rd Edition B & H.
5. Basis of Electrotherapy by Subhash Khatri 1st Edition Jaypee Brothers. Electrotherapy in Rehabilitation, Meryl roth Gersh, 1st Edition, Jaypee Publication, 2003.
6. Practical Electro Therapy, Jagmohan Singh, 1st Edition , Jaypee Publisher,2006.
7. Hand book of Practical Electrotherapy, Pushpal Kumar Mitra, 1st Edition , Jaypee ,2006.
8. Text book of Electrotherapy, Jagmohan Singh,1st Edition,Jaypee,2005.
9. Electrotherapy Simplified, Basanta Kumar Nanda,1st Edition , Jaypee, 2008
10. Physical Agents in Rehabilitation, Michelle H. Cameron, 3rd Edition, Elsevier 2009
11. Electrotherapy Evidence Based Practice-Sheila Kitchen 11th Edition, Churchill Livingstone

SYLLABUS - ELECTROTHERAPY (HIGH FREQUENCY) – (150 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**Electromagnetic Waves:** Electromagnetic Spectrum, Physical Properties of Electromagnetic Radiations – Reflection, Refraction, Absorption, Penetration, Grothus Law, Cosine Law, Inverse Square Law and its Application	**20**	17.60
2	Cryotherapy - Basic Principles, Physiological and Therapeutic Effects, Dangers and Contraindications and Indications, Methods of Application, Local and General Effects of Cooling, Dosage, Cryokinetics	**20**	17.60
3	Production, Types, Physiological Effects, Indications, Contraindications, Methods of Application, Safety Measures, Equipment Safety And Maintenance, Dosiometry of the following:- Ultra Violet Radiation Infra Red Radiation Short Wave Diathermy LASER Ultrasound	**55**	48.40
4	Moist Heat : Contrast Bath, Hydro collateral Packs	**10**	8.80
5	Paraffin Wax Bath	**10**	8.80
6	ESWT, LWD, Spinal Segmental Traction, Combination Therapy, Pneumatic Compression Therapy, MWD, Fluidotherapy	**15**	13.20
7	Clinical Decision Making in HF Electrotherapy	**20**	17.60
	PRACTICALS - Cryotherapy: Methods of application, dosage. - Method of application- UVR, IRR, SWD, LASER, US. - Moist heat: contrast bath, hydocollateral packs. - Paraffin wax bath. - ESWT, LWD, spinal segment traction, combination therapy, pneumatic compression therapy, MWD, fluidotherapy.		
	TOTAL	**150**	

BIO-KINESIOLOGY

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
5103	BIO- KINESIOLOGY	6	120	8	100	100	3
5203	BIO- KINESIOLOGY **(PRACTICAL)**	3	60	2	100	100	-

COURSE OBJECTIVES:

This course mainly focuses on Mechanical Principles of Physiotherapeutic and learning skills in the same aspect.

COURSE OUTCOMES:

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

1. Describe Kinesiological aspects of various joints of body.
2. Analyze Normal, Abnormal Posture and Gait.

TEXT BOOKS & REFERENCE BOOKS: BIOKINESIOLOGY

1. Joint Structure and Function- Cynthia Norkins, 4th Edition, Jaypee Publication
2. Clinical Kinesiology – Brunnstrom, 5th Edition, Jaypee Publication
3. Kinesiology by K. Wells, 6th Edition; Saunders Publication
4. Clinical Kinesiology for Physiotherapy Assistant by Lippert, 3rd Edition
5. Bio-Mechanics of Musculoskeletal System by Nigg, 2nd Edition, John Wiley Publication
6. Basic Bio-mechanics of Musculo-Skeletal System by Frenkle, 3rd Edition, Lippincort Williams & Wilkins

SYLLABUS –BIO KINESIOLOGY– (180 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Introduction to Joint Structure and Function and Classification	**2**	1.46
2	Introduction to Properties of Muscle, Types of Muscles, Functions of the Muscles	**2**	1.46
3	Bio-Mechanics of Shoulder Complex, Elbow, Wrist and Hand Joints	**60**	44.00
4.	Bio-Mechanics of Thorax	**5**	3.66
5.	Bio-Mechanics of Vertebral Column	**15**	11.00
6	Bio-Mechanics of Temporomandibular Joint	**2**	1.46
7	Bio-Mechanics of Pelvis Complex	**4**	2.93
8	Bio-Mechanics of Hip, Knee, Ankle and Foot Joints	**60**	44.00
9	Analysis of Posture and Gait in Detail	**20**	14.66
10	Pathokinesiology of most commonly involved Joints	**10**	7.33
	PRACTICALS - Bio-mechanics of shoulder complex, elbow, wrist, hand, thorax, vertebral column, temporomandibular joint, pelvic girdle complex, hip, knee, ankle and foot joints. - Analysis of posture and gait alongwith Pathokinesiology of most commonly involved conditions.		
	TOTAL	**180**	

GENERAL SURGERY AND OBSTETRICS & GYNAECOLOGY

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
5104	GENERAL SURGERY, AND OBSTETRICS & GYNAECOLOGY	4	120	8	100	100	3

COURSE OBJECTIVES:

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

COURSE OUTCOMES:

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

1. Gain knowledge regarding various Surgeries; with emphasis on Cardio-Thoracic Surgeries, events accompanying Surgeries, Anesthesia, Blood Transfusion etc.
2. Gain knowledge regarding the Indication of various Surgeries, their outcome, post operative Complications and Treatment.
3. Gain knowledge regarding Management of Sequelae of various conditions like Head Injury and Spinal Cord Injury; Management of Complication of following Immobilization and Bed Rest.

TEXT BOOKS & REFERENCE BOOKS: GENERAL SURGERY

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

SYLLABUS - GENERAL SURGERY – (90 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Descriptions of events frequently accompanying Surgery in General Anesthesia. Blood Transfusion and Physiological response of the Body to Surgery	**3**	3.33
2.	Common Pre and Post-Operative Complications: Clinical Picture Treatment and Prevention	**3**	3.33
3.	Wounds, Sinuses and Ulcers: Incisions Healing and Principles of Treatment	**6**	6.67
4.	**Abdominal Surgery (Major)** a) Incisions in a Abdominal Surgery b) Operations on the Stomach c) Operations on the Intestine. d) Appendicectomy e) Hernia f) Operation on the Abdominal Wall g) Prostatectomy h) Nephrectomy Complications in Abdominal Surgery and its Management	**12**	13.33
5.	**Thoracic Surgery** Outline Indications, Contraindications, Site of Incision, Pre and Post Operative Management and Complications of the following: Lobectomy; Pneumonectomy, Segmentectomy, Pleuro-Pneumonectomy, Thoracoplasty, Decortication, Tracheostomy. Management of Endotracheal Tubes, Tracheal Suction. Weaning the Patient From Ventilator. Extubation and Post Extubation Care	**12**	13.33
6.	**Cardiac Surgery** Outline Indications, Contraindications, Site of Incisions, Pre and Post Operative Management and Complications Of the following. • Valvotomy and Valve Replacement • Open Heart Surgery Cardiac Bypass Surgery • Surgery on Pericardium • Operation in Congenital Disorders • Cardiac Pacemaker • Coronary Angioplasty	**10**	11.11
7.	**Neuro Surgery:** Briefly outline the Clinical Features and Management of the following. a) Congenital and Childhood Disorders (1) Hydrocephalus (2) Spina Bifida b) First Aid and Management of Sequelae of Head Injury and Spiral Cord Injury. c) Peripheral Nerve Disorders- Peripheral Nerve Injuries Intracranial Tumors: Broad Classification Signs and Symptoms	**8**	8.89

8.	**Peripheral Vascular Surgeries:** Brief Description of Deep Vein Thrombosis and Pulmonary Vascular Disease Phlebitis, Burger's Diseases, Aneurysm, Lymphatic Surgeries, etc	**2**	2.22
9.	**Plastic Surgery:** Principles of Tendon Transfers, Cosmetic Surgery, Types of Grafts, Surgery of Hand with Emphasis and Management on Traumatic Leprosy & Rheumatoid Hand	**4**	4.44
10.	**Burns** Classification Early and Late Complications Management and Reconstructive Surgeries.	**6**	6.67
11.	**Plastic Surgical Procedures**-Nerves/ Tendon Repairs in Hand & Foot Skin Grafts/ Flaps/ Micro Vascular Surgery Re-Constructive Surgeries in Facial Nerve Paralysis & Common Cosmetic Surgeries - Surgeries for Obesity, Surgery of the Breast	**8**	8.89
12.	**Ophthalmology**: Errors of Refraction, Conjunctivitis, Trachoma Corneal Ulcer, Iritic, Cataract, Retinitis, Detachment of Retina; Glaucoma	**8**	8.89
13.	**E.N.T**- Sinusitis, Rhinitis, Otitis Media, Functional Aphonia and Deafness. Introduction to Audiometry.	**8**	8.89
	PRACTICALS - assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions.		
	TOTAL	**90**	

OBSTETRICS & GYNAECOLOGY

COURSE OBJECTIVES:

This course follows the basic mechanics and Physiological Function due to Pregnancy and normal Development. Medical and Surgical conditions related to Obstetrics, Gynecology.

COURSE OUTCOMES:

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

1. Describe altered Mechanics and Physiological function due to Pregnancy, Labour and Parity in female
2. Acquire the knowledge of Normal Neuro Development with specific reference to locomotion.
3. Acquire knowledge about various Gynecological / Obstetrical Conditions.

TEXT BOOKS & REFERENCE BOOKS: OBSTETRICS & GYNAECOLOGY

1. Shaw's Textbook of Gynecology. 12th Edition. VG Padubidri, Daftary. Elsevier Publications.
2. Gynecology- VG Padzbidri , Ela Anand – Elsevier Publications.
3. Obstetrics & Gynecology- Brian McGowan 3rd Edition. Elsevier Publications.
4. MCQ's in OBG. Joan Pitkin, Chris Jenner. WB Saunders Publications.
5. Women's Health. Sapsfond, Saxton, Markwell. WB Saunders.
6. DC Dutta Text Book of Obstetrics. 5th Edition. New Central Publications.
7. Pregnancy at Risk- Current Concepts.4th Edition. Usha Krishna, DK Tank, Daftary. Jaypee Publications

SYLLABUS - OBSTETRICS & GYNECOLOGY – (30 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Anatomy and Physiology of Female Reproductive System	**3**	3.70
2	Puberty, Physiology of Menstrual Cycle, Ovulation	**3**	3.70
3	Common Gynaecological Conditions-Endometriosis, Uterine Cancer, Prolapsed, Cervical Cancer, Polycystic Ovary Disease, Pelvic Floor Dysfunction, Cystocele, Rectocele, Urotherocele, Menstrual Disorders.	**8**	9.86
4	Contraception	**1**	1.20
5	Physiological Changes during Pregnancy	**1**	1.20
6	Antenatal, Labour, Post Partum Care	**4**	4.90
7	Lactation	**1**	1.20
8	Climacteric, Menopause	**1**	1.20
9	Common Gynaecological and Obstetric Surgeries	**6**	7.40
10.	Psychological Issues in Various Phases of Women's Life and it's Management	**2**	2.40
	PRACTICALS - assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions.		
	TOTAL	**30**	

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

SEMESTER – VI

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
6101	PHYSICAL AND FUNCTIONAL DIAGNOSIS	3	90	6	-	-
6201	PHYSICAL AND FUNCTIONAL DIAGNOSIS **(PRACTICAL)**	4	-	-	90	3
6102	ELECTROTHERAPY (Medium & Low Frequency)	3	90	6	-	-
6202	ELECTROTHERAPY (Medium & Low Frequency) **(PRACTICAL)**	3	-	-	60	2
6103	ETHICS-MANAGEMENT AND INTRODUCTION TO RESEARCH METHODOLOGY, BIO-STATISTICS	6	180	12	-	-
6104	ALLIED HEALTH SCIENCES FOR PHYSIOTHERAPISTS	4	120	8	-	-
Supervised clinical training in Hospital, wards 180 hours and Visit to Orthotics and Prosthetics lab		4	-	-	90	3
TOTAL		**27**	**480**	**32**	**240**	**8**

SCHEME OF EXAMINATION FOR B.PHYSIOTHERAPY:

SEMESTER – VI

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
6101	PHYSICAL AND FUNCTIONAL DIAGNOSIS	3	100	100	200
6201	PHYSICAL AND FUNCTIONAL DIAGNOSIS **(PRACTICAL)**	-	100	100	200
6102	ELECTROTHERAPY (Medium & Low Frequency)	3	100	100	200
6202	ELECTROTHERAPY (Medium & Low Frequency) **(PRACTICAL)**	-	100	100	200
6103	ETHICS-MANAGEMENT AND INTRODUCTION TO RESEARCH METHODOLOGY, BIO-STATISTICS	3	100	100	200
6104	ALLIED HEALTH SCIENCES FOR PHYSIOTHERAPISTS	3	100	100	200
Supervised clinical training in Hospital, wards 180 hours and Visit to Orthotics and Prosthetics lab		-	-	-	-
TOTAL		-	**600**	**600**	**1200**

PHYSICAL & FUNCTIONAL DIAGNOSIS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
6101	PHYSICAL & FUNCTIONAL DIAGNOSIS	3	90	6	100	100	3
6201	PHYSICAL & FUNCTIONAL DIAGNOSIS **(PRACTICAL)**	4	90	3	100	100	-

COURSE OBJECTIVES:

This subject is aimed at developing skills (learned earlier on models) on patients to identify Movement Dysfunction of the body as a whole and its effect on Quality of Life, with special emphasis to Objective Assessment and Documentation to inculcate Evidence Based Practice. This subject also aims at continuing skill development of Basic Movement Sciences.

COURSE OUTCOMES:

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

1. Evaluate and objectively assess all the three components (as per ICF) of Movement Dysfunction and arrive at a functional diagnosis, with biomechanically and physiologically based reasoning.
2. Describe the Normal Human Development /Maturity and Aging Process.
3. Exercise Tolerance Test
4. Study Therapeutic Current for Electro diagnosis.
5. Acquire knowledge of Assessment of Musculoskeletal, Neurological, Cardiovascular and Pulmonary Conditions.
6. Understand the use of ICF
7. Understand the use of Appropriate tools or instruments of Assessment, Evaluation and Re-evaluation in Musculoskeletal ,Neurological and Cardiovascular conditions

TEXT BOOKS & REFERENCE BOOKS: PHYSICAL & FUNCTIONAL DIAGNOSIS

1. Physical Rehabilitation Assessment and Treatment – O'Sullivan Schmitz 5th Edition Jaypee Pub.
2. Clinical Orthopedic Assessment by David Magee, 4th Edition Saunders
3. Clinical Neurophysiology for by U K Mishra. Elsevier
4. Illustrated Neurology & Neurosurgery- Kenneth W. Lindsay, Lan Bone, 3rd Ed.
5. Cardiovascular and Pulmonary Physiotherapy Evidence and Practice 4th Edition. Donna frownfelter, Elizabeth Dean, Mosby, Elsevier.
6. Cash's Textbook of Chest, Heart and Vascular disorders for Physiotherapists 4th Edition. Patricia A Downie.
7. Physiotherapy for Respiratory and Cardiac Problems Adults and Pediatrics 4th Edition. Jennifer A Pryor, S ammani Prasad, Churchill Livingstone
8. Cardio Pulmonary Physical Therapy – A clinical manual Joanne Watchie.
9. Tidy's Physiotherapy, Ann Thomson 12th edition.

SYLLABUS: PHYSICAL & FUNCTIONAL DIAGNOSIS– (180 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	**Neurological Assessment:** Tool used for Examination; Chief Complaints; History Taking – Present, Past, Medical, Family, Personal Histories; Observation; Palpation; in brief about Higher Mental Function – Consciousness, Orientation, Wakefulness, Memory, Speech, Reading, Language, Writing, Calculations; Perception, Left Right Discrimination, Reasoning, And Judgment; in Detail about Motor Examination – Muscle Power, Muscle Tone, Spasticity, Flaccidity, Reflexes – Developmental Reflexes, Deep Tendon Reflexes, Superficial Reflexes; Sensory Examination – Superficial, Deep and Cortical Sensations; Special Tests; Balance Examination; Coordination Examination; Gait Analysis – Kinetics & Kinematics (Quantitative & Qualitative Analysis); Functional Analysis; Differential Diagnosis.	**25**	18.33
2	**Cardiovascular and Pulmonary Physiotherapy Assessment:** including Medical Chart Review, Patient Family Interview, Red Flags, Physiotherapy Examination, Activity and Endurance Evaluation.	**20**	14.66
3	Detailed **Musculoskeletal Assessment.**	**12**	8.80
4	Higher Mental Functions Testing.	**3**	2.20
5	Cognition and Perception Testing.	**3**	2.20
6	Neuro-Psychological Testing.	**4**	2.90
7	**Assessment of Posture:** Observation (Standing, Forward Flexion, Sitting, Supine Lying, Prone Lying) Examination.	**2**	1.40
8	**Assessment of Gait:** Definitions, Normal Pattern of Gait, Observation, Examination.	**3**	2.20
9	**Functional Assessment Tools**-Shoulder, Hip, Knee and Back.-WOMAC, DASH, Knee Outcome Survey, Lower extremity Functional Scale, GARS-M.	**2**	1.40
10	Muscle Length Test	**1**	0.73
11	**Cardio-Pulmonary Function Testing**-Assesment of Pulmonary Function, Assessment of Cardiac Function, Exercise Tolerance Testing (Bruce protocol, Balke protocol).	**7**	5.13
12	**Special Tests used for Neurological Assessment:** Romberg's, Kernig's Sign, Brudzinski's Sign, Tinels's Sign, Slump Test, Lhermitte's Sign, Bell's Phenomenon, Gower's Sign, Sun Set Sign, Battle's Sign, Glabellar Tap Sign, Tests Used for Peripheral Nerve Injuries, Coordination Tests, Tests Used for Sensory Examination-Two Point Discrimination, Stereognosis, Graphesthesia, Joint Position Sense, Vibration, Tests used for Autonomic Nervous System- Sweat Function Test, Ninhydrin Test, Chinizarin Start Test, Galvanic Skin	**12**	8.80

	Resistance Test, etc.		
13	**Special Tests used for Musculoskeletal Assessment:**	**30**	22.00
13.1	Shoulder- Load and Shift Test, Apprehension Sign, Sulcus Sign, Impingement Test, Test for Muscle and Tendon Pathology, ULTT for TOS	(3)	
13.2	Elbow- Valgus Varus Test, Cozen's and Reverse Cozen's Test, Pinch Grip Test, Test for Pronator Teres Syndrome	(3)	
13.3	Wrist and Hand- Ballottement Test, Watson Test, Finkelstein Test, Sweater Finger Sign, Phalen's Test, Froment Sign, Wrinkles Sign	(3)	
13.4	Hip- Patrick Test, Flexion Adduction Test, Thomas Test, Trendlenburg's Sign, Ober's Test, Elis Test	(3)	
13.5	Knee- Meniscle Test, Plica Lesion, Swelling Test, Ligament Instability Test, Patellofemoral Syndrome Test, Q-Angle Measurement	(6)	
13.6	Ankle- Leg Heel Alignment, Talar Tilt, Thompson Test, Anterior Drawer Sign of the Ankle	(3)	
13.7	Cervical Spine- Spurling's Test, Distraction Test, Shoulder Abduction Test, Vertebral Artery Test, Naffziger's Test	(3)	
13.8	Thoracic Spine And Lumbar Spine Tests- Slump Test, SLR, Prone Knee Bending Test, Brudzinski and Kernig Test, Valsalva Maneuver, Oppenhein Test, H & I Test	(3)	
13.9	Pelvis- Gillet Test, Flamingo Test, Sign of Buttock, Gaenslen's Test, Thoraco-Lumbar Fascia Length Test, Gaping Test, Approximation Test, Knee to Shoulder Test.	(3)	
14	Special Tests for Cardiovascular and Pulmonary Physiotherapy Ex. CT, ECHO, MRI, 6MWT, etc.	**9**	6.60
15	Various Diagnostic Tools in Musculoskeletal Conditions: X-Ray, MRI, CT-Scan.	**3**	2.20
16	Musculoskeletal Treatment Concept Applied to Neurology: Adverse Neural Tissue Tension Tests in Upper Limb and Lower Limb.	**3**	2.20
17	Anthropometric Measurement-Girth, Height, Weight, Skin Fold and Limb Length Measurement.	**2**	1.40
18	Assessment Tools & Scales used for Neurological Assessment: Modified Ashworth Scale, VCT, STREAM, Berg Balance Scale, FIM, Barthel Index, Glasgow Coma Scale, Mini Mental State Examination, Rancho Los Amigos Scale, Hoehn and Yahr Scale, APGAR Score, ASIA Scale,	**4**	2.90
19	Evaluation of ANS Dysfunction, Measurement, Documentation and Outcome Measures in Cardiopulmonary Physiotherapy.	**3**	2.20
20	Investigations used in Neurological Diagnosis: Principles, Methods, Views, Normal/Abnormal Values/Features, Types of Following Investigative Procedures- Skull X-Ray, CT, MRI, Evoked Potentials, Lumbar Puncture, CSF Examination,	**4**	2.90
21	**Electro-Diagnosis:** Therapeutic Current as Electro-Diagnosis, Introduction to EMG, NCV, EP, Normal EMG and NCV, Changes in EMG – NCV in Myogenic and Neurogenic Lesions.	**10**	7.30

22	EMG and Biofeedback	**4**	2.90
23	**Pediatric Assessment:** Pediatric Examination, Developmental Milestones, Developmental Reflexes, Neuro Developmental Screening Tests. Evaluation & Management - History, Observation, Palpation, Milestone Examination, Developmental Reflex Examination, Higher Mental Function, Cranial Nerve Examination, Motor & Sensory Examination, Reflex Testing, Differential Diagnosis, Balance & Coordination Examination, Gait Analysis, Functional Analysis.	**10**	7.30
24	**Integumentary System Assessment**: Documentation of Assessment- Chief Complaints, History Taking - Present, Past, Family, Medical History; Observation-Skin Type, Skin Reaction to UVR, Contraindications; Palpation- Swelling, Heat, Skin Texture; Integumentary System Tests/ Measures, Including Outcome Measures, and their Applications According to Current Best Evidence; Movement Analysis as Related to the Integumentary System (E.G., Friction, Shear, Pressure And Scar Mobility); Differential Diagnosis related to Diseases/Conditions of Integumentary System; Dosage with UVR.	**4**	2.90
	PRACTICALS - Entire 1 to 24 topics to be taught in practical. i.e. assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions.		
	TOTAL	**180**	

ELECTROTHERAPY (Medium Frequency & Low Frequency)

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
6102	ELECTROTHERAPY (Medium & Low Frequency)	3	90	6	100	100	3
6202	ELECTROTHERAPY (Medium & Low frequency) (PRACTICAL)	3	60	2	100	100	-

COURSE OBJECTIVES :

At the end of the course the students will learn the Physiological Principles, Therapeutic Uses, Indications and Contraindications of Therapeutic Electrical Agents.

COURSE OUTCOMES:

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

1. List the Indications, Contraindications of various types of Electrical Agents.
2. Demonstrate the Different Electrotherapeutic Technique and be able to describe their Effects and Uses.
3. To gain knowledge of Modulation of Pain at different levels.

TEXT BOOKS & REFERENCE BOOKS: ELECTROTHERAPY (MEDIUM & LOW FREQUENCY)

1. Practical in Electrotherapy by Joseph Kahn Churchill Livingstone.
2. Electrotherapy for Physiotherapy by Virendra Khokhar Bharti and Prakashan Publications. 2nd Edition.
3. Clayton's Electrotherapy (Theory and Practice), Aibs Publications. 8TH edition
4. Electrotherapy Explained by John Low and Reed 3rd Edition B & H.
5. Basis of Electrotherapy by Subhash Khatri 1st edition Jaypee brothers.
6. Electrotherapy in Rehabilitation, Meryl roth Gersh, 1st Edition, Jaypee Publication, 2003.
7. Practical Electro Therapy, Jagmohan Singh, 1st edition, Jaypee publisher, 2006.
8. Hand book of Practical Electrotherapy, Pushpal Kumar Mitra, 1st Edition, Jaypee, 2006.
9. Text Book of Electrotherapy, Jagmohan singh, 1st Edition, Jaypee, 2005.
10. Electrotherapy Simplified, Basanta Kumar Nanda,1st Edition, Jaypee, 2008
11. Physical Agents in Rehabilitation, Michelle H. Cameron, 3rd Edition, Elsevier 2009
12. Electrotherapy Evidence Based Practice-Sheila Kitchen 11th Edition

SYLLABUS - ELECTROTHERAPY (MEDIUM & LOW FREQUENCY) – (150 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	**Low Frequency Currents:** **Nerve Muscle Physiology:** Resting Membrane Potential, Action Potential, Propagation of Action Potential, Motor Unit, Synapse and Synaptic Transmission of Impulses. Effect of Negative and Positive Electrodes on Nerve & Accommodation	**10**	8.80
2.	**Faradic Current:** Definition, Characteristics and Modified Faradic Current, Sinusoidal Current, Parameters of Faradic Stimulation, Physiological and Therapeutic Effects of Faradic Stimulation, Indications, Contraindications and Precautions, Techniques of Stimulation, Group Muscle Stimulation, Faradic Foot Bath, Faradism Under Pressure and Pelvic Floor Muscle Re-Education	**25**	22.00
3.	**Galvanic Current:** Introduction & Characteristics, Parameters of Stimulation, Physiological and Therapeutic Effects of Stimulation, Precautions.	**25**	22.00
4.	**Electro Diagnosis:** F.G. Test, S.D. Curve, Chronaxie & Rheobase, Nerve Conduction Velocity, Electromyography (Outline Only) Pulse Ratio, Nerve Distribution Test, Neurotization Time, Galvanic Tetanic Ratio, Dermoohmometry, Erbs Polar Formula	**25**	22.00
5.	**Ionotophoresis:** Definition, Principles of Ionotophoresis, Physiological and Therapeutic Effects, Indications, Techniques of Ionotophoresis, Principles of Treatment, Contra-Indication and Dangers.	**10**	8.80
6.	**TENS:** Definition, Pain Gate Theory, Theories of Pain Modulation, Types of TENS, Principle of TENS Treatment, Techniques of Treatment, Indications and Contra-Indications. MENS, PENS.	**15**	13.20
7.	**Medium Frequency Current:** **Interferential Current:** Definition, Characteristics, Physiological & Therapeutic Effects of I.F.Current, Indications, Techniques of Application, Contraindications and Precautions.	**25**	22.00
8.	**Bio-Feedback:** Introduction, Types, Principles of Bio-Feedback, Therapeutic Effects of Bio-Feedback. Indications and Contra-Indications, Techniques of Treatment.	**10**	8.80
9	Micro current, Russian current, Didynamic Current, Medium Frequency Current, Functional Electrical Stimulation (FES), High Voltage Pulsed Current	**5**	4.40

	PRACTICALS - **Faradic Current:** Faradic Stimulation, Group Muscle Stimulation, Faradic Foot Bath, Faradism under Pressure and Pelvic Floor Muscle Re-Education. - **Galvanic Current:** Stimulation. - **Electro Diagnosis:** F.G. Test, S.D. Curve, Chronaxie & Rheobase, Nerve Conduction Velocity, Electromyography (Outline Only) Pulse Ratio, Nerve Distribution Test, Neurotization Time. - **Ionotophoresis:** Techniques of Ionotophoresis. - **TENS:** Techniques of Treatment, MENS, PENS. - **Medium Frequency Current: Interferential Current**- Techniques of Application. - **BioFeedback:** Techniques of Treatment. - Micro current, Russian current, Didynamic Current, Medium Frequency Current, Functional Electrical Stimulation (FES), High Voltage Pulsed Current.		
	TOTAL	**150**	

ETHICS-MANAGEMENT AND INTRODUCTION TO RESEARCH METHODOLOGY, BIO-STATISTICS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
6103	ETHICS-MANAGEMENT AND INTRODUCTION TO RESEARCH METHODOLOGY, BIO-STATISTICS	6	180	12	100	100	3

COURSE OBJECTIVES:

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

COURSE OUTCOMES:

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

1. Acquire the knowledge of ethical code of professional practice as well as its moral and legal aspects and its role WHO and WCPT.
2. Acquire the knowledge of the basics in managerial and management skills and use of information technology in professional practice.
3. Understand the meaning and scope of Research.
4. Understand and apply the basic concept of Research Methodology in daily personal & professional practice.
5. Appreciate research findings and apply it in practice where feasible.
6. Understand the moral values and meaning of ethics
7. Acquire Hospital Discipline and communication skills in relation with patients , Peers, seniors and other Professionals
8. Develop Psychomotor skills for Physiotherapist -Patient relationship

TEXT BOOKS & REFERENCE BOOKS: ETHICS-MANAGEMENT & INTRODUCTION TO RESEARCH METHODOLOGY, BIO-STATISTICS

1. Hospital Management, Accounting, Planning and Control by – Kulkarni G.K.
2. Methods in Bio-Statistics by – B.K.Mahajan 7th edition, Jaypee
3. Research for Physical Therapist by – Carolyn Hicks. 3rd edition, Churchill Livingstone
4. Medical Ethics by – C.M.Travis.
5. Research Methodology by C R Kothari. 2nd edition, new age, international publisher

SYLLABUS - ETHICS & MANAGEMENT– (55 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage (%)
1	**ETHICS**	**25**	60.00
1.1	Ethics and Constitution & Physiotherapy by World Confederation of Physical therapists(WCPT) and by Indian Association of Physiotherapists (IAP)	(10)	
1.2	Concepts Of Morality, Ethics and Legality – rules of professional conduct and their medico – legal and moral implications, independent practice, and autonomous practice.	(15)	
2	**MANAGEMENT**	**30**	72.00
2.1	Basis of administration in institutional, Private Clinics and Private Practice In Community.	(10)	
2.2	Personal, Intra and Interdepartmental Relationship, multidisciplinary practice, referral and health care team consultation, Time management.	(8)	
2.3	Interviewing and Documentation	(8)	
2.4	Performance Analysis, Medical Economics	(4)	
	Total	**55**	

SYLLABUS- INTRODUCTION TO RESEARCH METHODOLOGY AND BIOSTATISTICS– (125 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
I	**RESEARCH METHODOLOGY**	**75**	79.20
1.	• Meaning of Research • Basic concept of Research • Its need and importance in daily personal and professional practice • Scope of Research The Practice of Physiotherapy • Characteristics of Research • Ethical consideration in Research • Qualities of Research • Classification of Research • Developing an Enquiring Mind. • Problems encountered by Researchers In India	(20)	
2.	• Research Problem/ Question. • Identification of Problems, Sources and Selection of Problems. • Statement of the problem and objectives • Library search • Meaning and understanding of Terms • Variables • Assumptions • Hypothesis • Limitations • Delimitations • Populations	(20)	
3.	• Sampling Technique • Random Technique • Non-Random Techniques	(10)	
4.	Method of data collection- Tools and Technique a) Technique- Questioning • Interview • Observation b) Tool – Interview Schedule • Questionnaire • Observation Checklist • Retiring scale c) Criteria Good Tool, Reliability and Validity d) Pilot study e) Classification and Interpretation of Findings Role of Computers in Research	(15)	
5	Writing a research report References, Documentations	(10)	

II	**BIOSTATISTICS**	**50**	
6.	Biostatistics ➢ Use of statistics types. ➢ Measures of central tendency – Mean, Median, Mode, ➢ Measures of dispersion – Range, Variance, Standard Deviation. ➢ Use of descriptive statistics- Frequency, percentage Use of Tables and Graphs- Histogram, Pie Chart, Bar graph, Frequency graph		52.80
	PRACTICALS - Practical application of MS excel, SPSS, etc. as Statistical tools:.		
	TOTAL	**125**	

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

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
6104	ALLIED HEALTH SCIENCES FOR PHYSIOTHERAPIST (O&P, OT, ST AND N&F)	4	120	8	100	100	3

O & P: - Orthotics & Prosthetics OT: - Occupational Therapy
ST: - Speech Therapy N & F: - Nursing & First Aid

COURSE OBJECTIVES:

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

COURSE OUTCOMES:

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

1. Acquire knowledge about Biomechanical Principles of Application of variety of Aids and Appliances used for Ambulation, Protection and Prevention.
2. Acquire brief knowledge about various material used for Splints / Orthosis and Prostheses.
3. Acquire the skill of fabrication of simple splints made out of low cost material.
4. Acquire basic knowledge of Occupational Therapy.
5. Acquire basic knowledge of Speech Therapy.

TEXT BOOKS & REFERENCE BOOKS: ORTHOTICS & PROSTHETICS

1. Atlas of Orthotics: Biomechanical Principles of Application by – St.Louis 2nd edition
2. Orthotics in Rehabilitation by – Pat McKee and Leanne Morgan. F.A Davis co
3. Amputations and Prosthetics by – Beela J. May. F.A Davis co
4. Textbook of Rehabilitation by Sunder, Jaypee Publications
5. Bradom's Handbook of Rehabilitation 5th edition Elsevier
6. Textbook of Rehabilitation by DeLisa Williams & Wilkins

SYLLABUS - ORTHOTICS & PROSTHETICS– (45 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Biomechanical Principles in Designing of Appliances & Assessment	**4**	11.70
2.	Classification of Aids & Appliances	**4**	11.70
3.	Differences between Prosthesis and Orthosis	**4**	11.70
4.	Prostheses – for Lower Limb and Upper Limb	**4**	11.70
5.	Introduction to Splints / Orthosis – for Spine, Upper & Lower Limb	**6**	17.60
6.	Upper Limb Orthosis: - Knuckle Bender Splint, Cock Up Splint, Opponens Splint, Finger Splints, Aero Plane Splint, Wrist Hand Orthosis	**6**	17.60
7.	Spinal Orthosis: Head Cervical Orthosis, Cervical, Thoraco-Lumbar, Lumbo – Sacral Orthoses (Knight Brace, Taylors's Brace, Milwaukee Brace, Collars)	**6**	17.60
8.	Lower Limb Orthosis: HKAFO, KAFO, AFO, Foot Orthosis (Shoe Modification)	**6**	17.60
9.	Wheel Chair – Parts and Prescription	**5**	14.66
	PRACTICALS - Identification and application of various prosthesis and orthoses over patients. - Visit to artificial limb centre/ orthoses manufacturing centre/ camp.		
	TOTAL	**45**	

OCCUPATIONAL THERAPY AND SPEECH THERAPY

TEXT BOOKS & REFERENCE BOOKS: OCCUPATIONAL THERAPY AND SPEECH THERAPY

1. Occupational Therapy, Practice Skill for Physical Dysfunction, Pedretti's, 6th Edition, 2006.
2. Text book of Rehabilitation, S. sunder 3rd Edition, JP Publisher, 2010.
3. Occupational Therapy, William M Marcil, Thomson Delmar, 2007
4. Occupational Therapy for Physical Dysfunction, Mary vining Radomaski,6th Edition, 2008
5. Occupational Therapy, Maureen E. Neistadt, 9th Edition.
6. Occupational Medicine Secretes by James e Cone, JP Publisher,1999
7. Conditions in Occupational Therapy, Ben J Atchison, Lippiin Cott Williams & Wilkins, 3rd edition.
8. Introduction to Occupational Therapy by Hussey, Elsevier publisher, 3rd Edition, 2008.
9. Pediatric Occupational Therapy, Handbook by Patricia Bowyer, Mosby Elsevier, 2009

SYLLABUS – OCCUPATIONAL THERAPY AND SPEECH THERAPY – (30 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Basics of Occupational Therapy for Physiotherapist	**15**	66.00
	SPEECH THERAPY		
1.	Basics of Speech Therapy for Physiotherapist	**15**	66.00
	PRACTICALS - To visit Occupational Therapy centre, Speech therapy centre/ attend a camp.		
	TOTAL	**30**	

NURSING AND FIRST AID

COURSE OBJECTIVES:-

This course enables the students to have a better understanding and develop skill in giving first aid treatment in Emergencies in either the Hospital or the Community.

COURSE OUTCOMES:-

At the end of the Course Student will be able to;

1. Gain knowledge for first Aid.
2. Gain skill in First Aid treatment.
3. Gain knowledge about Maternal and Child care.
4. Gain skill in handling of an injured individual
5. Gain knowledge of Nursing Care

TEXT BOOKS & REFERENCE BOOKS: NURSING AND FIRST AID

1. Fundamentals of Nursing by – Potter; ELSEVIER Publication 7th Edition
2. Fundamental Concepts and Skills for Nursing by – Dewit; Elsevier Publication 3rd Edition
3. First Aid by N.K. Anand & Shikha Goel, A.I.T.B.S. Publishers.
4. A Hand Book of First Aid by Neelam Makhija, A.P. Jain & Co.
5. Text Book of Fundamental Nursing by Madhuri, Vora Medical Publishers, Mumba

SYLLABUS – NURSING AND FIRST AID– (45 hrs.)

Sr. no.	Topic & Details	No. of hours assigned	Weightage in Percentage (%)
1.	**Introduction**	**2**	5.80
1.1	Definition and importance of First Aid	(1)	
1.2	Golden Rules of First Aid	(1)	
2.	**First Aid Emergencies**	**8**	23.40
2.1	Burns : Causes, Degrees of Burns, First Aid Treatment and General Treatment	(2)	
2.2	Hemorrhage : Classification, Signs and Symptoms and Rules of Treatment	(2)	
2.3	Poisoning : Signs and Symptoms, First Aid Treatment and General Treatment, Techniques of giving Injections, IM,IV,SC.	(2)	
2.4	Bites: Signs and Symptoms, First Aid and General Treatment. Dog Bites: Rabies, Snake Bites: Neurotoxin, Bleeding Diathesis	(2)	
3.	**Skeletal Injuries**	**8**	23.40
3.1	Types of Fractures	(2)	
3.2	Causes, Signs and Symptoms of Fractures	(2)	
3.3	Transportation of Patient with First Aid Measures.	(2)	
3.4	Bed Side Activities in Musculoskeletal Injuries : Wound Care, Positioning, Transferring, Skin Care, Personal Hygiene	(2)	
4	**Respiratory and Cardiovascular Emergencies**	**6**	17.60
4.1	Asphyxia: Etiology, Signs and Symptoms, Rules of Treatment.	(2)	
4.2	Drowning : Definition and Management	(1)	
4.3	Basic and Advanced Life Support (CPR), Self CPR, Minimally Invasive CPR.	(3)	
5.	**Community Emergencies and Its Approach**	**4**	11.70
5.1	Role of First Aid in Fires, Explosions, Floods, Earthquakes and Famine. Disaster Management.	(2)	
5.2	Community Resources; Police Assistance, Voluntary Agencies, Ambulance Services	(2)	
6.	**Nursing Care in Pregnancy and Child Birth**	**10**	29.33
6.1	Antenatal and Postnatal Advices	(2)	
6.2	High Risk Pregnancy and Complications in Childbirth	(3)	
6.3	Stress Management in Pregnancy and Labor	(3)	
6.4	Feeding and Handling of a Child.	(2)	
7.	**Shock and Unconsciousness**	**7**	20.53
7.1	Definition, Types of Shock.	(2)	
7.2	Causes of Shock, Signs and Symptoms of Shock	(3)	
7.3	General and Specialized Treatment for established Shock.	(2)	
	PRACTICALS – CPR, Asphyxia, Drowning, self CPR and Minimally invasive CPR, Advanced Cardiac Life Support – Bandaging, Fractures: Wound Care, Positioning, Transferring, Skin Care, And Personal Hygiene - First aid demonstration: Burns, Hemorrhage, Poisoning, Bites. - Disaster management.		
	TOTAL	**45**	

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

SEMESTER – VII

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
7101	PHYSIOTHERAPY IN WOMENS HEALTH& GERIATRICS	2	60	4	-	-
7201	PHYSIOTHERAPY IN WOMENS HEALTH & GERIATRICS**(PRACTICAL)**	4	-	-	90	3
7102	PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS	4	120	8	-	-
7202	PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS **(PRACTICAL)**	3	-	-	60	2
7103	SPORTS PHYSIOTHERAPY	2	60	4	-	-
7203	SPORTS PHYSIOTHERAPY **(PRACTICAL)**	4			90	3
7104	PAIN MANAGEMENT	3	90	6		
7204	PAIN MANAGEMENT **(PRACTICAL)**	2	-	-	30	1
Project work -1		1	-	-	30	1
Physiotherapy OPD postings		2	-	-	30	1
Continuing Physiotherapy Educational Program [CPE]		1	-	-	30	1
International /National / State Conference.		1	-	-	30	1
TOTAL		**29**	**330**	**22**	**390**	**13**

SCHEME OF EXAMINATION FOR B.PHYSIOTHERAPY:

SEMESTER – VII

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
7101	PHYSIOTHERAPY IN WOMENS HEALTH& GERIATRICS	3	100	100	200
7201	PHYSIOTHERAPY IN WOMENS HEALTH & GERIATRICS**(PRACTICAL)**	-	100	100	200
7102	PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS	3	100	100	200
7202	PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS **(PRACTICAL)**	-	100	100	200
7103	SPORTS PHYSIOTHERAPY	3	100	100	200
7203	SPORTS PHYSIOTHERAPY **(PRACTICAL)**	-	100	100	200
7104	PAIN MANAGEMENT	3	100	100	200
7204	PAIN MANAGEMENT **(PRACTICAL)**	-	100	100	200
Project work -1		-	-	-	-
Physiotherapy OPD postings		-	-	-	-
Continuing Physiotherapy Educational Program [CPE]		-	-	-	-
International /National / State Conference.		-	-	-	-
TOTAL		**-**	**800**	**800**	**1600**

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

CONTINUING PHYSIOTHERAPY EDUCATIONAL PROGRAM [CPE]

Total	**- 60 hrs.**
Credits	**- 2**

IN SEVENTH SEMESTER, AS PER THE REQUIREMENT OF SYLLABUS STUDENTS HAS TO UNDERGO COMPULSORILY THE FOLLOWING PROGRAMS TO UPDATE STUDENTS TO INTERNATIONAL STANDARDS FOR 60 HRS. WHICH IS ACCREDITED WITH 2 CREDITS

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

N.B.: THE RESOURCE PERSONS SHOULD BE RENOWNED IN THE FIELD OF PHYSIOTHERAPY AND REHABILITATION.

PHYSIOTHERAPY IN WOMEN'S HEALTH & GERIATRICS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
7101	PHYSIOTHERAPY IN WOMEN'S HEALTH& GERIATRICS	2	60	4	100	100	3
7201	PHYSIOTHERAPY IN WOMEN'S HEALTH & GERIATRICS**(PRACTICAL)**	4	90	3	100	100	-

COURSE OBJECTIVES:

This semester exclusively focuses on Developing Ability of Evidence Based Clinical Practice by applying all the Physiotherapeutic skills (learned on models so far) on patients for Evaluation, Assessment, Arriving at Functional Diagnosis and correlate the same with clinical diagnosis as well as Planning and Executing Preventive measures and also short term / long term treatment for Restoration / Rehabilitation of Movement Dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects related to Women's Health and Geriatrics.

COURSE OUTCOMES:

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

1. Facilitate the awareness of the multi-dimensional and multi-disciplinary aspects for women as general & geriatric population.
2. Evaluate a variety of evidence based approaches to Women's Health and Geriatrics with the aim of enhancing clinical practice and patient care in the discipline of Physiotherapy.
3. Plan realistic goals for Women's health and geriatrics conditions, Prescribe appropriate and safe physiotherapy interventions with clinical reasoning for the same.
4. Get competency in Assessment, Clinical reasoning, developing plan of care, Physiotherapeutic interventions, Case presentations and Documentations of Women's health and Geriatric conditions.

TEXT BOOKS & REFERENCE BOOKS: PHYSIOTHERAPY IN WOMEN'S HEALTH & GERIATRICS

1. Women's Health by Markwell, Saxton W.B. Saunders
2. Text Book of Gynecology and Obstetrics by Madhuri, 1st Edition Jaypee Publications
4. Physiotherapy in Obstetrics and Gynecology by Mantle. B and H Publications
5. Physical Medicine and Rehabilitation by DeLisa 4th Edition, Lippincott Williams
6. Geriatric Secrets by Belfus 2nd Edition Jaypee
7. Rehabilitation of Older Persons by Squires 3rd Edition. Jaypee Publications

SYLLABUS: PHYSIOTHERAPY IN WOMEN'S HEALTH & GERIATRICS– (150 hrs.)

Sr. No.	Topic and Details	No of hrs. assigned	Weightage in percentage (%)
1	Introduction to Gynecology and Obstetrics	**4**	3.52
2	Anatomy, Physiology, Biomechanics and Pathomechanics of Pelvic Floor	**5**	4.40
3	Physiological Changes During Pregnancy and Physiotherapy.	**3**	2.64
4	Common Gynecological Conditions (Including Dysmenorrhoea, Uterine Prolapsed, Urinary Incontinence)	**5**	4.40
5	Common Gynecological Conditions Physiotherapy Intervention	**6**	5.28
6	ANTENATAL: Physiological changes and Bio-Mechanical changes during Pregnancy Physiotherapy Intervention.	**5**	4.40
7	Common Neurological Compression Syndromes, Vascular Complications during Pregnancy and its Physiotherapy Management. Measures to reduce Round Ligament Pain, Back Pain during Pregnancy.	**8**	7.04
8	Role of Aerobic Exercises and Yoga during all Trimesters of Pregnancy	**5**	4.40
9	General Physiotherapy Intervention in Antenatal Period.	**4**	3.52
10	PERINATAL: Physiotherapy during Labour Including (Positioning, Massage, TENS)	**3**	2.64
11	PUERPERIUM- Physiotherapy Intervention	**3**	2.64
12	Dietary Advices and Specifications during Pregnancy, Lactation and Menopause.	**4**	3.52
13	Electrotherapeutic Intervention in Antenatal, Postnatal and Menopause.	**5**	4.40
14	POST NATAL: Post Natal Physiotherapy in Normal Delivery, Caesarean Section, High Risk Pregnancy	**8**	7.04
15	Postural advice in Post Natal (Nurturing the child, resting positions)	**4**	3.52
16	Urogenital Dysfunction-Physiotherapy Assessment and Treatment	**8**	7.04
17	Physiotherapy implications during climacteric, Menopause and Post Menopausal Period.	**8**	7.04
18	Osteoporosis –Physiotherapy	**3**	2.64
19	Role of Physiotherapy in Women's Health-Puberty, Pregnancy Menopause.	**3**	2.64
	PRACTICALS - assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions. To teach urogenital dysfunction assessment. - TENS application during labour. - To teach antenatal and postnatal exercises with advices. - To teach modalities in antenatal and postnatal period. - Pelvic floor exercises. - Abdominal strengthening exercises. - Yoga during pregnancy. - Exercises for back pain/ postural exercises. - Exercises for osteoporosis/ post menopausal.		

GERIATRICS

20	Physiology of Aging. Changes in Neuromotor, Musculoskeletal, Uro-Genital, Integumentary Systems due to Aging	**7**	6.16
21	Effect of Task, Environment and Age related changes in Postural Control, Musculoskeletal, Neurological and Cardio respiratory Systems.	**7**	6.16
22	Cardiac considerations in the Older People and Physiotherapy Management	**7**	6.16
23	Effects of aging on Joints and Ligaments and Physiotherapy Intervention	**6**	5.28
24	Muscle weakness in Geriatrics and Therapeutic Exercise	**5**	4.40
25	Balance Testing and Training in Elderly causes of falls and its Prevention	**5**	4.40
26	Conservative intervention for Pain Control in Elderly.	**4**	3.52
27	Complimentary Therapies for the Aging Patient	**5**	4.40
28	Physiotherapeutic Intervention for Improving Gross and Fine Motor Function in Geriatrics.	**5**	4.40
29	Home for the Aged	**5**	4.40
30	Scientific and Critical Literature Review, Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence and Practice (LEAP) to all of the above conditions. (To be included along with lectures of respective topics)		
	PRACTICALS - assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions. To teach group exercises in geriatrics. - To teach balance testing and training in geriatrics (to prevent falls). - To teach postural correction/ maintenance exercises in geriatrics.		
	TOTAL	**150**	

PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
7102	PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS	5	120	8	100	100	3
7202	PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS (PRACTICAL)	3	60	2	100	100	-

COURSE OBJECTIVES:

This semester exclusively focuses on developing ability of Evidence Based Clinical Practice by applying all the Physiotherapeutic Skills (learned on models so far) on patients for evaluation, Assessment, Arriving At Functional Diagnosis and correlate the same with Clinical Diagnosis as well as planning and executing preventive measures and also short term / long term treatment for Restoration / Rehabilitation of movement dysfunction affecting quality of life. In addition this academic year also includes basic skill development of conducting scientific projects based on Research Methodology and for Community Oriented Practice

COURSE OUTCOMES:

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

1. Assess, Identify and Analyze Neuro-Motor and Psycho-Somatic Dysfunctions in terms of alteration in Muscle Tone, Power, Co-Ordination, Involuntary Movements, Sensations, Perception etc, correlate the findings with provisional diagnosis and investigations such as EMG/NCV Studies and arrive at Functional Diagnosis with Clinical Reasoning.
2. Acquire the skill of application of PNF techniques on patients.
3. Plan, prescribe and execute short term and long term treatment with special reference to relief of Neuropathic and Psycho-Somatic Pain, Mat Exercise, Functional Re-Education, Gait Training and Functional Training for ADL and Ergonomic advice.
4. Prescribe appropriate Orthosis, Splints and will be able to fabricate temporary protective and functional splints.
5. Plan realistic goals on the knowledge of prognosis of the disease of the Nervous System and prescribe appropriate and safe Physiotherapy Interventions with Clinical Reasoning.
6. Get competency in Assessment, Clinical reasoning, developing plan of care, Physiotherapeutic Interventions, Case presentations and Documentations of Neurological conditions.

TEXT BOOKS & REFERENCE BOOKS: PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS

1. Physiotherapy in Neuro-Conditions by Glady Samual Raj, Jaypee Publishers
2. Neurological Rehabilitation 5th Edition by Darcy Umphred, Mosby Elsevier
3. NeuroRehabilitation by Dr.V.C Jacob Published by Neurogen
4. Physical Rehabilitation 5th Edition by Susan B O'Sullivan, Jaypee Publishers
5. Cash's Textbook of Neurology for Physiotherapists 4th Edition, Jaypee Publishers
6. Tidy's Physiotherapy 14th Edition, Elsevier Churchill livingstone
7. Handbook of NeuroRehabilitation by Amit Agrawal, Paras Medical Publisher
8. Handbook of Pediatric Physical therapy 2nd Edition by Toby Long, Lippin cott Williams and Wilkins
9. Physiotherapy and the Growing Child by Yuonne R, W.B Saunders
10. Functional Neuro Rehabilitation by Dolores B Bertoti, Jaypee Publishers
11. Treatment of Cerebral Palsy and Motor Delay 3rd Edition Sophie Levitt, Blackwell Science

SYLLABUS:-PHYSIOTHERAPY FOR NEUROLOGICAL CONDITIONS– (180 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Review of basic Anatomy and Physiology of Nervous System.	**2**	1.40
2	Growth and Development, Developmental Screening, Neonatal Reflexes.	**6**	4.40
3	Neurophysiology of Balance, Co-Ordination and Locomotion.	**3**	2.20
4	Assessment and Evaluative Procedures for the Neurological Patient and Principles of the management of a Neurological patient.	**6**	4.40
5	Brief introduction to latest Motor Learning-Motor Control Theories and its application in Physiotherapy.	**5**	3.60
6	**Neuro rehabilitation Techniques – Concepts, Principles, Techniques, Effects of following Neuro rehabilitation techniques:**	**15**	11.00
6.1	Neuro-Developmental Technique (NDT).	(1)	
6.2	Proprioceptive Neuromuscular Facilitation (PNF).	(1)	
6.3	Vojta Therapy.	(1)	
6.4	Rood's Sensory Motor Approach.	(1)	
6.5	Sensory Integration (Si) Approach.	(1)	
6.6	Brunnstorm Movement Therapy.	(1)	
6.7	Motor Relearning Program (MRLP).	(1)	
6.8	Myofascial Release (MFR).	(1)	
6.9	Constraint Induced Movement Therapy (CIMT).	(1)	
6.10	Body Weight Support Treadmill Training (BWSTT).	(1)	
6.11	Mental Imagery (MI).	(1)	
6.12	Functional Electrical Stimulation (FES).	(1)	
6.13	Biofeedback.	(1)	
6.14	Neural Mobilization Techniques.	(1)	
7	Aids and Appliances and Adaptive Functional Devices Used in Neurological Disorders.	**5**	3.60
8	Higher Functions and Their Testing And Training.	**3**	2.20
9	Cognitive Rehabilitation.	**3**	2.20
10	Perception Testing and Training.	**3**	2.20
11	Neuro-Psychological Testing and Training.	**4**	2.90
12	Vestibular Rehabilitation.	**4**	2.90
13	Oromotor Rehabilitation.	**2**	1.40
14	Evaluation and Treatment of A.N.S Dysfunction.	**4**	2.90
15	Bladder and Bowel Dysfunction and its Rehabilitation.	**4**	2.90
16	Assessment and Management of Various Neurological Gaits.	**2**	1.40
17	Role of Physiotherapy in Neuro-Surgical and Neonatal ICU.	**1**	0.73
18	Management of Tonal abnormalities (Spasticity, Rigidity, Hypotonia and Dystonia)	**2**	1.40

19	**Assessment and principles of therapeutic management of following conditions:**	**106**	
19.1	Congenital and Childhood Disorders – Cerebral palsy, Hydrocephalus and Spina Bifida.	(12)	
19.2	Cerebro Vascular Accidents	(5)	
19.3	Trauma – Head Injury and Spinal Cord Injury.	(8)	
19.4	Tumors of Brain And Spinal Cord	(8)	
19.5	Diseases of The Spinal Cord – Craniovertebral Junction Anomalies, Syringomyelia, Cervical and Lumbar Disc Lesions, and Spinal Arachnoiditis.	(7)	
19.6	Demyelinating Diseases (Central And Peripheral) – Guillain – Barre Syndrome, Acute Disseminated Encephalomyelitis, Transverse Myelitis and Multiple Sclerosis.	(7)	
19.7	Degenerative Disorders – Parkinson's Disease and Dementia.	(7)	
19.8	Infections – Pyogenic Meningitis Sequelae, Tuberculous Infection of Central Nervous System And Poliomyelitis.	(7)	77.73
19.9	Diseases of The Muscle – Muscular Dystrophies, Inflammatory Myopathy, Endocrine/ Metabolic Myopathies.	(7)	
19.10	Peripheral Nerve Disorders – Peripheral Nerve Injuries, Entrapment Neuropathies and Peripheral Neuropathies.	(7)	
19.11	Other Conditions- Epilepsy, Myasthenia Gravis, Motor Neuron Diseases, Cranial Nerve Lesions.	(12)	
19.12	Neuropsychiatric Disorders- The Autistic Spectrum Disorders, Attention Deficit/ Hyperactivity Disorder	(7)	
19.13	Learning Disabilities	(5)	
19.14	Neurosurgery: Post Surgical Physiotherapy in Neurosurgical Procedures – Craniotomy, Shunts, Surgical Treatment of Spasticity, Cervical Cord Decompression.	(7)	
20.	Scientific and Critical Literature Review, Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence and Practice (LEAP) to all of the above conditions. (To be included along with lectures of respective topics).		
	PRACTICALS - To teach developmental screening and neonatal reflex assessment. - To teach motor assessment (tone, ROM, MMT, girth measurement, voluntary control testing), reflex assessment, sensory assessment, cranial nerve assessment, higher mental function assessment. - To teach balance, coordination assessment and training, PNF techniques. - To teach Brunstorm, NDT, and Rood's, MRLP, SI, vojta, neural mobilization techniques. - To teach facilitatory and inhibitory techniques,		

	oromotor rehabilitation exercises, vestibular rehabilitation exercises. - To teach assessment of ANS dysfunction, testing and training of perceptual dysfunction. - To teach CIMT and MFR. - To teach respiratory assessment and management for neurological conditions. - To teach positional strategies for stroke patient, specific hand rehabilitation exercises for stroke patients. - To teach movement facilitation exercises for child with delayed milestone. - Application of various scales used for neurological conditions.		
	TOTAL	180	

SPORTS PHYSIOTHERAPY

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
7103	SPORTS PHYSIOTHERAPY	2	60	4	100	100	3
7203	SPORTS PHYSIOTHERAPY **(PRACTICAL)**	4	90	3	100	100	-

COURSE OBJECTIVES:

This semester exclusively focuses on developing ability of Evidence Based Clinical Practice by applying all the Physiotherapeutic skills (learned on models so far) on patients for Evaluation, Assessment, Arriving at Functional Diagnosis and correlate the same with clinical diagnosis as well as Planning and Executing Preventive Measures and also short term / long term treatment for Restoration / Rehabilitation of Movement Dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects based on Research Methodology and for Community oriented practice related to Sports Physiotherapy.

COURSE OUTCOMES:

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

1. Get experience in Sports Injuries and Management and also qualifies them to manage on field rehabilitation.
2. Recognize the need to adopt the Principles of Sports Physiotherapy in Rehabilitation and Management of Sports Injuries.
3. Plan realistic goals on the knowledge of prognosis of sports conditions and prescribe appropriate and safe Physiotherapy interventions with Clinical Reasoning.
4. Get competency in Assessment, Clinical reasoning, developing plan of care, Physiotherapeutic Interventions, Case presentations and Documentations of Sports conditions.

TEXT BOOKS & REFERENCE BOOKS: SPORTS PHYSIOTHERAPY

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

SYLLABUS : SPORTS PHYSIOTHERAPY– (150 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Nutrition in Athletes	**15**	13.20
2	**Exercise Physiology**	**20**	17.60
2.1	Cardiovascular adaptations to exercise	(4)	
2.2	Pulmonary adaptations to exercise	(4)	
2.3	Skeletal muscle changes to exercise	(4)	
2.4	Neural and Hormonal control of exercise	(4)	
2.5	Exercise in Altitude, Hot, Humid, and Cold Environments	(4)	
3.	Overuse Syndromes & their Management	**15**	13.20
4.	Athletic Conditioning: Warm Up, Cool Down, General Stretching, Overload Principle, Specificity of Training, Aerobic and Anaerobic Training, FITT Principle, Off Season Training, DOMS	**15**	13.20
5.	Rehabilitation of Sports Injuries: Principles and Goals of Rehabilitation Programme. Special and Sport Specific exercises. Use of Protective Equipment.	**20**	17.60
6.	ONFIELD MANAGEMENT OF ATHELETIC INJURY: Identification of on Field Injury, Emergency Care and Athletic First Aid, Managing Cardio Pulmonary Emergency, Splinting of Specific Fractures, PRICE, Stretcher use, Referral, Working in coordination with Multidisciplinary Team.	**25**	22.00
7.	Common Sports Injuries. Management Rehabilitation and Prevention of Injuries of Upper Limb, Spine and Lower Limb. Strain, Sprain, Tendinitis, Overuse Syndromes, Stress Fracture, Back Pain, Tightness, Fresher's Leg, Bursitis, Cramps, Avulsion Fractures, Fatigue	**25**	22.00
8.	Scientific and Critical Literature Review, Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence and Practice (LEAP) to all of the above conditions. (To be included along with lectures of respective topics).	**15**	13.20
	PRACTICALS - assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions. Cardiovascular fitness training, Neural mobilization, Athletic Conditioning: Warm Up, Cool Down, General Stretching, Overload Principle, Specificity of Training, Aerobic and Anaerobic Training, FITT Principle, Off Season Training, DOMS. Rehabilitation of Sports Injuries: Special and Sport Specific exercises. Use of Protective Equipment. On field Management: Emergency Care and Athletic First Aid, Managing Cardio Pulmonary Emergency, Splinting of Specific Fractures, PRICE, Stretcher use.		
	TOTAL	**150**	

PAIN MANAGEMENT

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
7104	PAIN MANAGEMENT	3	90	6	100	100	3
7204	PAIN MANAGEMENT (PRACTICAL)	2	30	1	100	100	-

COURSE OBJECTIVES:

This Semester exclusively focuses on developing ability of Evidence Based clinical Practice by applying all the Physiotherapeutic Skills (learned on models so far) on patients for Evaluation, Assessment, Arriving at functional diagnosis and correlate the same with clinical diagnosis as well as Planning and Executing preventive measures and also short term / long term treatment for Restoration / Rehabilitation of movement Dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects based on Research Methodology and for community oriented practice related to Pain Management.

COURSE OUTCOMES:

This subject will facilitate the awareness of the Multi-Dimensional and Multi-Disciplinary aspects of Pain and encourage the clinician to evaluate a variety of evidence based approaches to Pain Management, with the aim of enhancing clinical practice and patient care in the discipline of Physiotherapy.

TEXT BOOKS & REFERENCE BOOKS: PAIN MANAGEMENT

1. Textbook of Pain Management by Murli Joshi. Paras Publications.
2. Pain Management by Physiotherapists.2nd Edition by Wells. B & H Publications.
3. Low Back Pain by Wiesel. 2nd Edition Saunders Publications.
4. Trigger point dry needling: an evidence and clinical based approach by Jan Dommerholt
5. Acupuncture, Trigger points and musculoskeletal pain – 3rd edition by John W Thompson, Peter E Baldry, Elsevier publications

SYLLABUS - PAIN MANAGEMENT– (120 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	Physiology of Pain, Pain Pathways, Pain Transmission, Pain Modulation. Theories of Pain (Acute, Chronic), Assessment of Pain: Paediatrics and Adult, Common Scales and Tools used in Pain Management	**18**	19.80
2	Etiology,Clinical Presentation and Physiotherapy Management of A. Complex Regional Pain Syndromes B. Neuropathic Pain C. Fibromyalgia D. Psychosomatic Pain E. Phantom Pain Sensation	**15**	16.50
3	Referred Pain	**3**	3.30
4	Electrotherapeutic Modalities for Pain Relief	**8**	8.80
5	Techniques & Grades of Manipulation and Mobilization for Pain Relief	**4**	4.40
6	Role of External Appliances for Pain Relief	**4**	4.40
7.	Physiotherapy for Cancer Pain	**5**	5.50
8.	Physiotherapy Management of Musculoskeletal Pain with Clinical Reasoning	**6**	6.60
9.	Alternative Medicine for Pain Relief	**5**	5.50
10.	Physiotherapy Management of Incisional Pain in General Surgery, Urosurgery, Plastic and Gynecological Surgeries.	**10**	11.00
11.	Physiotherapy Management of Acute, Sub Acute and Chronic Pain in General & DRY NEEDLING (DN) : Concepts of Myofascial Trigger Points, Proposed mechanisms and effects of trigger point DN, Effects of Acupuncture needling on connective tissues and fascia, Superficial and Deep DN for head and neck muscles, shoulder muscles, arm and hand muscles, trunk muscles, hip pelvis and thigh muscles, leg and foot muscles, Intramuscular stimulation techniques, Professional controversies and DN.	**5**	5.50
12.	Multidisciplinary Approach for Pain Management (Including Cognitive and Behavioral Introduction)	**5**	5.50
14.	Introduction to – Nerve Blockage, Ozone Therapy, Neurostimulatory and Ablative Procedures, Cryoneurolysis, Radiofrequency Techniques Adjuvant Analgesics, Analgesics (NSAIDs, Steroids, Opioids), Psychological and Behavioral Modalities for Pain -Cognitive Behavioral Therapy-Relaxation Techniques, Hypnosis, Biofeedback, Psychotherapeutic Approaches.	**15**	16.50
15.	Scientific and Critical Literature Review, Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence and Practice (LEAP) to all of the above Conditions. (To be included along with lectures of respective topics).	**17**	18.70
	PRACTICALS - To teach various modalities for pain relief - External appliances for pain relief. - Mobilization for pain relief. – Visit to Pain Clinic.		
	TOTAL	**120**	

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

SEMESTER – VIII

Subject code	Subjects	Hours per week	Theory		Practical	
			Hrs.	Credits	Hrs.	Credits
8101	PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS	4	120	8	-	-
8201	PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS **(PRACTICAL)**	3	-	-	60	2
8102	PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS	4	120	8	-	-
8202	PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS **(PRACTICAL)**	3	-	-	60	2
8103	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS	2	60	4	-	-
8203	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS **(PRACTICAL)**	4	-	-	90	3
8104	REHABILITATION	2	60	10	-	-
8204	REHABILITATION **(PRACTICAL)**	2	-	-	30	1
Physiotherapy Opd Posting		4	-	-	90	3
Continuing Physiotherapy Educational Program [CPE]		1	-	-	30	1
TOTAL		**29**	**360**	**30**	**360**	**12**

SCHEME OF EXAMINATION FOR B.PHYSIOTHERAPY:

SEMESTER – VIII

Subject code	Subjects	Examination Hrs.	Marks		
			Internal.	External	Total
8101	PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS	3	100	100	200
8201	PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS **(PRACTICAL)**	-	100	100	200
8102	PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS	3	100	100	200
8202	PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS **(PRACTICAL)**	-	100	100	200
8103	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS	3	100	100	200
8203	PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS **(PRACTICAL)**	-	100	100	200
8104	REHABILITATION	3	100	100	200
8204	REHABILITATION **(PRACTICAL)**	-	100	100	200
Physiotherapy Opd Posting		-	-	-	-
Continuing Physiotherapy Educational Program [CPE]		-	-	-	-
TOTAL		**-**	**800**	**800**	**1600**

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

CONTINUING PHYSIOTHERAPY EDUCATIONAL PROGRAM [CPE]

Total	**- 60 hrs.**
Credits	**- 2**

IN EIGHTH SEMESTER, AS PER THE REQUIREMENT OF SYLLABUS STUDENTS HAS TO UNDERGO COMPULSORILY THE FOLLOWING PROGRAMS TO UPDATE STUDENTS TO INTERNATIONAL STANDARDS FOR 60 HRS. WHICH IS ACCREDITED WITH 2 CREDITS.

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

N.B.: THE RESOURCE PERSONS SHOULD BE RENOWNED IN THE FIELD OF PHYSIOTHERAPY AND REHABILITATION.

PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
8101	PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS	5	120	8	100	100	3
8201	PHYSIOTHERAPY FOR ORTHOPAEDIC CONDITIONS **(PRACTICAL)**	3	60	2	100	100	-

COURSE OBJECTIVES:

This semester exclusively focuses on developing ability of Evidence Based Clinical Practice by applying all the physiotherapeutic skills (learned on models so far) on patients for Evaluation, Assessment, Arriving at Functional Diagnosis and correlate the same with clinical diagnosis as well as Planning and Executing Preventive Measures and also short term / long term treatment for Restoration / Rehabilitation of Movement Dysfunction affecting quality of life. In addition this academic year also includes basic skill development of conducting scientific projects based on Research Methodology and for Community Oriented Practice

COURSE OUTCOMES:

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

1. Identify, Discuss and Analyze the Musculo-Skeletal dysfunction in terms of Biomechanical, Kinesiological and Biophysical bases and correlate the same with the Provisional Diagnosis, Routine Radiological and Electrophysiological Investigations and arrive at appropriate Functional Diagnosis with Clinical Reasoning.
2. Plan and prescribe as well as acquire the skill of executing Short and Long Term Physiotherapy treatment by selecting appropriate modes of Mobilization/ Manipulations, Electrotherapy, Therapeutic Exercises and Appropriate Ergonomic advise for the relief of Pain, Restoration, Maintenance of Function and or Rehabilitation for maximum functional independence in ADL at home and work place.
3. Plan realistic goals on the knowledge of prognosis of the Orthopaedic conditions and prescribe appropriate and safe Physiotherapy interventions with Clinical Reasoning.
4. Get competency in Assessment, Clinical reasoning, Developing Plan of Care, Physiotherapeutic Interventions, Case presentations and Documentations of Orthopaedic Conditions.

TEXT BOOKS & REFERENCE BOOKS: PHYSIOTHERAPY IN ORTHOPAEDIC CONDITIONS

1. Essentials of Orthopaedics by – Maheshwari 3rd Edition Mehta Publications.
2. Tidy's Physiotherapy-Ann Thomson, 12th Edition, K M Varghese Company.
3. Tidy's Physiotherapy-Stuart Porter, 13th Edition, Elsevier Publication
4. Textbook of Orthopaedics by John Ebenezer, 2nd Edition, Jaypee Publications
5. Essential Orthopedic and Physiotherapy- Jayant Joshi, 3rd Edition, Jaypee Publications
6. The Problem Knee- Malcom 2nd Edition. Jaypee Publications.

7. Current Therapy of Trauma. Donald Lewis 4th Edition. Mosby Publications.
8. Shoulder Pain –Calliet 3rd Edition Jaypee.
9. Outline of Orthopaedics by John Crawford 13th Edition Churchill Livingstone.
10. Textbook of Orthopaedics by Kalava, 2nd Edition, Paras Publications.
11. Apley's Textbook of Orthopaedics and Fractures by Apley's 7th Edition B/H Publications.
12. Neuromuscular Skeletal Examination & Assessment Nicola Petty. 3rd Edition Elsevier.
13. Orthopedic Assessment by David Magee. 5th edition, Churchill Livingston
14. Foot and Ankle Pain. Rene Calliet. 2nd Edition Jaypee Publications.

SYLLABUS:PHYSIOTHERAPY FOR ORTHOPEDIC CONDITIONS– (180 hrs.)

Sr. No	Topic and details	No. of hrs. assigned	Weightage in percentage(%)
	PHYSIOTHERAPY FOR NON TRAUMATIC ORTHOPEDIC CONDITIONS. (100 hrs.)		
1.	Introduction to PT Management in Non Traumatic Orthopedic Conditions. -General Principles of PT Management(PT Assessment and Management)	**10**	7.33
2.	PT Management following Inflammation and Soft Tissue Injuries -Ligament, Bursa, Synovium, Fascia, Capsule, Tendon Muscle.	**10**	7.33
3.	PT Management following Deformities-Congenital and Acquired Deformities of Upper Limb, Lower Limb and Spine.	**10**	7.33
4	**PT Management following Bone and Joints Infection-**	**10**	7.33
4.1	Osteomyelitis	(2)	
4.2	Periosteitis,	(2)	
4.3	Pyogenic Arthritis,	(2)	
4.4	Pyogenic Osteitis,	(2)	
4.5	Tuberculosis(Hip Knee Ankle Shoulder Spine),	(1)	
4.6	Charcot's Joint & Hemophilia	(1)	
5	**PT Management in Metabolic Bone Disorders**	**5**	3.60
5.1	Rickets,	(1)	
5.2	Scurvy,	(1)	
5.3	Osteomalacia,	(1)	
5.4	Osteoporosis,	(1)	
5.5	Hyper and Hypoparathyroidism.	(1)	
6.	PT Management in Bone Tumors(Bone Neoplasia)-General Principles of Tumors and its Management	**8**	5.80
7	**PT Management in Rheumatic Disorders**	**15**	11.00
7.1	Rheumatoid Arthritis,	(5)	
7.2	Ankylosing Spondylitis,	(5)	
7.3	Seronegative Spondyloarthropathies	(5)	
8	**PT Management in Degenerative Arthropathies**	**12**	8.80
8.1	Osteoarthritis,	(3)	
8.2	Spondylosis,	(3)	
8.3	Spondylolysis,	(3)	
8.4	Spondylolisthesis(Cervical And Lumbar Spine)	(3)	
9.	PT Management in Low Backache -Approach to a Patient with Low Back Pain and its Management (Scoliosis, Kyphosis, PIVD, Spinal Canal Stenosis and Sacralization)	**15**	11.00
10.	Abnormal Gait (Gait Deviations)–Causes, Type, and its Management	**5**	3.60

	Physiotherapy for Traumatic Orthopedic Conditions. (80 hrs.)		
11.	Introduction to PT Management in Traumatic Orthopedic Conditions-General Principles of PT Management in Traumatic Orthopedic Condition(Arthroplasty, Arthrodesis, Osteotomy) -General Principles of PT Management for Conservative and Operative Method -PT Assessment and Management.	**8**	5.80
12.	Physiotherapy Management for Fractures and its Complications:-Definition, Causes, Classification, of Fracture –Complication of Fracture and its Management.	**5**	3.60
13.	Fracture in Children, Epiphyseal Injury and its Physiotherapeutic Management	**4**	2.90
14.	PT Management following Fracture of Upper Limb	**8**	5.80
15.	PT Management following Fracture of Lower Limb	**8**	5.80
16.	PT Management following Fracture of Spine And Pelvic	**6**	4.40
17.	Physiotherapy Management for Rehabilitation of Patients-Arthroscopy, Arthroplasty and Reconstructive Surgeries (TKR, THR, Shoulder Arthroplasty, ACL, PCL and Menisci Reconstruction)	**12**	8.80
18.	PT Management following Subluxation and Dislocations-for both Upper and Lower Limb Joints	**4**	2.90
19.	PT Management following Amputation of Upper Limb and Lower Limb –Pre Operative, Post Operative Management, Stump Management, Phantom Pain and Sensation and its Management, Pre Prosthetic and Prosthetic Stage Management.	**8**	5.80
20.	PT Management for Orthotics and Prosthetics-Management of Splints and Calipers	**5**	3.60
21.	Physiotherapy Management for Peripheral Nerve Injuries, and Tendon Transfer Surgery	**8**	5.80
22.	Scientific and Critical Literature Review, Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence and Practice (LEAP) to all of the above conditions. (To be included along with lectures of respective topics).	**4**	2.90
	PRACTICALS - assessment, evaluation through Physical and functional diagnosis with demonstration of treatment for the above conditions.		
	TOTAL	**180**	

PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
8102	PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS	5	120	8	100	100	3
8202	PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS **(PRACTICAL)**	3	60	2	100	100	-

COURSE OBJECTIVES:

This semester exclusively focuses on developing ability of Evidence Based Clinical Practice by applying all the Physiotherapeutic skills (learned on models so far) on patients for Evaluation, Assessment, Arriving At Functional Diagnosis and correlate the same with clinical diagnosis as well as planning and executing preventive measures and also short term / long term treatment for Restoration / Rehabilitation of Movement Dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects based on Research Methodology and for Community Oriented Practice

COURSE OUTCOMES:

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

1. Identify, Discuss and Analyze Cardio – Pulmonary Dysfunction based on Patho - Physiological Principles and arrives at the appropriate Functional Diagnosis.
2. Acquire knowledge of Rationale of basic investigative approaches in the Medical System and Surgical Intervention regimes related to Cardio – Pulmonary Impairment.
3. Acquire the skill of evaluation and interpretation of functional capacity using simple Exercise Tolerance Tests such as 6 min. Walk Test, Symptom Related Test.
4. Select strategies for Cure, Care and Prevention, Adopt Restorative and Rehabilitative measure for maximum possible functional independence of a patient at Home, Work place and in community.
5. Execute the effective Physiotherapeutic Measures (with appropriate clinical reasoning) with special emphasis to Breathing Retraining, Nebulization, Humidification, Bronchial Hygiene, General Mobilization and Exercise Conditioning.
6. Acquire knowledge of the overview of patients care at the Intensive Care area, Artificial Ventilation, Suctioning, Positioning for Bronchial Hygiene and Continuous Monitoring of the Patient at the Intensive Care area.
7. Acquire the skill of basic Cardio – Pulmonary and Cerebral Resuscitation.
8. Plan realistic goals on the knowledge of prognosis of the disease of the cardiovascular and pulmonary system and prescribe appropriate and safe physiotherapy interventions with clinical reasoning.
9. Get competency in Assessment, Clinical reasoning, developing plan of care, Physiotherapeutic Interventions, Case presentations and Documentations of Cardiovascular and Pulmonary Conditions.

TEXT BOOKS & REFERENCE BOOKS: PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS

1. Cardiovascular and Pulmonary Physical Therapy Evidence and practice. 4th Edition. Donna Frownfelter, Elizabeth Dean, Mosby, Elsevier.
2. Cash's Textbook of Chest, Heart and Vascular Disorders for Physiotherapist's. 4th Edition. Patricia A Downie.
3. Physiotherapy for Respiratory and Cardiac Problems. Adults and Pediatrics. 4th Edition. Jennifer A Pryor,S Ammani Prasad
4. EGAN's Fundamentals of Respiratory Care .9th Edition. Robert L Wilkins, James k stoller, Robert M Kacmarek.
5. Cardiopulmonary Physical Therapy – A Clinical Manual. Joanne Watchie.
6. Essentials of Cardiopulmonary Physical Therapy. 2nd Edition. Hilllegass and Sadowsky.
7. Cardio-Vascular /Respiratory Physiotherapy. Mandy Smith, Val Ball. Mosby
8. Multispecialty Approaches to Breathing Pattern Disorders. Leon Chaitow. Churchill Livingstone
9. The Pocket book of Chest PT. Gitesh Amrohit.
10. Clinical Assessment in Respiratory Care. Wilkins, Elsevier, Mosby
11. Tidy's Physiotherapy, Ann Thomson 12th Edition. Elsevier
12. Handbook of Practical Chest Physiotherapy –Pushpal Kumar Mitra. Jaypee.

SYLLABUS-PHYSIOTHERAPY FOR CARDIOVASCULAR AND PULMONARY CONDITIONS– (180 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1	Assessment and Investigation of Patients Problem	**5**	3.66
2	Cardiology-The Heart and Circulation, Evaluation of Cardiac Function, Therapeutic Interventions	**10**	7.33
3	Pulmonology-Respiratory System and its Function, Evaluation of Pulmonary System, Therapeutic Interventions in Pulmonary Medicine	**10**	7.33
4	Cardiopulmonary Pathology- Cardiovascular Diseases and Disorders-Hypertension, Atherosclerotic Heart Disease, Heart Failure, Cardiac Arrythmias, Valvular Heart Disease, Cardiomyopathies and other Cardiac Disorders Like Myocarditis, Pericarditis, Rheumatic Fever etc -Disease of The Arteries -Disease of The Vein Diseases of Lymphatic System Pulmonary-Obstructive Lung Disease, Restrictive Lung Disease, Occupational Lung Disease Etc	**37**	27.13
5	Cardiopulmonary Assessment	**8**	5.86
6	Pulmonary Rehabilitation	**8**	5.86
7	Investigations- Chest X Ray ABG ECG PFT Holter Monitoring Cardiac Catheterization Serum Chemistry Hematology	**10**	7.33
8	Cardiac Rehabilitation	**10**	7.33
9	Exercise Tolerance Testing	**10**	7.33
10	Physiotherapy Management for Common Conditions in The ICU	**10**	7.33
11	Cardiopulmonary Physiotherapy Interventions	**28**	20.50
11.1	Acupuncture, Airway Clearance Techniques (Basic And Advanced), Airway Suction, Breathing Control, Incentive Spirometry, Bronchial Hygiene	(4)	
11.2	Positioning,	(4)	
11.3	Inspiratory Muscle Training,	(4)	
11.4	IPPB,	(4)	
11.5	Manual Hyperinflation,	(4)	
11.6	Manual Therapy Techniques Like Mobilization of Thoracic Spine, Neurophysiologic Facilitation of Respiration-Facilitator and Inhibitory Technique	(4)	
11.7	Inhalation-Humidification, Meter Dose Inhaler, Dry Powder Inhaler, Nebulizers, Heliox	(4)	

12	PT Management Following Pulmonary Surgery	**10**	7.33
13	PT Management Following Cardiac Surgery	**10**	7.33
14	Artificial Airways	**6**	4.40
15	Cardiopulmonary Resuscitation	**8**	5.80
16	Scientific and Critical Literature Review, Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence and Practice (LEAP) to all of the above conditions. (To be included along with lectures of respective topics).		
	PRACTICALS - To teach for palpation, observation, percussion and auscultation skills for chest assessment, sub maximal exercise testing- e.g., 6 MWT, 3 MWT, shuttle walk test. Get up and go test, Target HR calculation for prescription of exercise. - To teach thoracic mobility/ chest expansion exercises, breathing exercises, postural drainage. - To teach positioning for improvement in lung expansion, post surgical positioning (cardiac/ pulmonary surgery), positioning to relieve dyspnea. - To teach forced expiratory techniques (coughing, huffing), airway clearance techniques (ACBT, AD, conventional techniques, suctioning, PD). - To teach breathing retraining, diaphragmatic strengthening exercises, Inspiratory muscle training, manual hyperinflation techniques, chest PNF. - To teach assisted coughing techniques,CPR skills,Nebulization techniques. - To teach pulse rate palpation skills, respiratory rate, blood pressure measurement,chest expansion measurement skills. - To teach Buerger's exercise - Positioning and exercises to decrease venous insufficiency.		
	TOTAL	**180**	

PHYSIOTHERAPY FOR MEDICAL & SURGICAL CONDITIONS

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
8103	PHYSIOTHERAPY FOR MEDICAL & SURGICAL CONDITIONS	2	60	4	100	100	3
8203	PHYSIOTHERAPY FOR MEDICAL & SURGICAL CONDITIONS **(PRACTICAL)**	4	90	3	100	100	-

COURSE OBJECTIVES:

To integrate the knowledge gained in clinical Medicine and Surgery in the Physiotherapy Management.

COURSE OUTCOMES:

At the end of this course student should be able to ;

1. Identify, Evaluate the General Medical and Surgical conditions and set goals of treatment using Physiotherapeutic Skills.
2. Plan realistic goals on the knowledge of prognosis of the disease of Medical and Surgical conditions and prescribe appropriate and safe Physiotherapy interventions with Clinical Reasoning
3. Get competency in Assessment, Clinical reasoning, developing plan of care, Physiotherapeutic Interventions, Case presentations and Documentations of Medical and Surgical conditions

TEXT BOOKS & REFERENCE BOOKS: PHYSIOTHERAPY FOR MEDICAL & SURGICAL CONDITIONS

1. Cash Text book of General Medical and Surgical Conditions for Physiotherapists, 2nd Edition, Jaypee Brothers Publications
2. Tidy's Physiotherapy, 14th Edition – Elsevier Publication.
3. Goel's Physiotherapy, by Dr. R.N.Goel. Jaypee
4. A Concise Textbook of Surgery 4th Edition by S.Das, Published by Dr.S.Das
5. Bailey & Love's Short Practice of Surgery, 25th Edition, Published by Hodder arnold

SYLLABUS: PHYSIOTHERAPY FOR MEDICAL & SURGICAL CONDITIONS – (150 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage (%)
1.	Physiotherapy Management of Wound-Introduction and Types of Wound, Wound Healing, Assessment of Wound, PT Management	**10**	8.80
2.	Physiotherapy Management of Ulcer-Introduction and Types of Ulcers, Assessment of Ulcers and PT Management	**10**	8.80
3.	Physiotherapy Management of Scar- Introduction, Assessment and PT Management of Scar	**5**	4.40
4.	Inflammation – Acute, Chronic And Supportive	**5**	4.40
5.	Burns- Introduction to Burns, Pathological Changes with Burns, Prognosis of Burns Patient, Clinical Presentation, Medical Management, Assessment of a Burns Patient, Rehabilitation of a Burns Patient, Surgical Management of a Burns Patient, PT Management for Skin Graft, Tendon Transfers flaps and pedicels and Reconstructive Surgeries.	**20**	17.60
6	**Skin Conditions: Definition, Pathogenesis, Clinical Features and Management for the following Skin Conditions**	**10**	8.80
6.1	Psoriasis	(2)	
6.2	Acne Vulgaris	(2)	
6.3	Vitiligo	(2)	
6.4	Alopecia	(2)	
6.5	Hyperhydrosis	(2)	
7	**PT Management for the following Deficiency Diseases**	**12**	10.50
7.1	Rickets	(3)	
7.2	Diabetes	(3)	
7.3	Obesity	(3)	
7.4	Osteoporosis	(3)	
8	**PT Management for the following ENT Conditions**	**11**	9.60
8.1	Facial Palsy	(3)	
8.2	Otitis Media	(2)	
8.3	Sinusitis	(2)	
8.4	Tonsillectomy	(2)	
8.5	Laryngectomy	(2)	
9.	Cancer: Definition, Types, Clinical Manifestations of Cancer, Staging of Cancer, Surgical Procedures involved in the Management of Cancer, PT Management	**15**	13.20
10.	Principles of Surgery and Physiotherapy Management: Reasons for Surgery, Preoperative Treatment, Types of Anesthesia, Types of Incisions, Clips, Ligatures and Sutures, Postoperative Treatment, Physiotherapy Management	**15**	13.20

11	**Other Common Operations**	**14**	12.32
11.1	Cholecystectomy	(2)	
11.2	Colostomy	(2)	
11.3	Ileostomy	(2)	
11.4	Gastrectomy	(2)	
11.5	Hernias	(2)	
11.6	Mastectomy	(2)	
11.7	Nephrectomy	(2)	
12.	Physiotherapy for Elderly: Physiotherapy in care of the Elderly, Biology of Ageing, Social Problems, Health Promotion and Body Maintenance, Handicaps within daily living, Effects of Immobilization, Psychiatry in the Elderly, Assessment of the Elderly, Services for the Elderly, Role of the Physiotherapist for the care of the Elderly.	**15**	13.20
13.	Physiotherapy in Psychiatric Illness	**8**	7.04
14.	Scientific and Critical Literature Review, Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence and Practice (LEAP) to all of the above conditions. (To be included along with lectures of respective topics).		
	PRACTICALS - Practical application of LASER, UVR, US for wound/ ulcer. - To teach scar mobilization- kneading, friction massage. - To teach positioning to prevent post burn contracture, stretching, breathing exercises and chest mobility exercises. - To teach target HR calculation for exercise prescription (obesity, diabetes, osteoporosis). - Exercises in osteoporosis. - To teach modalities in specific ENT conditions- facial palsy, sinusitis. - To teach post operative management (breathing exercises and exercises to prevent post operative complications). - To teach abdominal strengthening exercises (graded exercise for abdominal surgery). - To teach postural correction exercise (post surgical).		
	TOTAL	**150**	

REHABILITATION

Subject code	Subjects	Hours per week	Total Hrs.	Credits	Marks		Examination Hrs
					Internal	External	
8104	REHABILITATION	2	60	4	100	100	3
8204	REHABILITATION **(PRACTICAL)**	2	30	1	100	100	-

COURSE OBJECTIVES:

This subject exclusively focuses on developing ability of Evidence Based Clinical Practice by applying all the Physiotherapeutic Skills (learned on models so far) on patients for Evaluation, Assessment, Arriving at Functional Diagnosis and correlate the same with Clinical Diagnosis as well as planning and executing preventive measures and also short term / long term treatment for Restoration / Rehabilitation of Movement Dysfunction affecting quality of life. In addition this academic semester also includes basic skill development of conducting scientific projects based on Research Methodology and for community oriented practice

COURSE OUTCOMES:

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

1. Describe the strategy to assess – Prevalence and Incidence of various conditions that increase the morbidity, Role of Physiotherapy in improving morbidity, expected functional and clinical recovery; reasons for non-compliance in specific community environment – solution – strategies of CBR Programme, concept of Team Work – Role of PT / OT / Audiologist / P and O / Vocational guide in the CBR programme of the Physically Handicapped – Role of Multipurpose Health Worker.
2. Describe the general concepts about Health and Disease – General Fitness.
3. Describe various National and International Health Policies – Role of IAP to promote Physiotherapy as a Health delivery system.
4. Attain ability of conducting small survey and collection of Anthropometric data collection for morbidity assessment in various conditions – planning and implementation of appropriate Physio-Therapeutic modes and advise with Clinical Reasoning at the urban, rural and community level for
   a) Aging Population
   b) General Fitness
   c) Industrial Set-up
5. Understand the use of ICF

TEXT BOOKS & REFERENCE BOOKS: REHABILITATION

1. Textbook of Rehabilitation by Sunder. 2nd Edition. Jaypee.
2. Physical Rehabilitation by Susan & O'Sullivan 4th Edition Jaypee.
3. Physiological Basis of Rehabilitation Medicine by Downie and Darlings. 3rd Edition B/H publications.
4. Physical Medicine and Rehabilitation by Dellisa 4th Edition. Lippincott Williams.
5. Geriatric Secrets by Belfus 2nd Edition Jaypee.
6. Management in Rehabilitation by Charles. Jaypee.
7. Rehabilitation of Older Person by Squires 3rd Edition. Jaypee.
8. Industrial Therapy by Glenda Key ,Mosby

SYLLABUS - REHABILITATION– (90 hrs.)

Sr. No.	Topic and Details	No. of hrs. assigned	Weightage in percentage(%)
1.	The **Philosophy and need** of Rehabilitation The Principles of Physical Medicine	**10**	14.66
2.	The **Evaluation** Process and Treatment **Planning**	**15**	22.00
3.	**Principles of Prescription Writing**	**5**	7.33
4.	**Principles of Rehabilitation** A. **Concept** of Rehabilitation: Definition, Concepts of Impairment, Disability & Handicap: ICIDH, ICF, Institutional Based Rehabilitation (IBR), Outreach Based Rehabilitation (OBR), Scope of Rehabilitation, Social Implication of Rehabilitation. B. Community Based Rehabilitation (CBR) C. **Laws** Related to Rehabilitation: Consumer Law Therapist's Liability, RCI Act, Person with Disability Act, 1995, WHO position on Health and Healthcare	**20**	29.33
5.	**Ergonomics:** Work Capacity Analysis, Pre – Employment Screening, Industrial Therapy, Examination of Postures, Job Task Analysis, Education For Prevention of Injury, Economic Stress Management, Principles of Work Hardening	**15**	22.00
6.	**Fitness & Health Promotion** Acute and Chronic Physiological Effects of Aerobic Exercises Principles of Aerobic and Anaerobic Training. Principles for Training-Strength, Power and Endurance. Clinical Reasoning for Advocating Aerobic Exercises as preventive measure in Obesity & its Related Conditions / in Cardio- Respiratory Conditioning/Aging/Deconditioning Effects after prolonged Bed Rest/ Diabetes.	**15**	22.00
7.	Prevention, Health and Wellness & Industrial Health	**10**	14.66
8.	Scientific and Critical Literature Review, Clinical Reasoning, Evidence Based Practice (EBP) and Linking Evidence and Practice (LEAP) to all of the above Conditions.(To be included along with lectures of respective topics)		
	PRACTICALS - To teach evaluation protocols for orthopaedic, neurological and cardio-pulmonary conditions. - Ergonomic evaluation and treatment planning. - Exercises for obesity, diabetes mellitus, hypertension and deconditioning. - Aerobic exercises. - Anaerobic exercise training. - Postural correction exercises. - Visit to NGO/ government/ geriatric home/ rehabilitation centre/ industrial set ups/ orphanage shelter homes, etc.		
	TOTAL	**90**	

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

INTERNSHIP PROGRAMME

Total - 1194 Hrs.

Sr. No.	Program Pattern	Hrs.
A	The Clinical Orientation Workshop.	24 hrs.
B	Rotational Basis Clinical Training	1092 hrs.
C	Physiotherapy Practice & Scientific Project including Administrative Skills. (3 hrs. per week - not less than 78 hrs.)	78 hrs.
TOTAL INTERNSHIP PROGRAM HOURS		1194 hrs.

Rules Governing Internship Training Program for VIII Semester pass out B.P.T. Candidates under the Faculty of Sciences.

1. This Direction shall be called "Rules Governing Internship Training Program for Final Year pass out B.P.T. candidates.
2. This Direction shall come into force with effect from the date of its issuance.
3. For the Degree of Bachelor of Physiotherapy, the students after passing the professional examinations as per the syllabi prescribed by the S.N.D.T. Women's University, Mumbai, shall undergo Six months compulsory rotatory internship training program to develop skill and acquire clinical knowledge with proficiency in managing patient independently.
4. These rules are already implemented by all approved / recognized Physiotherapy colleges affiliated to the S.N.D.T. Women's University, Mumbai, meticulously from the first batch admitted in 1999-2000 to Physiotherapy course. The evaluation of the interns shall be done very carefully by the In-charge, Internship Training Program and the Head of the concerned department on the basis of the skill, knowledge and ability to handle the cases independently. The Dean / Principal of the college shall have to monitor Internship Training Program in collaboration with all Heads of the Departments. The In-charge, Internship Training Program, Heads of the Departments and the Dean / Principal of the institution shall be responsible for the maintenance of standard and records of the interns. Any deviation/alteration in the training programme without the knowledge of the S.N.D.T. Women's University, Mumbai, shall not be permitted under any circumstances.
5. The program of internship shall be as under direct supervision of Head of the Institution.

GENERAL:

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

The Rules & Regulations, guide lines recommended by the state Council / Indian Association of Physiotherapists [I.A.P.] & accepted by the S.N.D.T. Women's University, Mumbai, shall be implemented.

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

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

OBJECTIVES:

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

1. Evaluate and objectively assess all the three components (as per ICF) of Movement Dysfunction and arrive at a Functional Diagnosis, with Biomechanically and Physiologically based Reasoning.
2. Understand the rationale & basic investigative approach to the Medical System & Surgical intervention regimens & accordingly, Plan & implement specific Physio therapeutic measures effectively or make a timely decision for referral to appropriate specialty.
3. Select strategies for cure & care; adopt Ppreventive, Restorative, Supportive & Rehabilitative measures for maximum possible independence of a client/ patient, at home, work place & in the community.
4. Able to Assess, Identify and Analyze Neuro-Motor And Psycho-Somatic Dysfunctions in terms of Alteration in Muscle Tone, Power, Co-Ordination, Involuntary Movements, Sensations, Perception etc, correlate the findings with Provisional Diagnosis and investigations such as EMG/NCV studies and arrive at Functional Diagnosis with Clinical Reasoning.
5. Able to Plan, Prescribe and Execute Short Term and Long Term Treatment with special reference to relief of Neuropathic and Psycho-Somatic Pain, Mat Exercise, Functional Re-Education, Gait Training and Functional Training for ADL and Ergonomic Advice.
6. Help in all Types of Emergencies Medical, Surgical, Neonatal, & Pediatric by appropriate Therapeutic Procedures & shall be able to implement, as a first level care, the Cardio Pulmonary Resuscitation, providing support to the injured area, Splinting etc, in the situation when Medical Aid is not available.
7. Demonstrate skills to promote Health in general as well as competitive level, such as Sports, Work productivity, Geriatric &, Women's health etc, keeping in mind National Health Policies.
8. Able to Evaluate a variety of Evidence Based Approaches to Pain Management, with the aim of enhancing Clinical Practice and Patient Care in the Discipline of Physiotherapy.
9. Develop ability to Assess, Prescribe and Train for the use of appropriate Orthotic & Prosthetic Devices; in addition to an ability to fabricate simple splints for Extremities, for the Purpose of Prevention, Support & Training for Ambulation & Activities of Daily Living.
10. To analyze Work Capacity, Pre – Employment Screening, Industrial Therapy, Examination of Postures, Job Task Analysis, Education for Prevention of Injury, Ergonomic , Stress Management.
11. Demonstrate Skills of Managing Patients attending Physiotherapy Services, by Developing Skills to use Appropriate Manipulative Mobilization Methods, Neuro-Physiological Maneuvers, Techniques of Bronchial Hygiene, Breathing Retraining; Application of Electro- Therapeutic Modalities & Therapeutic Exercise; for the purpose of, Evaluation, Assessment, Diagnostic procedures & for the purpose of Treatment as well, bearing in mind their Indications & Contraindications.
12. Develop skills to function as an essential member in co-partnership of the Health Team organized to deliver the health & family welfare services in existing Socio-economic, Political & Cultural Environment.

13. Develop Communication Skill for purpose of transfer of Suitable Techniques to be used creatively at various stages of Treatment, compatible with the Psychological Status of the beneficiary & skill to motivate the client & his family to religiously carry out prescribed Home Exercise Programme & Compliance to follow Ergonomic Advice given as a Preventive / Adoptive Measures.
14. Develop ability to do Functional Disability Evaluation of Movement & recommend for Rest or Alternative Work Substitution during the period of recovery or in case of permanent disability.
15. Practice Professional Autonomy & Ethical Principle with referral as well as first contact client in conformity with Ethical Code for Physiotherapists.

INTERNSHIP SCHEDULE:

Candidate shall be posted on Rotational Clinical assignments of total 26 weeks, including administrative skills pertaining to Physiotherapy Practice & a Scientific Project of 3 hours per week [total not less than 78 hours].

The Schedule of Internship shall be as follows: [No. wks X 6 days/wk X 7 Hrs. / day]

Department	Discipline	Duration	
		Weeks	Hours
Musculo- Skeletal Physiotherapy	OPD/ Hospital care/ Long term care (orthopedics /burns/ amputations, hand rehab/sports injury /wound & skin care)	8 weeks	336 Hrs.
Neurological- Physiotherapy	OPD/ Hospital care/ Long term care (neurology/ neurosurgery/ pediatrics /electro diagnosis/psychiatry)	8 weeks	336 Hrs.
Cardiovascular and Pulmonary Physiotherapy	OPD/ Hospital care/ Long term care (medical/ surgical conditions/intensive care unit/ coronary care unit/critical care unit)	6 weeks	252 Hrs.
Women's Health and Geriatrics	OPD/ Hospital care/ Long term care, (Obstetrics And Gynecology Department, Geriatrics, Home for Aged)	3 weeks	126 Hrs.
Community Physiotherapy	Community Health Care Centers	1 week	42 Hrs.
Total		**26 weeks**	**1092 Hrs.**
THE CLINICAL ORIENTATION WORKSHOP			**24 Hrs.**
SCIENTIFIC PROJECT: Physiotherapy practice & Scientific Project including administrative skills. (3 hrs. per week - not less than 78 hrs.)			**78 Hrs.**
TOTAL HOURS IN INTERNSHIP (Supervised Clinical Practice) (Also includes Case presentation, Evidence Based Practice, Lecture Series and panel discussions, Interdisciplinary Approaches-Group Discussions)			**1194 Hrs.**

SCIENTIFIC PROJECT:

During the Internship, candidate shall undertake a Scientific Project of 3 hours per weeks [total duration not less than 78 hours]. Selection of topic & place for the conduct shall be in consultation & with consent of the Head of the institution – Physiotherapy & the Ethical Clearance Committee of Parent Institution .Scientific inquiry shall be based on Comparative diagnostic, clinical trials, reviews, Meta analysis, Research Article. The Candidate shall submit the project not earlier than two weeks of beginning of Internship Programme & prior to 2 weeks of Internship Completion Day & the Head of Parent Institution/ Concerned Guide shall sign on the same if the project is up to her /his satisfaction.

EVALUATION:

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

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

During the Internship, student will assist, participate and practice individually following procedures

A] COMPETENCY IN ASSESMENT AND CLINICAL REASONING:

Student should be able to apply the ICF framework in selecting measurement tools to ensure a holistic approach to evaluation of body structure and function, activities, participation; and select and administer assessment/evaluation tools and techniques suitable for the patient's problems and condition(s) based on the best available evidence and interpret the information obtained demonstrating evidence-based decision-making and safe handling technique such as:

1. Risk factor screening (Red flags & Yellow flags).
2. Assessment of Cardiovascular & Respiratory dysfunction.
3. Interpretation of Radiological, Hematological and Biochemical investigations.
4. Aerobic Fitness and Functional performance testing as appropriate
5. Identification and quantification of environmental and home barriers and facilitators
6. Identification and Analysis of body mechanics during self-care, home management, work,
7. Community, Tasks, or Leisure activities.
8. Identification and analysis of ergonomic performance during work (job/school/play)
9. Assessment of Quality of Life through use of appropriate questionnaire and generic or
10. disease-specific scales

11. Identification and prioritization of impairments in body functions and structures, and activity limitations and participation restrictions to determine specific body function and structure, and activities and participation towards which the intervention will be directed.
12. State the evidence (patient/client history, lab diagnostics, tests and measures and scientific literature) to support a clinical decision.
13. Determine the predicted level of optimal functioning and the time required to achieve that level.
14. Recognize barriers that may influence the achievement of optimal functioning within a predicted period and device ways to overcome them when possible.

B] COMPETENCY IN DEVELOPING PLAN OF CARE:

Student should be able to:

1. Identify patient goals and expectations.
2. Design a Plan of Care with measurable, prioritized and time bound functional goals (short-term and long-term)
8. Consult patient and/or caregivers to develop a mutual agreement regarding the plan of care.
9. Identify indications/ additional needs for consultation with other professionals & appropriate referrals.
10. Select the interventions that are safe, realistic and meet the specified functional goals and outcomes in the plan of care: (a) identify precautions and contraindications, (b) provide evidence for identified and selected patient-centered interventions that are identified and selected, (c) define the specificity of the intervention (Time, Intensity, Duration, and Frequency).
11. Measure and monitor patient response to intervention and modify elements of the plan of care and goals in response to changing patient/client status, as needed.
12. Establish criteria for discharge based on patient goals and current functioning and Disability.

C] COMPETENCY IN PHYSIOTHERAPEUTIC INTERVENTION:

Important influences on Cardiovascular & Respiratory Physiotherapy management choices may include but not limited to:

1. Diverse settings of care including Critical, Acute, Long Term, Rehabilitation, and Community Care.
2. Lifespan issues ranging from the Neonatal stage to those associated with aging;
3. Life style modification for Diseases and for prevention.
4. Skill of application of Physical and Electrical agents for Relief of acute & chronic Pain and Swelling.
5. Facilitation, Re-education and Training of muscle Strength, Endurance & Motor Control, Posture and Gait through Skillful use of various Therapeutic Exercise Techniques with appropriate therapeutic Gymnasium Equipment.

6. Skill of application of therapeutic modes of improving Cardiovascular & Respiratory performance. Functional training in self care, home, work (job, school and play), community and leisure activities

D] Documentation:

Presentation & Documentation of 8 cases for patient management using ICF Model as following:

(Assessment, Evaluation, Diagnosis, Prognosis, Intervention, Outcome)

1. Medical Respiratory Condition
2. Paediatric Respiratory Condition
3. Thoracic Surgical Condition
4. Cardiac Medical Condition
5. Cardiac Surgical Condition
6. Peripheral Vascular disorders
7. Burns of Head, Neck & Face
8. Abdominal Surgical Condition

E] <u>Electro-therapeutic Procedures:</u>

1. Testing of all the Electrotherapy Modalities.
2. Application of Low Frequency and Medium Frequency Currents (Faradic Current, Galvanic Current, Iontophoresis, Transcutaneous Electrical Nerve Stimulation-TENS, NMES, Interferential Therapy, Fluidotherapy).
3. Application of High Frequency Currents (UVR, IRR, SWD, MWD, LASER, Ultrasound, Combo).
4. Electrodiagnosis (F.G. test, S.D. Curve, Chronaxie & Rheobase, Nerve Conduction Velocity, Electromyography) and Biofeedback.

F] Exercise - Therapeutic Procedures:

1. Application of Therapeutic Procedures for the Management of Dysfunction of Mobility, Strength, Power, Endurance, Balance, Coordination, Cardio-Pulmonary Fitness; & for Functional Training such as Transfers, Mat Activity, Postural Correction, Gait Training with or without Aids, Ambulation & A.D.L.
2. Group Activity Procedures: Select & implement group activity by Effective and Appropriate Command and Demonstration of Exercises such as Jacobson's Relaxation Exercises, Standard Yoga Postures, Mat Exercises, Transfer Exercises, Shoulder/ Back Exercises, General Fitness/Aerobic Exercises, Balance Exercises, Breathing Exercises.

G] Manipulation & Mobilization Procedures:

1. Massage Maneuvers, for Extremities, Face, Neck & Back,
2. Assessment of Physiological Movements, & End-Feel; Identification of target soft tissue to be mobilized, & application of NON-Thrust Mobilization Techniques of Kaltenborne, Maitland, Mulligan, Buttler, Cyriax, Mckenzie, Craniosacral Therapy & Muscle Energy Techniques, Tensegrity Model, Passive Sustained Stretching on Spine & Extremities, Manual Traction for Cervical & Lumbar Spine.

H] Neuromotor & Psychosomatic Procedures:

1. Assessment and Evaluative procedures for the Neurological Patient and Principles of the Management of a Neurological Patient.
2. Assessment Tools, Scales and Special tests used for Neurological Assessment.
3. Cognitive, Perceptual, Vestibular, Oro-Motor, Bladder and Bowel Rehabilitation.
4. Assessment and Management of various Neurological Gaits.
5. Assessment of Fitness and Exercise prescription for special Neurological population.
6. Neuro Rehabilitation Techniques – NDT, PNF, Vojta Therapy, Rood's Sensory Motor Approach, SI Approach, Brunnstorm Movement Therapy, MRLP, Motor Relearning Program, MFR, CIMT, BWSTT, Mental Imagery , FES, Biofeedback, Facilitatory and Inhibitory Techniques, Neural Mobilization Techniques.
7. Management of Tonal Abnormalities (Spasticity, Rigidity, Hypotonia, and Dystonia)

I] Cardio-Pulmonary Procedures:

1. Assessment of B.P, R.R, Pulse Rate, Body Temp., Abnormal Breath Sounds, Breathing Pattern, Chest Expansion.
2. Exercise Tolerance Testing.
3. Cardiopulmonary Physiotherapy Interventions- Acupuncture, Airway Clearance Techniques (Basic And Advanced), Airway Suction, Breathing Control, Incentive Spirometry, Positioning, Inspiratory Muscle Training, IPPB, Manual Hyperinflation, Manual Therapy Techniques like Mobilization of Thoracic Spine, Muscle Lengthening Technique, Taping, Neural Tissue Technique, Neurophysiological Facilitation of Respiration-Facilitatory and Inhibitory Technique; Inhalation-Humidification, Meter Dose Inhaler, Dry Powder Inhaler, Nebulizers, Heliox.
4. Cardio Ppulmonary Resuscitation (CPR)

J] Other Physio Therapeutic Procedures:

1. Prescription and Training of various Aids and Appliances (Splints, Orthosis, Prosthesis) and Wheelchair.
2. Application of Elastic-Crepe Bandage for Prevention of Swelling, Shaping of Amputated Stump.
3. Wound Care- Application of U.V.R, TENS, etc; UVR application for Skin Conditions.

K] Community Physiotherapy procedures:

1. Collect, Analyze, Interpret, & Present, Simple Community & Hospital Based Data.
2. Participate as a member in Co-Partnership in the Rehabilitation Work in the Community.
3. Participate in the Programmes in Prevention & Control of locally prevalent Functional Disorders.
4. Be capable of conducting Survey & employ its findings as measures towards arriving at a Community Functional Diagnosis.
5. Provide health education to an Individual / Community on-
   - General Fitness, Ergonomic alterations for Better Quality Life at Home & Work place,
   - Preventive tools to avoid accidents, in the Industrial Area,
   - Skin care in case of Loss /Impairment of Sensations,
   - Care of the Back, - Community Based Back Schools.
   - Antenatal/ Post-Natal Exercises; Management of Pelvic Dysfunction (Urinary / Ano-Rectal Incontinence); Per Vaginal Prolapsed,
   - Specific warming up activities & appropriate maintenance exercises to Elderly Patients.
6. Rural Medical & Physiotherapy Camps.
7. Health & Hygiene- Control, Preventive Awareness Programs.
8. To work in conjunction with local administrative bodies, Red Cross, Lions Club, Rotary Club and National Health Programs.

TO ASSIST IN PROCEDURES:

1. Fabrication of Orthotics and Prosthesis.
2. Electro Diagnostic Procedures like Electromyography, NCV, ECG.
3. In Intensive Care Unit, ICCU, NICU, SICU, Burns Unit.
4. Cardio Pulmonary Resuscitation.
5. Disaster Management.

EVALUATION SCHEME:

Formative Evaluation is as per the table.

LEAVE FOR INTERNS:

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

  The student who opts transfer to another Physiotherapy college for doing internship training program may apply to the University in the prescribed form along with the fee prescribed by the University from time to time.
- Availing more than 6 days of leave during six month period is liable to extension of Internship Program.

A. Colleges/ Hospital affiliated/recognized by S.N.D.T. Women's University, Mumbai,:

1. Internee shall be permitted to complete all parts of internship at approved/ recognized Physiotherapy colleges/Hospitals, with the prior permission of University, Institution recognizes the hospitals to be selected for rotatory internship program. Interns can opt any of the five listed hospitals and posting in parent institution for at least a period of one month is mandatory, moreover, student is not allowed for more than 2 months in any of the specific selected hospitals.
2. The student will have to apply for No Objection Certificate from parent institution and also where she wants to get internship transferred.
3. Maximum 5% of total intake capacity of that college (outgoing and incoming) will be entertained for transfer. Out of total transfer 4 % will be kept for regular and 1 % for repeater batch.
4. The parent college will forward the application with No Objection Certificate to S.N.D.T. Women's University, Mumbai and the University authority will finalize the cases strictly on the basis of the merit.
5. The college in which the internee is transferred will have to complete the program as per the guidelines including skill test/ performance.
6. The parent institution will then receive the Internship Completion Certificate from that college and will forward the same to S.N.D.T. Women's University, Mumbai for the award of degree.

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

1. No Objection Certificate from both relieving and receiving colleges shall be obtained by the candidate.
2. The application along with the No Objection Certificates will be forwarded to S.N.D.T. Women's University, Mumbai for getting permission to allow the internship completion at colleges outside the jurisdiction of this University.
3. The concerned college will issue Internship Attendance Certificate mentioning the quantum of work done department-wise as per proforma of S.N.D.T. Women's University, Mumbai and it will be submitted by the internee to Parent College.

4. The parent college will assess the skills by conducting skill performance tests as per the guidelines of internship.
5. After successful completion of skill tests, internship completion certificate will be issued by the parent college and it will be forwarded to S.N.D.T. Women's University, Mumbai for award of degree.

C. Merit to be considered:

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

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

Issue of Internship completion certificate

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

Start of Internship program

The program will commence within 2 weeks after the declaration of VIII Semester B.P.T. result by the University, the start of the Internship program preferably from the first day of the month. Before commencement of the Internship Training Program the Dean/ Principal shall conduct three days Orientation Workshop to orient the internees to get acquainted with the details of Internship Training Program. The Orientation Workshop should cover orientation to internship program, CPR basics, Specific Emergency care of Patients, Hands- On, Medico-legal issues, Internal Evaluation Scheme, Mandatory Skills to be acquired, Social and Ethical aspects, National Health Policy, Patient Management. It shall be mandatory for the internees to attend the Orientation Workshop. The period of three days shall be included in the period of six months Internship.

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

Place :

Sd/-

Date : __/___/20__ The Registrar

(For office use only)

FORMAT OF INTERNSHIP EVALUATION

Name:- _____ duration from _____ to_____

Assignment:-

_____

SUMMATIVE EVALUATION		FORMATIVE EVALUATION	
MAXIMUM SCORE	**5 each**	**MAXIMUM SCORE**	**5 each**
Punctuality		Cognitive (Problem solving / clinical decision & reasoning / planning Treatment	
Attitude towards patients & colleagues/ Character		Physical Assessment Skills	
Urge for learning / Initiative		Skills of Treatment Maneuvers	
Accountability / Responsibility		Skills of Equipment handling	
Administrative ability (records / maintenance of equipment)		Participation in Academic activities	
Total out of 50			

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

A : Excellent (45 to 50)

B : Good (35 to 44)

C : Satisfactory (25 to 34)

D : Below Satisfactory (Below 25)

(To be repeated)

Signature
Dean/ Principal/ Director
of the College

Signature
Head of the Dept.
Internship in-charge