

SHRI GURU RAM RAI UNIVERSITY

[Estd. by Govt. of Uttarakhand, vide Shri Guru Ram Rai University Act no. 03 of 2017 & recognized by UGC u/s (2f) of UGC Act 1956]



SYLLABUS FOR

Bachelor of Physiotherapy

With CO, PSO And POMapping

School of Paramedical Sciences

(W.E.F 2021-2022)

Bachelor of Physiotherapy

OUTCOME BASED EDUCATION

Programme outcome (POs) BACHELOR OF PHYSIOTHERAPY

Programme name	BPT
Programme Code	M101

Students will be able to

1	PO1	Knowledge :Better understanding of the structures & physiological studies of mechanical,physical & biochemical functions of human body along with their functions of major body systems.
2	PO2	Problem analysis: Develop a clinical or counseling services assess and treat mental,emotional & behavioral disorders.
3	PO3	Development of solutions: Foundation for understanding all biological process that provide explanations for the causes of many diseases in human body.
4	PO4	Practical application: to describe the concept of posture and function of joints and muscles. Prescribed to correct impairments,restore muscular and skeletal functions,improvement in gait and balance , prevention and promotion of health,wellness & fitness
5	PO5	Skills: Facilitate muscle relaxation,prevention of atrophy,muscle rehabilitation and re-education by electrical muscle stimulations
6	PO6	Design : Evaluate skilled movement patterns which can be employed for many different purposes including pain reduction & functional improvement using various force systems.
7.	PO7	Basics: Acquire the knowledge of cell injuries and changes. Gained knowledge through pharmacological studies which provides significant positive impact on human health.
8.	PO8	Clinical enhancement: Understand the mechanism of injuries and learn how to diagnose and manage orthopedic conditions. Focused on assessing and treating patient with neurological disorders. Understand patient's conditions related to heart,lungs and thorax
9.	PO9	Management: Assess the individual with the aim of diagnosis ,treatment and preventing disease that leads to illness. Assess the individual with the pre and post operative indications for all types of surgeries.
10	PO10	Skill Practise: Treatment and rehabilitate of musculoskeletal systems that has been subject to injury and trauma, Gain maximum potential,independence and optimize the quality of life in patient with neurological conditions.

11	PO11	Life long outcome: Provide rehabilitation process to cure medical conditions and pre -post operative surgeries. Performed to prevent cardiac and respiratory problems or minimize the risk of reoccurrence with the help of rehabilitation .
12	PO12	Ethics: Provide an opportunity to investigate a clinically relevant topic and to meaningful contribute to the profession.

SHRI GURU RAM RAI UNIVERSITY DEHRADUN (UTTARAKHAND)

**REGULATION OF THE UNIVERSITY FOR THE AWARD OF THE DEGREE
OF BACHELOR OF PHYSIOTHERAPY (B.P.T 4^{1/2} Yr. Course)**

An exercise of the powers conferred by section of the SGRR University Act, the Academic Council/BOS of the Shri Guru Ram Rai University, Dehradun, Uttarakhand hereby makes the following regulations:-

CHAPTER-I

SHORT TITLE AND COMMENCEMENT

- i) These regulations shall be called “THE REGULATIONS FOR THE BACHELOR OF PHYSIOTHERAPY OF THE SHRI GURU RAM RAI UNIVERSITY , DEHRADUN, UTTARAKHAND”
- ii) They shall come into force from the 2001-2002 academic session.
- iii) The regulations framed are subject to modification from time to time by the Standing Academic Board of the University.

GENERAL CONSIDERATIONS AND TECHING APPROACH

1. Graduate Allied Health Science Curriculum is oriented towards training students to help the responsibilities of physician of first contact who is capable of looking after the preventive, promotive, curative and rehabilitative aspects of medicine.
2. With wide range of career opportunities available today, an Allied Health Science graduate has a wide choice of career opportunities. The training through broad based and flexible should aim to provide an educational experience of the essentials required for health care in our country.
3. To undertake the responsibilities of service situations which is changing condition and of various types. It is essential to provide adequate placement training tailored to the needs of such services as to enable the Allied Health Science graduates to become effective instruments of implementation of those requirements. To avail of opportunities and be able to conduct professional requirement the graduate shall endeavour to have acquired basic training in different aspects of Physiotherapy.
4. The importance of the community aspects of health care and of rural health care service is to be recognized including rehabilitation. This aspect of education and training of Allied Health Science graduates should be adequately recognized in the years and adequate exposure to such experience should be available throughout all phases of education and training. This has to be further emphasized and intensified by providing exposures to field practice areas and training during the internship period. The aim of the period of training during internship is to enable the fresh graduates to function efficiently under such settings.
5. As such all the basic concepts of modern scientific medical education allied with allied health sciences are to be adequately dealt with particularly the clinical area and Physiotherapy.
6. There must be enough experience to be provided for self-learning. The methods and techniques that would ensure this must become apart of teaching-learning process.
7. The Allied Health Science graduate of modern scientific medicines shall endeavor to become capable of functioning independently in both urban and rural environment. He/She shall endeavor to give emphasis on fundamental aspects of the subjects taught and on common problems on health and disease.
8. The importance of social factors in relation to the problem of health disease should receive proper emphasis throughout the course and to achieve this purpose, the educational process should also be community based particularly for physiotherapy.

9. Adequate emphasis is to be place on cultivating logical and logical and scientific habits of thought, clarity of expression and independence of judgment, ability to collect and analyze information and to correlate them.
10. The educational process should be placed in Laboratory/Practical background as and evolving process and not merely as an acquisition of a large number of disjointed facts without a proper perspective.
11. Lectures alone are generally not adequate as a method of training and are a poor means of transferring/acquiring information and even less effective at skill development and in generating the appropriate attitudes. Every effort should be made to encourage the use of active methods related to demonstration and on firsthand experience, Students will be encouraged to learn in small groups through peer interactions so as to gain maximal experience. While the curriculum objectives often refer to areas of knowledge or science, they are best taught in a setting of clinical relevant and hands on experience for students who assimilate and make this knowledge a part of their own working skills and knowledge about diagnosis.
12. The Allied Health Science graduate medical education in clinical subjects should be based primarily on outpatient teaching, other medical and surgical departments and within the community including peripheral health care institutions. The outpatient departments should be suitably planned to provide training to graduates in small groups and demonstration subjects of all the appropriate techniques. Clinics should be organized in small groups of preferably not more than 10 students so that a teacher can give personal attention to each student with a view to improve his skill and competence in handling of the patients & methods of diagnosis & treatment.
13. Proper records of the work should be maintained which will form the basis for the student internal assessment and should be available to the inspectors/examiners at the time of inspection/ examination of the college.
14. Maximal efforts have to be made to encourage integrated teaching between traditional subjects areas using a problem based learning approach starting with clinical and exploring the relevance of various pre-clinical disciplines in both understanding and resolution of the problem. Every attempt be made to de-emphasize compartmentalization of disciplines so as to achieve both horizontal and vertical integration in different phases.
15. Every attempt is to be made to encourage students to participate in group discussions and seminars to enable them to develop personality, character, expression and other

faculties which are necessary for Allied Health Science graduate to function either in solo practice or as a team leader when he begins his independent career. A discussion group should not have more than 20 students.

16. Faculty members should avail of modern educational technology while teaching the students and to attain this objective.
17. To derive maximum advantage out of this, the vacation period to students in one calendar year should not exceed one month, during 4 years of Bachelor of Allied of Physiotherapy.
18. Minimum working days shall be 180 in one calendar year.

OBJECTIVES OF PHYSIOTHERAPY GRADUATE TRAINING PROGRAMME:

NATIONAL GOALS: At the end of undergraduate program, the Allied Health Science student shall endeavor to be able to:

- a) Recognize 'health for all' as national goal and health right of all citizens and by undergoing training for Allied Health Science Profession fulfill his/her social obligation towards realization of this goal; learn every aspect of National policies of health and devote himself/herself to its practical implementation.
- b) To help to achieve competence in practice of holistic medicine, encompassing promotive, preventive, curative and rehabilitative aspects of diseases particularly with Physiotherapy.
- c) Develop scientific temper, acquire educational experience for proficiency in profession and promote healthy living; particularly in the field of rehabilitation.
- d) Become exemplary citizen by observation of medical ethics and medical & Physiotherapy ethics and professional obligations, so as to respond to national aspirations.

INSTITUTIONAL GOALS:

In consonance with the national goals each Allied Health Science Institution should evolve institutional goals to define the kind of trained manpower (or professional) they intend to produce. The undergraduate students coming out of an Allied Health Science institute should:

- a) Be competent in therapeutic techniques of common health problems of the individual and the community, associated with or concerned with Physiotherapy commensurate with his/her position as a member of the health team at the primary, Secondary or tertiary levels, using his/her clinical/technical skills based on history, physical examination and relevant investigation techniques and as per the advise of the attending physician.
- b) Be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the all the applicable and encountered health problems physiotherapy.
- c) To help to appreciate rationale for different therapeutic modalities pertaining to the subjects of Physiotherapy.
- d) To be able to appreciate the socio-psychological, cultural economic and environmental factors affecting health and develop human attitude towards the patients in discharging one's professional responsibilities (Physiotherapy).
- e) Possess the attitude for continued self-learning and to seek further expertise or to pursue research in any chosen area of Physiotherapy.
- f) Acquire basic management skills in the area of human resources, materials and resource management related to health care delivery.
- g) Be able to identify community health problems and learn to work to resolve these by designing, instituting corrective steps and evaluating outcome of such measures (Physiotherapy); in community rehabilitation.
- h) Be able to work as a leading partner in health care teams and acquire proficiency in communication skills;
- i) Be competent to work in variety of health care settings.
- j) Have personal characteristics and attitude required for professional life such as personal integrity, sense of responsibility and dependability and ability to relate to or show concern for other individuals.

OUTLINE ABOUT THE GRADUATE PHYSIOTHERAPY PROGRAMME

It is recognized that the physician of today is over worked professionally. It is also recognized that many of the functions of the physician can be performed by auxiliaries, given suitable training and the auxiliary worker has been defined as one” who has just less than full professional qualifications in a particular field/subject and is supervised by qualified professional worker”. (W.H.O.).

The W.H.O. no longer uses the term “Paramedical” for various health’s profession allied with medicine (WHO-1984-Health for all Ser, No, 9)

Apart from the “Doctors” the group of manpower which is very essentially required to effectively deliver the Health Care Services in the field of Medicare-are collectively called as “Allied Health “(Paramedical) Manpower. The Science, which deals this subject, is called as the “Allied Health Sciences” (W.H.O.).

The dearth for allied Health Sciences manpower and is lucrative job opportunities are existing very widely, not only in India but also Overseas Countries. Almost all the trained & duly qualified Allied Health Science professionals are absorbed by the foreign countries.

The Allied Health Science courses offer and fulfill the following criteria:

ADMISSION TO B.P.T COURSE

- 1. ELIGIBILITY CRITERIA:**A Candidate seeking admission to Bachelor of Physiotherapy (hereinafter called B.P.T) Course, must have pass 10+2 examination from a recognized Board/Council/University with Chemistry, Physics, Biology and English with 50% marks in PCB OR Diploma in Physiotherapy conducted by a recognized Board/Council/University OR Medical College, or Such other qualifications as prescribed by the University from time to time.
- 2. DURATION OF COURSE:** The Bachelor of Physiotherapy shall be of four years followed by six months compulsory rotatory internship. Maximum duration for completion of the course will be one year less than twice the normal duration of the

course. Hence, for B.P.T course, duration of 7 years is the maximum period granted within which the course should be completed.

3. **REGISTRATION:** Candidate admitted to the course in Physiotherapy College shall register with this University by remitting the prescribed fees along with the application form for registration duly filled in and forwarded to the University through the Head of the Institution with in the stipulated date.

4. **MIGRATION /TRANSFER OF CANDIDATES**

- a) Migration / transfer of candidates from one recognized Institution to another of this University or from another University will not generally be considered.
- b) However, under extra ordinary circumstances, the Vice-Chancellor shall have the powers to place any migration / transfer he deems fit in the Governing Council and get its approval for grant of permission for migration / transfer to candidates undergoing courses of study in affiliated Institutions of this University.

5. **REQUIREMENT OF MEDICAL FITNESS:** Every candidate before admission to the course shall submit of the Principal of the Institution a certificate of medical fitness from an authorised medical officer that the candidates is physically fit to under go the academic course and does not suffer from any disability or contagious diseases.

6. **EXAMINATION REGULATIONS:**

- (a) **Attendance:** The student admitted to this course will attend regular classes. In order to be eligible for appearing in the final examination at the end of an academic session, a candidate should have minimum of 75% attendance in each of the subjects (Theory and Practical). Any students having less than 75% attendance in each subjects (theory and practical separately) in an academic year will not be allowed to appear in the annual examination. However, the Head of the Institution can relax upto 5% of attendance on the recommendation of the head of the Department & a further relaxation of 5% can be done by the vice-Chancellor on their commendation of the Head of the Institution.
- (b) **SESSIONAL EXAM:** There shall be three sessional examination and the average marks secured in the best of the two sessional will be considered.

(c) **UNIVERSITY EXAMINATION:**The students will be examined for theory as well as practical separately. A student who fails in two or less than two subjects will be promoted to the next class. Such students will have to clear the subjects of the previous class in subsequent supplementary/annual examinations. A student who has failed in more than two subjects in a class **will not be promoted to the next class**and he/she will have to clear the subject in which he/she has failed in the examinations held subsequently (Supplementary / annual) as ex. Student. At the end of 2nd year, if a student has not passed in all subjects (theory and practical) of 1st year he/she will not be promoted to 3rd year. At the end of 3rd year, if a student has not passed in all the subjects (theory and practical) of 2nd year he/she will not be promoted to 4th year. Theory papers will be prepared by the examiners as prescribed. Nature of Question paper will be short answer type / objective type and marks for each part indicated separately. Practicals / Clinical will be conducted in the labs or hospital wards. Objective will be to assess proficiency in skills, conduct of experiments, interpretation of data and logical emphasis should be candidate's capability in eliciting physical signs and their interpretation.

(d) **PATTERN OF UNIVERSITY EXAMINATION:** All the papers in each year carrying 100 marks out of 30marks will be for internal assessment and 70 marks for external assessment based on the question paper sent by the university the paper will be o 3 hrs. duration.

Each paper will have seven questions Six questions will be of 15 marks each of which the candidate has to attempt any four, and the question number seven which will be compulsory will have 5 question each of 2 marks and the candidate has to attempt all of them.

Practical and Viva – Voce Examination

The practical examination will be held the final examination. The practical and Viva-Voce in each subject will carry 30% marks as internal & 70% marks as external assessment (according to examination scheme) prescribed course. There will be 3 questions in each practical exam. 1 long of 20 marks and 2 short questions each of 10 marks, 5 marks for the file and records and 25 will be there for Viva Voce. The syllabus for such exams will be relevant practical aspects of the theory syllabus. Practical in each syllabus will be covering the methodology, applications and detailed procedure of all the portion of the theory syllabus. The candidates shall have to obtain 40% in Theory in Practicals and 40% in individual subject and 50% in aggregate to be declared pass in the part 1st, 2nd, 3rd and 4th year examination.

- (e) **CLASSIFICATION OF SUCESSFUL CANDIDATE:**in order to be declared as 'pass', a candidate shall have to obtain a minimum of 40% of internal marks. If a candidate does not obtain the minimum marks in internal assessment, he/she will not be considered eligible for appearing in the respective semester examinations. It will be the sole responsibility of the Institute/Department to ensure this prior to every Semester Examination& inform the University of the Details of the candidate. The successful candidates shall be classified, as under on the basis of aggregate marks obtained in the

Ist, IInd, IIIrd, and IVth year examination taken together:-

- (a) To be mentioned if Candidate obtains Total of 75% or More in aggregate
- (b) Those who obtain 75% or more will be marked-D/Distinction → in a single attempt
- Without any grace
- Marks in any subject)
- (c) Those who obtain 60% or more the aggregate marks- First division
- (d) Those who obtain 50% or more but below 60% - Second Division
In first year the student will appear in annual examination at the end of the academic year if he/she attended 75% of the classes. A student who successfully passes all the papers will be promoted to second year.
- (e) Grace Marks- In each semester, a candidate can be awarded grace marks of not more than 5% if he/she fails in only one theory paper, but obtained the minimum aggregate marks required for passing without considering the grace marks. Grace marks will not be awarded for internal assessment. If the 5 % marks work out to be a fraction/decimal, it will be rounded off to the next higher number eg:- 1.25 to be rounded off or 2 marks)

7. Medium of Instruction/examination shall be an English
8. **WORKING DAYS:** 180 in one calendar year
9. **REVALUATION OF ANSWER PAPERS:**The regulations as prescribed by the University for other Undergraduate Courses shall be applicable.
10. **UNIVERSITY RANKING :** First, Second and third University ranks may be awarded to candidate who have passed all the examination in the first appearance and taking into consideration the aggregate marks obtained in all subjects, in which the candidate had been examined during the entire course of study. Where a candidate secures marks less than those obtained in the first attempt (applicable in case of improvement, not failure candidates) the best of the two marks will be considered for the purpose of the final results. Theory or practical shall be considered as a paper, but where a paper consists of both theory & Practical, it will be treated as one paper. Hence, a candidate can appear as an ex-student in practical/theory or both, as the case may be. In case of a back, position in merit list will not be include.

Where a student fails in a project (if included in course of study) or fails to submit in the specified time, he/she shall be allowed to resubmit the same in the next year (when the related examination falls due next) on payment of the required back paper fee.

11. INTERNSHIP :

- (I) General : Internship is a phase of training where in graduate is expected to conduct actual practice of Physiotherapy and acquired skills under supervision so that he/she may become capable of functioning independently.
- (II) Specific Objectives: At the end of Internship training the graduate shall be able to:
 - (i) Perform all diagnostic techniques.
 - (ii) Use discretely the essential lab services.
 - (iii) Manage all type of clinical diagnostic methods.
 - (iv) Demonstrate skills in handling the modern equipment in Physiotherapy.

- (v) Develop leadership qualities to function effectively as a leader of lab environment.
- (vi) Render services to the lab set up and communicate effectively with the doctors and the hospital management.

Final year students may start rotatory internship immediately after passing in the University Examination. All Medical college/District hospitals shall be presumed to be recognized to be training centres for the purpose of Internship. The internship will be considered to be completed only on successful presentation of the project in front of the board, appointed for this purpose. In case the project is found unsatisfactory the internship period can be extended maximum upto two month, left to the discretion of the H.O.D In such case the extended duration of internship has to be completed in the college O.P.D. only.

In Case of Physiotherapy centre, run by the Institute conducting/running the physiotherapy degree course, will have to be approved by the HOD as a training Institute for the purpose of Internship.

Compulsory rotatory internship can be in following clinical areas:-

- | | | |
|--|---|----------|
| 1. Locomotors handicapped training at department of physical medicine and Orthopaedics | - | 2 months |
| 2. Cardiothoracic rehabilitation. | - | 1 month |
| 3. Neurological rehabilitation | - | 1 month |
| 4. Plastic surgery, hand rehabilitation, burns etc. | - | 1 month |
| 5. Rheumatology | - | 15 days |
| 6. Pediatric rehabilitation | - | 15 days |

ASSESSMENT OF INTERNSHIP

- I. The interns maintain the record of work which is to be verified and certified by the Sr. Physiotherapist under whom he/she works. A part from scrutiny of the record of the project, assessment and evaluation of training shall be undertaken by an objective approach using situation test in knowledge, skills and attitude during and the end of training. Based on the record of work/project and date of evaluation the Director /HOD /Principal shall issue “Certificate of Satisfactory

Completion” of training following which the University shall award the BPT degree or declare the candidate eligible for the same.

II. Satisfactory completion shall be determine on the basis of following:

- (a) Proficiency of knowledge required each lab technique.
- (b) The competency in skill expected to manage each lab technique.
 - Competency for self performance.
 - Of having assistant in procedures.
 - Of having observe responsibility, punctuality and work up of lab technique.
- (c) Satisfactory submission of projects based on clinical work.
- (d) Capacity to work in a team.
- (e) Initiating, participation in discussions, research aptitude.
- (f) Full registration shall only give by the State Physiotherapy council on the award of BPT degree by the University or its declaration that the candidate is eligible for it.

SYLLABUS (OUT LINE)

Scheme of the examination for bachelor of Physiotherapy (B.P.T)

PART/YEAR –I - (B.P.T.)

S.No	Subject	Code No.	Theory MM		Total	Study Hrs	Practical (MM)		Total	Study Hrs
			Annual	Sessional			Annual	Sessional		
1.	Anatomy	BPA-101	70	30	100	180	70	30	100	180
2.	Physiology	BPP-102	70	30	100	180	70	30	100	180
3	Gen. Social & Clinical Psychology	BPSC-103	70	30	100	100				
4	Biochemistry	BPBC-104	70	30	100	100				
5	Basic Principles in Physiotherapy & Yoga	BPBP-105	70	30	100	120				
	Total Marks				500	680			200	360

PART / YEAR – II – (B.P.T.)

S.No	Subject	Code No.	Theory MM		Total	Study Hrs	Practical (MM)		Total	Study Hrs
			Annua	Sessional			Annual	Sessional		
1.	Exercise Therapy	BPEX-201	70	30	100	180	70	30	100	120
2.	Electro Therapy	BPEL-202	70	30	100	180	70	30	100	120
3	Biomechanics	BPBM-203	70	30	100	100	70	30	100	120
4	Pathology & Microbiology	BPPM-204	70	30	100	120				
5	Pharmacology	BPP-205	70	30	100	120				
	Total Marks				500	700			300	360

PART / YEAR – III – (B.P.T.)

S.No	Subject	Code No.	Theory MM		Total	Study Hrs	Practical (MM)		Total	Study Hrs
			Annual	Sessional			Annual	Sessional		
1.	Clinical Orthopedics	BPCO-301	70	30	100	160	70	30	100	130
2.	Clinical Neurology & Psychiatry	BPCN-302	70	30	100	160	70	30	100	130
3	Clinical Cardiothoracic Condition	BPCC-303	70	30	100	100				
4	Gen. Medicine, Skin & Pediatrics	BPGM-304	70	30	100	100				
5	Gen Surgery, Obs Gynae, ENT & Plastic Surgery	BPGS-305	70	30	100	100				
6	Disability prevention Rehabilitation	BP-306	70	30	100	100				
	Total Marks				600	720			200	260

PART/YEAR-IV-BPT

S.No	Subject	Code No.	Theory MM		Total	Study Hrs	Practical (MM)		Total	Study Hrs
			Annual	Sessional			Annual	Sessional		
1.	PT in Orthopedics	BPPO-401	70	30	100	150	70	30	100	120
2.	PT in Neurology	BPPN-402	70	30	100	150	70	30	100	120
3	PT Cardiothoracic Conditions	BPPC-403	70	30	100	100	70	30	100	100
4	PT in Gen. Medicine & Surgery	BPPM-404	70	30	100	100	70	30	100	100
5	Research Methodology Computer & Biostatistics	BPRM-405	70	30	100	100				
6	Clinical Dissertation & Project Submission	BPCP-406	70	30			140	60	200	
Total Marks					500	600			600	440

Eligibility for admission:

Any candidate who has passed the Plus Two of the Higher Secondary Board of Examinations in any state recognized as equivalent to the Plus Two of the Higher Secondary Board in with not less than 50%-marks in aggregate is eligible for admission, However, SC/ST, OBC and other eligible communities shall be given relaxation as per University rules.

Duration of the Programme :4 ½

STUDY & EVALUATION SCHEME

Choice Based Credit System /ECS*

Bachelor/Master of -----

Scheme of the examination for bachelor of Physiotherapy (B.P.T)**PART/YEAR – I - (B.P.T.)**

S.No	Subject	Code No.	Theory MM		Total	Study Hrs	Practical (MM)		Total	Study Hrs
			Annual	Sessional			Annual	Sessional		
1.	Human Anatomy	BPTR-101	70	30	100	180	70	30	100	180
2.	Physiology	BPTR-102	70	30	100	180	70	30	100	180
3	Gen. Social & Clinical Psychology	BPTR-103	70	30	100	100				
4	Biochemistry	BPTR-104	70	30	100	100				
5	Basic Principles in Physiotherapy	BPTR-105	70	30	100	120				
	Total Marks				500	680			200	360

PART / YEAR – II – (B.P.T.)

S.No	Subject		Theory MM	Total		Practical (MM)	Total	
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Program Name

		Code	Annual	Sessional		Study	Annual	Sessional		Study
1.	Exercise Therapy	BPTR-201	70	30	100	180	70	30	100	120
2.	Electro Therapy	BPTR-202	70	30	100	180	70	30	100	120
3	Biomechanics	BPTR-203	70	30	100	100	70	30	100	120
4	Pathology & Microbiology	BPTR-204	70	30	100	120				
5	Pharmacology	BPTR-205	70	30	100	120				
	Total Marks				500	700			300	360

PART / YEAR – III – (B.P.T.)

S.No	Subject	Code No.	Theory MM		Total	Study Hrs	Practical (MM)		Total	Study Hrs
			Annual	Sessional			Annual	Sessional		
1.	Clinical Orthopedics	BPTR-301	70	30	100	160	70	30	100	130
2.	Clinical Neurology, pediatrics & Psychiatry	BPTR-302	70	30	100	160	70	30	100	130
3	Clinical Cardiothoracic Condition	BPTR-303	70	30	100	100				
4	Gen. Medicine, Skin & Pediatrics	BPTR-304	70	30	100	100				
5	Gen Surgery, Obs Gynae, ENT & Plastic Surgery	BPTR-305	70	30	100	100				
6	Disability prevention Rehabilitation	BPTR-306	70	30	100	100				
	Total Marks				600	720			200	260

PART/YEAR-IV-BPT

S.No	Subject	Code No.	Theory MM		Total	Study Hrs	Practical (MM)		Total	Study Hrs
			Annual	Sessional			Annual	Sessional		
1.	PT in Orthopedics	BPTR-401	70	30	100	150	70	30	100	120
2.	PT in Neurology	BPTR-402	70	30	100	150	70	30	100	120
3	PT Cardiothoracic Conditions	BPTR-403	70	30	100	100	70	30	100	100
4	PT in Gen. Medicine & Surgery	BPTR-404	70	30	100	100	70	30	100	100

Program Name

5	Research Methodology & Biostatistics	BPTR-405	70	30	100	100				
6	Clinical Dissertation & Project Submission	BPTR-406	70	30			140	60	200	
Total Marks					500	600			600	440

ExaminationScheme:

Components	Ist internal	IInd Internal	Presentation/ Assignment/ Project	External (ESE)
Weightage(%)	Marks	Marks	Marks	Marks

Programme Name

Programme Name	BPT
Programme Code	M101
Course name	Human Anatomy
Course Code	BP101
Year/Semester	I st year

Course Outcomes

CO1:To describe about the scope of Anatomy,organs and systems,structure of skin,muscles bones and joint

CO2: To explain about the regional anatomy of upper extremity-its osteology,soft tissue parts and joints.

CO3: To demonstrate about the osteology,soft tissue parts and joints of lower extremity.

CO4: To explain about the osteology,soft tissue parts and joints of the trunk,head and neck.

CO5:To summarize about the thoracic region and abdomen of human body.

CO6: To compile about the basic concepts of Neuro anatomy of human body.

Unit I

Introduction : Scope of Anatomy, organization of tissue, organs and systems.

Anatomical position of the body, axis and planes.,Structure of skin,Muscles-
Classification & description of the structure.

Bones- Classification development, parts of long bones and blood supply of bones,Joints-
Definition, classification, movements of different

joints.

Unit II

Upper Extremity

Osteology- Clavicle, Scapula, Humeus, Radius, Ulna, Carpels, metacarpels & Phalanges

Soft tissue parts- Breast, pectoral region, axilla, front of arm, back of arm, cubital fossa,
front of forearm, back of forearm, palm, dorsum of hand, nerves and vessels of upper
extremity.

Joints- Shoulder girdle, shoulder joint, elbow joint, radio-ulnar joint, wrist joint and joints
of hand.

Unit III

Lower Ectremity

Osteology- Hipbone, femur, tibia, fibula, patella, tarsals, metarsals and pjalanges.

Soft tissue parts: Gluteal region, front and back of the thigh (Femoral triangle femoral canal
and inguinal canal) medial side of the thigh (adductor canal), lateral side of the thigh,
popliteal fossa, anterior and posterior compartment of leg, sole of the foot, lymphatic

drainage of Lower limb, venous drainage of the lower limb arterial supply of the lower limb.

Joints- Hip joint, knee joint, ankle joint, joints of the foot.

Unit IV

Trunk:Oestology- vertebra and ribs.Soft tissue parts- pre and para vertebral muscles, intercostal muscles, Anterior abdominal wall muscles.

Joints- Cost chondral, costo vertebral, Intervertebral.

Head and neck-Osteology-Mandible and bones of skull,Soft tissue parts- muscles of face and neck and their nerve and blood supply.

Joints- Temporomandibular joints.

Unit-V

Thoracic Region

Walls of the Thorax,Thoracic cavity and pleura,Lungs,Media stinum,Pericardium,Heart,Trachea,Oesophagus,Thoracic Duct

Abdomen

Anterior abdominal wall,Abdomen cavity & peritoneum,Stomach,Intestine,Spleen,Pancreas,Liver,Posterior abdominal wall

Kidney & Ureter, Urinary Bladder & Urethra,Diaphgram,Perineum,Male &Female reproductive organs,Rectum & Anal Canal

Unit VI

Neuro Anatomy

Meninges & C.S.F,Sulci & Gyri and various areas of Cerebral Hemispheres,Thalamus, Hypothalamus and Basal Ganglia

Cerebullum,Pons, Medulla,Spinal Cord.,IIIrd, IVth & Lateral ventricles

Practicals

1. Identification and description of all anatomical structures with help of models, charts, CD Rooms etc.
2. Surface making of lung pleura fiddures and lobes of lungs heart avdominal viscera and important nerves and blood vessels.
3. Demonstration of movements of important joints.
4. Identification of body prominences on inspection and palpation in the body especially of extremities.
5. Points of Palpation of Nerves & Arteries.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	H											
C02				M								
C03	H											
C04	H											
C05	H											
C06	H											

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	Human physiology
Course Code	BP102
Year/Sem	1 st Year

Course Outcome:

C01: To describe the physiology of muscle and blood cells structures and functions like: type of

contractions, muscle tone, blood pressure; and nerve cell physiology like: nerve degeneration and reaction of degeneration.

C02: To demonstrate the mechanism of respiratory and digestive system like; lung volume, capacities and factors, affecting the respiration, absorption and metabolism.

C03: To understand the physiology of endocrinal and urogenital system like; pituitary gland, pineal gland, urine formation, functions of kidney.

C04: To describe the physiology of skin and its functions.

C05: To evaluate the physiology of nervous system like; reflex arc, central and peripheral nervous system

Unit I

I. CELL STRUCTURE AND FUNCTION

II. PHYSIOLOGICAL OF THE MUSCLES AND NERVE :

Physiology of muscle function, Types of contractions, all or none principle, Muscle tones, fatigue, exercise, Nerve cell and Electro-physiology, Degeneration of nerve, Reaction of Degeneration

III. PHYSIOLOGY OF BLOOD AND CVS

Composition of blood, formation and functions of Red blood Corpuscles. Types of contractions, all or none principle. Formation & functions of leucocytes. The Plasma Proteins. Blood Groups. Heart vessel & Cardiac Muscles. Blood pressure, and factors maintaining and affecting circulations. Cardiac cycle and output, electro-cardiogram, Coagulation of blood and Reticuloendothelial system.

Unit II

I. RESPIRATORY SYSTEM

Mechanism of respiration-Internal and external.,Nervous control of Respiration.Factors affecting Respiration.Capacity and lung volumes (Vital capacity, tidal air, residual air, reserve air, minimal air etc.) Transport of gases and Hypoxia.

II. PHYSIOLOGICAL OF THE DIGESTIVE SYSTEM

Introduction to digestive system, Alimentary functional anatomy.The salivary glands,The Stomach and its secretion ,Pancreas

The Bile,The Small intestine,Digestive processes and functions of liver,Absorption, Metabolism, Basal Metabolism, Food requirements

Metabolism

Unit III

I. PHYSIOLOGY OF THE ENDOCRINAL SYSTEM

Physiology of the endocrine glands (pituitary, pineal body, Thyroid, parathyroid, adrenal, gonads, thymus and pancreas etc.

II. PHYSIOLOGY OF UROGENITAL SYSTEM

Physiology of Kidney and Urine formation,Constituents of normal urine etc.Kidney function tests. Miscellaneous aspects of renal physiology, Micturition, Male and Female reproductive organs

Unit IV

I. PHYSIOLOGY OF THE SKIN

The skin and its function

Unit V

I. PHYSIOLOGY OF THE NERVOUS SYSTEM

Reflex arc, Physiology of the central nervous system, Physiology of the central nervous system, Posture, locomotion and Equilibrium, Reflexes, Physiology of the sympathetic and parasympathetic nervous system, Sensory system and receptors

Motor areas, descending and ascending tracts, ANS, Reticular formation, Cerebrum, cerebellum, basal ganglia, thalamus, hypothalamus, CSF and Blood brain barrier

PRACTICAL

Demonstration of the experiments of the various physiological phenomenon.

1. Identification of blood cells and differential counts
2. W.B.C. Count
3. R.B.C. Count.
4. Haemoglobin percentage
5. E.S.R. Blood Groups
6. Bleeding time & Clotting Time
7. Respiratory efficiency tests
8. Artificial respiration
9. Reflexes-Superficial and Deep
10. Sensations
11. Test for functions of cerebrum
12. Tests for functions of Cerebellum
13. Effect of exercise on B.P. and Pulse rate

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CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H											
CO2				M								
CO3		M										
CO4	H											
CO5				M								

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course name	General, social & Clinical Psychology
Course Code	BP103
Year/Semester	I st year

Course Outcomes

CO1: To describe about the nature of Psychology, its fields and also about the schools of Psychology.

CO2: To describe about motivation and emotions in terms of various principles of Homeostasis, need and its

structure and environment and also about the nature and relationship of emotions with Autonomic nervous

system, sentiments and feelings, pathological and functional disorders of emotion etc.

CO3: To demonstrate conflict and frustration, common defensive mechanism, learning role in human life and methods and techniques.

CO4: To analyze about various mode of memory and its types, role and causes of forgetting along with attention perception: its nature factors deterring attention, principles of perceptual grouping, illusion and hallucination.

CO5: To evaluate Intelligence and personality including their definition, its tests and its standardization. Different approach and trait approach of personality, questionnaire rating, projective methods and its biological factors.

CO6: To develop various emotional reactions to various illnesses, patient therapist relationship, understanding patients in physical illness. To develop ability to assess mental status for brief history, mental mechanism assessment, psychological reaction of patients and emotional needs.

Unit I

1. Natural of Psychology: Behavior and Experience Conscious, subconscious and Unconscious mind.
 - (ii) Fields of Psychology: - Introspective and Experimental Method
 - (iii) Schools of Psychology: - Associationism, Psycho-analytical theory, Behaviorism; Gestalt psychology; Structuralism and functionalism.

Unit II

Motivation: - Principle of Homeostasis, Need and its relation to structure and environment. Kinds of motive physiological, Psychological, Social and Unconscious Motive life goals and levels of Aspirations; Interest and Attitude and motivational Force.

Emotion: - Its nature and relationship with Autonomic nervous system; sentiment and feeling; Pathological and functional disorders of emotion, emotional hygiene.

Unit III

1. Conflict and Frustration; common defensive mechanism- Identification Regression, Regression, Projection, Sublimation and Rationalization.
2. Learning role of learning in Human life: Types of learning (a) Thorndike's and Error learning (b) Associative (Conditioning) Learning, practical application conditioning technique in morbid. Fears, Compulsion to steal and other neurological behavior in eliminating undesirable behavior, (c) Learning by insight-Gestalt learning, Kohler's experiments on animal learning; Transfer of learning.

Unit-IV

Memory (Retention): Types of memory-Recall, Recognition and role of memory causes of forgetting.

Attention and perception- Nature of Attention, factors deterring attention; Nature perception, principles of perceptual grouping; illusion and Hallucinations.

Unit-V

- Intelligence- Definition, intelligence tests-their uses; How the Test is standardized Intelligence Quotient (I-Q) General Intelligence and special intelligence.
- Personality-Definition; Type approach and trait approach; Measurement of personality-Interview questionnaire Rating, Performance, Projective methods, factors contribution towards development of personalities-Biological and social factors.
- Develop and understanding of various emotional reactions to various illnesses.
- Appreciate patient-therapist relationship.
- Understand the various defence mechanisms used by patients in physical illness, terminal illness & old Age.
- Develop ability to assess mental status for a brief history.
- Appreciate signs and symptoms of mental illness.
- Mental mechanism & their role in health & disease
- Intelligence assessment and the role of neuro-psychological tests.
- Psychological reaction of patients to physical illness, reaction to loss, death & bereavement.
- Emotional needs & Psychological factors in relation to unconsciousness & handicap.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01		M										
C02			L									
C03				M								
C04					L							
C05										M		
C06												H

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	BIOCHEMISTRY
Course Code	BP104
Year/Sem	1 st Year

Course Outcome:

C01: To describe biochemical organization of human cell and classify the structure of protein.

C02: To understand the definition and composition of enzymes and hormones, their mode of action and chemical composition.

C03: To describe the biochemical aspects of haemoglobin and myoglobin and their role in physical activities.

C04: To classify the biochemical aspect of connective tissue, nervous tissue and muscle tissue including the biochemical events of muscle contraction and relaxation.

C05: To evaluate the basic concept of metabolic chemistry like; intermediary metabolism, protein metabolism, carbohydrate metabolism, lipid metabolism and ideal nutrition with the physiotherapy view point.

C06: To generalize about the hormones and its classification and compose ideal nutrition with the physiotherapeutic view point-eg. Protein disorders, vitamins-minerals-fibres.

Unit I

1. Biochemical organization of Human cell.
2. Proteins- Definition of Proteins, Classification, biochemical properties, organization of protein, Definition levels Physiotherapeutic significance of Structural Proteins.

Unit II

Enzymes-Definition, Classification, their mode of action, coenzyme isoenzymes and their role in function

Unit III

Biochemical aspects of haemoglobin and myoglobin (excluding structure) and their roles in physical activity

Unit-IV

Biochemical aspects of connective tissue and nervous tissue.

Biochemistry of Muscle tissue including the biochemical events of muscle contraction and relaxation.

Unit-V

Metabolic chemistry

Basic concepts of intermediary metabolism. Protein metabolism-Deamination, transamination urea cycle

Carbohydrate metabolism, glycolysis and Krebs's cycle pathway Role of carbohydrates in ATP production

Lipid metabolism-Betaoxidation of saturated fatty acids, biosynthesis of ketobodies and their metabolic significance

Unit-VI

Hormones- Classification, basic chemical composition and their biomedical roles.

Ideal Nutrition with the physiotherapeutic view point-eg. Protein disorders, vitamins-minerals-fibres.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H											
CO2		M										
CO3			M									
CO4	M											
CO5						L						
CO6							M					

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	Basic Principles in Physiotherapy
Course Code	BP-105
Year/Semester	BPT Ist year

Course Outcomes

CO1: To define Physiotherapy, and describe their branches & scope

CO2 :To Explain electrotherapy and classify various modalities, Basic electricity Main power Supply, Transformers Etc,AC, amplitude Etc.

DC electricity, Capacitance and potential difference Etc. Effects of electric currents ,its chemical, thermal and magnetic effects. Shock,

Magnetism. Thermionic valves and Semi-conductors.

CO3: To illustrate Galvanic & Faradic currents, basic principles in light & sound, therapeutic & physiological effects of heat and cold,

introduction to Exercise therapy, Active movements & Passive movements.

CO4: To Explain Basic modalities of electrotherapy & exercise therapy, traction, tilt table, C.P.M., quadriceps table & Shoulder wheels Etc.

CO5: To evaluate the use of SWD, UST, TENS, IFT, Wax bath, MHT etc.

Unit-I

Definition of Physiotherapy : Its branches and scope.

Unit –II

Definition of Electrotherapy and classification of various modalities, circuit diagrams of various modalities

1. Basic electricity

(a) Main power supply earthing types of plugs safety devices, transformers.

(b) AC, Electricity waveform, Frequency, amplitude Etc.

(c) DC Electricity : Fundamental electric charges conduction and Insulators, Free Electron, Capacitance and Potential difference, Resistance and Ohms law. Capacitors, Rheostat Ammeter and Voltmeter. Application of all these in Physiotherapy department.

Effects of electric currents its chemical, thermal and magnetic effects. Shock and its Preventions: Magnetism and its principle its emphasis in dipole theory. Thermionic valves & semiconductors.

Unit-III

Introduction to Galvanic and Faradic currents

Section II: Basic Principles in light & sound.

Section III: Therapeutic and physiological effects of heat and cold.

Section IV: Mechanical Principles, force, equilibrium, fixation and stabilization, axis and planes levers and pulleys, springs. Putty, action & reaction, torque, friction, work, energy & power.

Section V: Introduction to movements, type of muscles, types of muscles work, muscles contraction group action of muscles.

Introduction to Exercise Therapy Active movement & passive movements and its various types. And description it is details. Basic starting positions

Unit-IV

Introduction to Basic modalities of electrotherapy and exercise therapy – traction, tilt table, parallel bars, medicine balls, C.P.M., wall bars, static cycle, quadriceps table. Shoulder wheel, ankle exerciser, balance board, jogger, dumb bells weightcuffs etc.

Unit-V

SWD, ultra sound apparatus, stimulator, TENS, IFT, Wax bath, moist heat therapy etc

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	H											
C02				H								
C03					M							
C04						M						
C05						H						

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	EXERCISE THERAPY, MASSAGE AND YOGA
Course Code	BP201
Year/Semester	2 nd Year

Course Outcome:

C01: To define the principle, type, indication and application method of exercise therapy and methods of testing like functional tests, neuromuscular efficacy test, joint range test and test for co-ordination.

C02: To describe the evaluation methods, principle and technique of relaxation, passive movement, active movement and hydrotherapy.

C03: To demonstrate the different aspect of proprioceptive neuromuscular facilitation, suspension therapy, functional re-education and aerobic exercises.

C04: To classify the stretching, mobilizing technique, balance, co-ordination exercise and posture principles..

C05: To evaluate the concept of walking aids, massage, individuals and group exercise.

C06: To design the practical demonstration of all the topics discussed in theory like

coordination, mat exercise, breathing exercise, traction, posture, yoga etc.

Unit-1

The aims of Exercise Therapy, The techniques of Exercise Therapy, Approach to patient's problems, Assessment of patient's condition – Measurements of Vital parameters, Starting Positions – Fundamental positions & derived Positions, Planning of Treatment, Methods of Testing

a) Functional tests

b) Measurement of Joint range: ROM-Definition, Normal ROM for all peripheral joints & spine, Goniometer-parts, types, principles, uses., Limitations of goniometry, Techniques for

measurement of ROM for all peripheral joints

c) Tests for neuromuscular efficiency

Electrical tests

Manual Muscle Testing: Introduction to MMT, Principles & Aims, Indications & Limitations, Techniques of MMT for group & individual muscles : Techniques of MMT for upper limb /Techniques of MMT for lower limb / Techniques of MMT for spine

Anthropometric Measurements: Muscle girth – biceps, triceps, forearm, quadriceps, calf

a)Static power Test, b)Dynamic power Test, c)Endurance test, d)Speed test, e) Tests for Co-ordination, f) Tests for sensation, g) Pulmonary Function tests, h) Measurement of Limb Length: true limb length, apparent limb length, segmental limb length, i) Measurement of the angle of Pelvic Inclination

Unit -2

1. Relaxation -Definitions: Muscle Tone, Postural tone, Voluntary Movement, Degrees of relaxation,

Pathological tension in muscle, Stress mechanics, types of stresses, Effects of stress on the body mechanism, Indications of relaxation, Methods & techniques of relaxation-Principles & uses: General, Local, Jacobson's, Mitchel's, additional methods.

2. Passive Movements -Causes of immobility, Classification of Passive movements, Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses , Techniques of giving passive movements.

3. Active Movements- Definition of strength, power & work, endurance, muscle actions.

Physiology of muscle performance: structure of skeletal muscle, chemical & mechanical events during contraction & relaxation, muscle fiber type, motor unit, force gradation.

Causes of decreased muscle performance.

Physiologic adaptation to training:

Strength & Power, Endurance. Types of active movements; Free exercise: Classification, principles, techniques, indications, contraindications, effects and uses; Active Assisted Exercise: principles, techniques, indications, contraindications, effects and uses; Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses Resisted Exercise: Definition, principles, indications, contraindications, precautions & techniques, effects and uses; Types of resisted exercises: Manual and Mechanical resistance exercise, Isometric exercise; Dynamic exercise: Concentric and Eccentric, Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise.

Specific exercise regimens; Isotonic: de Lormes, Oxford, MacQueen, Circuit weight training Isometric: BRIME (Brief Resisted Isometric Exercise), Multiple Angle Isometrics, Isokinetic regimens

4. Hydrotherapy

Unit-3

1. Proprioceptive Neuromuscular Facilitation -Definitions & goals, Basic neurophysiologic principles of PNF: Muscular activity, Diagonals patterns of movement: upper limb, lower limb, Procedure: components of PNF Techniques of facilitation- Mobility: Contract relax, Hold relax, Rhythmic initiation- Strengthening: Slow reversals, repeated contractions, timing for emphasis, rhythmic stabilization Stability: Alternating isometric, rhythmic stabilization, Skill: timing for emphasis, resisted progression, Endurance: slow reversals, agonist reversal
2. Suspension Therapy -Definition, principles, equipments & accessories, Indications & contraindications, Benefits of suspension therapy, Types of suspension therapy: axial, vertical, pendular, Techniques of suspension therapy for upper limb, Techniques of suspension therapy for lower limb

3. Functional Re-education -Lying to sitting: Activities on the Mat/Bed, Movement and stability at floor level; Sitting activities and gait; Lowerlimb and Upperlimb activities.
4. Aerobic Exercise -Definition and key terms; Physiological response to aerobic exercise, Examination and evaluation of aerobic capacity – Exercise Testing, Determinants of an Exercise Program, The Exercise Program, Normal and abnormal response to acute aerobic exercise, Physiological changes that occur with training, Application of Principles of an Aerobic conditioning program for patients –types and phases of aerobic training.

Unit-4

1. Stretching - Definition of terms related to stretching; Tissue response towards immobilization and elongation, Determinants of stretching exercise, Effects of stretching, Inhibition and relaxation procedures, Precautions and contraindications of stretching, Techniques of stretching.
2. Manual Therapy & Peripheral Joint Mobilization -Schools of Manual Therapy, Principles, Grades, Indications and Contraindications, Effects and Uses – Maitland, Kaltenborn, Mulligan
Biomechanical basis for mobilization, Effects of joint mobilisation, Indications and contraindications, Grades of mobilization, Principles of mobilization, Techniques of mobilization for upper limb, lower limb, Precautions.
3. Balance –Definition, Physiology of balance: contributions of sensory systems, processing sensory information, generating motor output Components of balance (sensory, musculoskeletal, biomechanical), Causes of impaired balance, Examination & evaluation of impaired balance, Activities for treating impaired balance: mode, posture, movement, Precautions & contraindications, Types, Balance retraining.
4. Co-ordination Exercise -Anatomy & Physiology of cerebellum with its pathways
Definitions: Co-ordination, Inco-ordination, Causes for Inco-ordination, Test for co-ordination: equilibrium test, non equilibrium test, Principles of co-ordination exercise
Frenkel's Exercise: uses of Frenkel's exercise, technique of Frenkel's exercise, progression, home exercise.
5. Posture -Definition, Active and Inactive Postures, Postural Mechanism, Patterns of Posture, Principles of re-education: corrective methods and techniques, Patient education.

Unit-5

1. Walking Aids -Types: Crutches, Canes, Frames; Principles and training with walking aids
2. Massage- History and Classification of Massage Technique Principles, Indications and Contraindications, Technique of Massage Manipulations, Physiological and Therapeutic Uses of Specific Manipulations, Definitions, Goals and Indications, Precautions and Contraindications, Properties of water, Use of special equipments, techniques, Effects and uses, merits and demerits.
3. Individual and Group Exercises -Advantages and Disadvantages, Organisation of Group exercises, Recreational Activities and Sports

Practical

The students of exercise therapy are to be trained in Practical Laboratory work for all the topics discussed in theory. The student must be able to evaluate and apply judiciously the different methods of exercise therapy techniques on the patients. They must be able to:-

1. Demonstrate the technique of measuring using goniometry
2. Demonstrate muscle strength using the principles and technique of MMT
3. Demonstrate the techniques for muscle strengthening based on MMT grading
4. Demonstrate the PNF techniques
5. Demonstrate exercises for training co-ordination – Frenkel's exercise
6. Demonstrate the techniques of massage manipulations
7. Demonstrate techniques for functional re-education
8. Assess and train for using walking aids
9. Demonstrate mobilization of individual joint regions
10. Demonstrate to use the technique of suspension therapy for mobilizing and Strengthening joints and muscles
11. Demonstrate the techniques for muscle stretching
12. Assess and evaluate posture and gait
13. Demonstrate to apply the technique of passive movements
14. Demonstrate various techniques of Active movements
15. Demonstrate techniques of strengthening muscles using resisted exercises
16. Demonstrate techniques for measuring limb length and body circumference.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		M										
CO2					M							
CO3			M									
CO4				M								
CO5						H						

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	ELECTROTHERAPY
Course Code	BPT202
Year/Semester	2 ND Year

Course Outcomes-

CO 1: To define the basic physics related to physiotherapy like electricity, condenser, transformer, magnetism, ionization also the prevention and management of burn and shock.

CO 2: To explain the principle and application of low and median frequency current like direct current, indirect current, TENS, HVPGS, pain mechanism, IFT, Russian current etc and electro-diagnosis like FG test, SD curve, nerve conduction velocity and biofeedback.

CO 3: To demonstrate the principle and use of High frequency current like SWD, MWD, ultrasound, LASER, UVR, IRR etc.

CO 4: To explain the Superficial heating Modalities like PWB, contrast bath, moist heat therapy,

fluidotherapy.

CO 5: To evaluate the principle and application superficial heating modalities. Describe PWB, Contrast Bath, Moist heat Therapy, Fluidotherapy, whirlpool and cryotherapy..

CO 6: To design the application of all the electrotherapy modalities according to patient condition.

Unit 1: Introductory Physics.

1. Electricity definition, types
2. Static electricity- Production of electrical charges, Characteristics of charged body, Characteristics of lines of forces, Potential difference and EMG.
3. Current Electricity- Units of Electricity, faraday, volt, ampere, coulomb, watt, Resistance in series and parallel, Ohms law and its application to DC/AC, Fuse, Shock: Micro/ Macro shocks, safety precaution and management, earthing, techniques & precautions, Burns: electrical & chemical burns, prevention and management, Condensers: definition, principles, types construction, working and uses.
4. Magnetism: Definition, properties, electro-magnetic induction, electro- magnetic spectrum.
5. Valves, transformers, types, principles, construction and working.
6. Ionization: Principles, effects of various technique of medical ionization.

Unit II – Therapeutic Electricity

Section II A - Low frequency Currents

1. Basic types of current - Direct Current: types, physiological &therapeutic effects; Alternating Current
2. Types of Current used in Therapeutics-Modified D.C- Faradic Current, Galvanic Current, Modified A.C, Sinusoidal Current, Diadynamic Current.
3. Faradic Current: Definition, Modifications, Techniques of Application of Individual, Muscle and Group Muscle stimulation, Physiological & Therapeutic effects of Faradic Current,Precautions, Indications & Contra-Indications, Dangers.
4. Galvanic Current: Definition, Modifications, Physiological & Therapeutic effects of Galvanic Current, Indications & Contra-Indications, Dangers, Effect of interrupted galvanic current on normally innervated and denervated muscles and partially denervated muscles.

5. Sinusoidal Current & Diadynamic Current in Brief.
6. HVPGS – Parameters & its uses
7. Ionization / Iontophoresis : Techniques of Application of Iontophoresis, Indications, Selection of Current, Commonly used Ions (Drugs) for pain, hyperhydrosis, wound healing.
8. Cathodal / Anodal galvanism.
9. Micro Current & Macro Current
10. Types of Electrical Stimulators -NMES- Construction component- Neuro muscular diagnostic stimulator- construction component, Components and working Principles
11. Principles of Application: Electrode tissue interface, Tissue Impedance, Types of Electrode, Size & Placement of Electrode – Waterbath, Unipolar, Bi-polar, Electrode coupling, Current flow in tissues, Lowering of Skin Resistance.
12. Nerve Muscle Physiology: Action Potential, Resting membrane potential, Propagation of Action Potential, Motor unit, synapse, Accommodation, Stimulation of Healthy Muscle, Stimulation of Denervated Muscle, Stimulation for Tissue Repair.
13. TENS: Define TENS, Types of TENS, Conventional TENS, Acupuncture TENS, Burst TENS, Brief & Intense TENS, Modulated TENS. Types of Electrodes & Placement of Electrodes, Dosage parameters, Physiological & Therapeutic effects, Indications & Contraindications.
14. Pain: Define Pain, Theories of Pain (Outline only), Pain Gate Control theory in detail.

Unit II B - Electro-diagnosis

1. FG Test
2. SD Curve: Methods of Plotting SD Curve, Apparatus selection, Characters of Normally innervated Muscle, Characters of Partially Denervated Muscle, Characters of Completely denervated Muscle, Chronaxie & Rheobase.
3. Nerve conduction velocity studies
4. EMG: Construction of EMG equipment.
5. Bio-feed back.

Unit II C - Medium Frequency

1. Interferential Therapy: Define IFT, Principle of Production of IFT, Static Interference System, Dynamic Interference system, Dosage Parameters for IFT, Electrode placement in IFT, Physiological & Therapeutic effects, Indications & Contraindications.

2. Russian Current

3. Rebox type Current

Unit III - Thermo & Actinotherapy (High Frequency Currents)

1. Electro Magnetic Spectrum.

2. SWD: Define short wave, Frequency & Wavelength of SWD, Principle of Production of SWD, Circuit diagram & Production of SWD, Methods of Heat Production by SWD treatment, Types of SWD Electrode, Placement & Spacing of Electrodes, Tuning, Testing of SWD Apparatus, Physiological & Therapeutic effects, Indications & Contraindications, Dangers, Dosage parameters

3. Pulsed Electro Magnetic Energy: Principles, Production & Parameters of PEME, Uses of PEME.

4. Micro Wave Diathermy: Define Microwave, Wave length & Frequency, Production of MW, Applicators, Dosage Parameters, Physiological & Therapeutic effects, Indications & Contraindications, Dangers of MWD.

5. Ultrasound: Define Ultrasound, Frequency, Piezo Electric effects: Direct, Reverse, Production of US, Treatment Dosage parameters: Continuous & Pulsed mode, Intensity, US Fields: Near field, Far field, Half value distance, Attenuation, Coupling Media, Thermal effects, Nonthermal effects, Principles & Application of US: Direct contact, Water bag, Water bath, Solid sterile gel pack method for wound. Uses of US, Indications & Contraindications, Dangers of Ultrasound. Phonophoresis: Define Phonophoresis, Methods of application, Commonly used drugs, Uses. Dosages of US.

6. IRR: Define IRR, wavelength & parameters, Types of IR generators, Production of IR, Physiological & Therapeutic effects, Duration & frequency of treatment, Indication & Contraindication.

7. UVR: Define UVR, Types of UVR, UVR generators: High pressure mercury vapour lamp, Water cooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, Theraktin tunnel, PUVA apparatus. Physiological & Therapeutic effects. Sensitizers & Filters. Test dosage calculation. Calculation of E1, E2, E3, E4 doses. Indications, contraindications. Dangers. Dosages for different therapeutic effects, Distance in UVR lamp

8. LASER: Define LASER. Types of LASER. Principles of Production. Production of LASER by various methods. Methods of application of LASER. Dosage of LASER.

Physiological & Therapeutic effects of LASER. Safety precautions of LASER.

Classifications of LASER. Energy density & power density

Unit IV – Superficial heating Modalities

1. Wax Therapy: Principle of Wax Therapy application – latent Heat, Composition of Wax Bath Therapy unit, Methods of application of Wax, Physiological & Therapeutic effects, Indications & Contraindication, Dangers.
2. Contrast Bath: Methods of application, Therapeutic uses, Indications & Contraindications.
3. Moist Heat Therapy: Hydro collar packs – in brief, Methods of applications, Therapeutic uses, Indications & Contraindications.
4. Cyclotherm: Principles of production, Therapeutic uses, Indications & Contraindications.
5. Fluidotherapy: Construction, Method of application, Therapeutic uses, Indications & Contraindications.
6. Whirl Pool Bath: Construction, Method of Application, Therapeutic Uses, Indications & Contraindications.
7. Magnetic Stimulation, Principles, Therapeutic uses, Indications & contraindication.
8. Cryotherapy: Define- Cryotherapy, Principle- Latent heat of fusion, Physiological & Therapeutics effects, Techniques of Applications, Indications & Contraindications, Dangers, Methods of application with dosages.

Practical-

The student of Electrotherapy must be able to demonstrate the use of electrotherapy modalities applying the principles of electrotherapy with proper techniques, choice of dosage parameters and safety precautions.

1. Demonstrate the technique for patient evaluation – receiving the patient and positioning the patient for treatment using electrotherapy.
2. Collection of materials required for treatment using electrotherapy modalities and testing of the apparatus.
3. Demonstrate placement of electrodes for various electrotherapy modalities
4. Electrical stimulation for the muscles supplied by the peripheral nerves
5. Faradism under Pressure for UL and LL
6. Plotting of SD curve with chronaxie and rheobase, Demonstrate FG test
7. Application of Ultrasound for different regions-various methods of application
8. Demonstrate treatment techniques using SWD, IRR and Microwave diathermy
9. Demonstrate the technique of UVR exposure for various conditions – calculation of

- test dose
10. Demonstrate treatment method using IFT for various regions
 11. Calculation of dosage and technique of application of LASER
 12. Technique of treatment and application of Hydrocollator packs, cryotherapy, contrast bath, wax therapy
 13. Demonstrate the treatment method using whirl pool bath
 14. Winding up procedure after any electrotherapy treatment method

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	L											
C02				M								
C03						M						
C04						M						
C05								M				
C06								H				

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course name	BIOMECHANICS & KINESIOLOGY
Course Code	BP203
Year/Semester	2nd year

Course Outcomes

CO1: To define study of kinesiology and various fundamental concepts like starting positions, gravity, planes and axis of motion along with fundamental movement of major body segments.

CO2: To describe about muscular system, the joints and neuromuscular functions.

CO3: To apply the concept of the machinery of the musculo-skeletal system like levers, pulleys and the fundamental principles of motion, its kind and factors determining the kind and modification of motions. Also to illustrate the fundamental principles of force and work-force, components of muscular force and also to use the confused effects of two or more forces.

CO4: To analyze the principles of stability covering postures in different segments of human body like vertebral column, shoulder region, elbow, wrist and hand, neck and the lower limbs.

CO5: To evaluate the application of kinesiology to locomotion, occupational therapy, daily life skills and selection and evaluation of exercise for various faulty postures.

Unit – I

1. Introduction of study of kinesiology
2. Fundamental concepts: Starting position, the center of gravity, line of gravity, planes and axis of motion, fundamental movement of major body segments.

Unit – II

1. Muscular System :- Definition : properties of muscle, muscular contraction, structural classification, action of muscles in moving bones, direction of pull, angle of pull, functional classification, co-ordination of muscular system
2. The joints: - Their structure and function.
3. Neuro- muscular functions: the motor units, innervation of muscles, muscle tonus, reflexes, reciprocal innervation and inhibition kinesthetic sense and ballistic movements.

Unit – III

1. The machinery of the musculo-skeletal system- the levers, Anatomical levers, the wheel and axle, the pulley, the efficiency of machines.
2. The fundamental principles of motion- The causes and kinds of motion, kinds of motion experienced by the body and factors determining the kind and modification of motion. The laws of circular motion.
3. Fundamental principles of force and work-force and its magnitude, direction, point of application, components of muscular force, components of external force, graphic representation of force, true force and the resistance arms of the lever, the confused affects of two or more forces.

Unit – IV

PRINCIPLES OF STABILITY PRINCIPLES OF CONVERGING POSTURE- Vertebral column (Thorax), Shoulder Region, Elbow, Wrist and hand, Hip, Knee, Ankle and Foot, Neck

Unit – V

APPLICATION OF KINESIOLOGY TO

- (a) Locomotion- walking, Running & Biomechanics of all phases of gait cycle
- (b) Physical therapy and occupational therapy
- (c) Daily life skills
- (d) The selection and evaluation of exercise for conditions like kyphosis, lordosis scoliosis etc for corrective purposes.

Practical

Evaluation and assessment of joint motion

Evaluation and assessment of daily life skills

Evaluation and assessment of different types of postures

Evaluation and assessment of locomotion

Evaluation and assessment of soft tissue injuries

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H											
CO2			M									
CO3				H								
CO4				L								
CO5						L						

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
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Programme Code	M101
Course Name	PATHOLOGY AND MICROBIOLOGY
Course Code	BP204
Year/Semester	2 nd Year

Course Outcome:

CO1: To describe the etiology and classification of disease, inflammation- acute, subacute and

chronic type; bacteria, fungal, viral; and types of wound.

CO2: To understand the degenerative process, disorders of growth, metabolic disease of bone,

healing fracture, tumors of bones, myopathies and disease of C.N.S. and peripheral nerves.

CO3: To illustrate the disease condition related various system like; respiratory system, cardiovascular system, musculoskeletal system and circulatory system.

CO 4: To analyze the role of Pasteur, Koch, Lister etc., and their contribution in the history of microbiology.

CO 5: To evaluate and assess the basic techniques for growth of bacteria, types of infections associated with and the methods of control.

CO 6: To design the lab diagnostic procedures for identification of the bacterial, viral and fungal diseases and role of immunity to suppress the diseases.

PART ONE PATHOLOGY**Unit – I**

Section 1: Introduction, Etiology and Classification of Diseases; Inflammation-acute, subacute, and chronic example of bacterial, fungal, viral, allergic inflammations. Inflammation of Bones and Joint; Wounds-Types of wounds and healing

Section: Degeneration- Disorders of growth, Metabolic diseases of bone, Healing of fractures, Tumors of bones, Myopathics

Unit – II

- (a) Diseases of C.N.S. and Peripheral nerves
- (b) Disease of Respiratory system
- (c) Disease of Cardiovascular system
- (d) Disease of musculoskeletal system

Unit – III

- (a) Circulatory disorder – Haemorrhage, thrombosis, embolism and ischemia Gangrene, Infarctions, oedema and its types.

PART TWO MICROBIOLOGY

Unit – IV

Introduction of microorganisms, Recognition of microbial role in disease-Koch's postulates, Development of chemotherapy, Development of virology and vaccination, Scope and relevance of microbiology, Contribution of –Leewenhoek. Pasteur, Koch, Lister, Metchnikoff, Ivanowski, Jenner and Fleming

Microbial structure and function, Morphology and anatomy (cell components and their functions) of bacteria, yeast moulds and viruses.

Brief idea of reproduction in bacteria (conjugation, transduction and transformation) and multiplications of viruses.

Culture media, culture methods (anaerobic culture, pure culture) and staining techniques (simple, negative, gram acid fast) used in bacteriology.

Type of infection-Primary, Secondary, Focal, Cross, Subclinical, Iatrogenic and Reinfection-Definitions only. Nosocomial infection-types with casual-organisms.

Sources and methods of transmission of infection. Type of infectious diseases (definition only) –Localised, Generalised, Bacteremia, Septicemia, Pigemia, Endemia, Epidemic and Pandemia.

Disinfection, Antisepsis and sterilization, Agents used for control of microorganisms (Physical and Chemicals)

Unit- V

Microbial Pathogenes :

Viral pathogens: Varicella, Herpes Simplex, Rubacoola, HIV Rabies, Polio and Hepatitis viruses.

Bacterial Pathogens: Streptococcus, Mycobacterium, Clostridium, Staphylococcus, Vibro Salmonella, Treponema, Mycoplasma and Actinomyces.

Fungal Pathogens: Tinea and Candida

Normal microflora of human body; Skin, mouth, URT, Intestinal tract and Genitourinary tract.

Unit – VI

Immunology; Innate and acquired immunity

Antigens, Determinants of antigenicity ;Anti body structure & classes (IgG, IgA, IgM, IgD, IgE)

Brief idea of compliment system and its function; Structure and function of immune system- Lymphoid organ, cells of lymphoreticular system

Humoral and cellular immune response, phagocytosis, chemical mediators, clonal selection theory of Burnet

Antigen-Antibody reaction-in vivo and in vitro Hypersensitivity.
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CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	M											
C02		H										
C03								L				
C04				L								
C05			M									
C06				H								

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	PHARMACOLOGY
Course Code	BPT205
Year/Semester	2 ND

Course Outcomes-

CO1: To define the scope of pharmacology in Physiotherapy, Processes of drug absorption, Biotransformation and models of Drug administration.

CO2: To explain the Drug Toxicity, , Drug Allergy and Drug Resistance, pharmacodynamics of drug also to describe the mechanism of drug action, drug antagonist and factor effecting drug action.

CO3: To demonstrate the concepts General and local anaesthetics, anxiolytics, Lytics, anticonvulsants, sedatives, antihistaminic agents, anti-inflammatory analgesic agents, neuro muscular blockers and muscle relaxants.

CO4: To analyze the effect and side effects of some common groups of drugs.

Unit – I

Definition of Pharmacology

Scope of Pharmacology in Physiotherapy

Dosage forms & Models of Drug administration

Processes of drug absorption

Biotransformation of drugs and factors affecting drug metabolism

Unit – II

Elementary knowledge of Drug-Toxicity & drug allergy, Drug Resistance

Pharmacodynamics-mechanism of drug action and factor effecting drug action

Elementary concepts of drug-response relationships

Drug potency & efficacy

Drug-antagonism.

Unit – III

Basic Pharmacology and Physiotherapeutic, role of following Pharmacodynamics agents
General and local anaesthetics, anxiolytics, anticonvulsants, sedatives antihistamin agents,
anti-inflammatory analgesic agents, neuro muscular blockers and muscle relaxants.

Unit - IV

Classifications of drugs used in various system and Indications. Pharmacological effect and
side effects of some common groups of Drugs.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1							M					
CO2		L										
CO3				H								
CO4								L				

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	CLINICAL ORTHOPAEDICS
Course Code	BP301
Year/Semester	3 rd Year

Course Outcome:

C01: To describe the general terminology and techniques related to orthopedics, deformities, contractures, etiology, pathology, clinical features, investigation and management of common infection of Bones and joints like; osteomyelitis, pott's disease, rheumatic arthritis,

spondylosis, gout, haemophilic, diabetics and neuropathic arthritis.

C02: To understand the disease course of bones and connective tissue like; rickets, osteoporosis,

bone tumors, bursitis, teno synovitis, sprain and strain, also to describe the regional disorders like meniscal injury, ganglion, capsulitis, synovitis, etc.

C03: To demonstrate the generalized out line of fracture and dislocation, its types, complications,

symptoms, common investigations and its management like; plater, traction, fixation arthroplasty, osteotomy, grafting and tendon transfer etc.

C04: To classify the conditions related the spinal column like; common fracture, dislocation, PIVD, sacralization, spondylolysis, scoliosis, lordosis, kyphosis, LBA, etc

C05: To evaluate and asses the pathologies related to shoulder girdle and arms like; fracture, frozen shoulder , painful arc syndrome, etc; pathologies related to wrist and hand like; de queravins, dupyterans, carpal tunnel syndrome, ganglion, etc; pathologies related to lower

limb like; fractures, planter fasciitis, CTEV, etc.

C06: To evaluate the classification, pathology, clinical features, investigation and management

of amputation, poliomyelitis, peripheral nerve injury, cerebral palsy and leprosy.

CO7: To design the practical demonstration of common orthopedics appliances & Instruments

Unit – I

Introduction to Orthopedics

General terminology & Techniques, Generalized idea about deformities, Contractures, common infection of Bones, Soft tissue, joints etc.

Bone & Joint Infections- Etiology, Pathology, Clinical features, investigations, management and complication of osteomyelitis, septic arthritis, Tubercular arthritis, pott's disease, arthritis of rheumatic fever & their Regional manifestations.

Generalised affections of joints

Rheumatoid arthritis, psoriatic arthritis, Ankylosing spondylitis, Reiter's disease, sero Negative arthropathies, osteo arthrosis, spondylosis, gout Pseudo Gout, Haemophilic arthritis, Diabetics & Neuropathic arthritis.

Unit II-

Generalis disease of Bones and Soft tissue

Rickets, Osteoporosis, Paget's Osteo Chondritis

Bone tumors : Benign, Malignant, Dysplasia

Bursitis, Teno Synovitis, Teno vaginitis, Fibrositis, Haematomas, Paratendinitis, Tendonitis, Sprain, Strain

Other common regional disorders like meniscal injury, Ganglion, Capsulitis and synovitis etc.

Unit – III

Generalized out line of fracture and dislocation- Types of fractures- dislocation, healing of the fractures, Generalized complication & symptoms of dislocation and fracture, Common investigation & complications (immediate, early and late), Methods of management conservative & Operative.

Like Plaster, traction, management internal fixation, Arthodesis Arthroplasty, Osteotomy Bone grafting and tendon transfer etc.

Regional Orthopaedics

Unit -IV

Spinal column

Common Fracture & dislocation of Vertebral column and common problems like PIVD, Sacralization, Spondylolisthesis, Scoliosis Kyphosis, Lordosis, LBA neck pain, torticollis etc.

Unit – V

Shoulder girdle and arms

Common Fracture and dislocations, Bones & Joints disorders of this Region and Common Problems like frozen Shoulders Periarthritis, sub acromial bursitis Painful arc syndrome

Elbow & Forearm :

Common fractures and dislocation, Bone & joint disorders of this regional and common problems like myositis ossificans, volkmann ischemic contracture, Tennis elbow, Golfers elbow cubitus valgus & Varus etc.

Wrist and hand

Common fractures and dislocation, Bone & joint disorders of this regional and common problems like de quervains, dupyterans contractures carpal tunnel syndrome, ganglion, claw hand etc.

Lower Limb:

Common fractures and dislocation, Bone & joint disorders of this regional and common problems like painful heel, plantar fasciitis pesplanus, CTEV hallux valgus metatarsalgia etc.

UNIT -VI

Amputation- Classification, indication, Pre-post operative management, Prosthetic management, Complications, its prevention and treatments

Poliomyelitis, Pathology, clinical features, stages, complications details of conservative & operative treatment, PPRP-orthosis & Surgeries

Peripheral Nerve injuries: Aetiology clinical features, investigations managements of common nerve injuries in upperlimb & lower limb Rehabilitations.

Cerebral Palsy : Aetiology clinical features, Types, investigations managements & Rehabilitations programme outline

Leprosy: Aetiology clinical features, Types, investigations managements Complication.

UNIT VII:

Discussion of common orthopedics appliances & Instruments

Practical : The Syllabus for Practical Examination shall be relevant portion of the Theory.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1								H				
CO2			H									
CO3				M								
CO4										M		
CO5									M			
CO6									H			
CO7				M								

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Course Outcomes

CO1: To describe neuro-anatomy & neurophysiology, to tell about formation & circulation of CSF, Motor & sensory representational areas. Also to define about cerebrum, brain stem and neural pathway and location of the various cranial nerves , tracts origin, course & function.

CO2 :To explain about blood supply of Spinal cord, cerebrum, internal capsule and circle of willis.

CO3: To illustrate congenital and childhood disorders, clinical features and their management of cerebral ischemia & infarction, embolism & spontaneous intracranial haemorrhage. Also to illustrate cerebrovascular accidents, clinical features, investigation and their management of cerebral ischemia & infarction, embolism & spontaneous intracranial haemorrhage .

CO4: To explain trauma, head injury and their pathophysiology clinical features, investigation, management and late complications and also to explain about spinal cord injuries and their etiology pathology clinical features, diagnosis and management. Also to explain about spinal cord disorders, accessory diseases , degenerative diseases.

CO5: To evaluate infections like pyogenic meningitis, tubercular infections of CNS, lesions of cerebellum & lesions of cranial nerves, assessment their management. Also to assess peripheral nerve disorders , diseases of muscle & neuromuscular junction. Investigations –EEG, EMG Etc.

CO6: To write about psychiatry, defense mechanism causes& types of mental disorders, psychosomatic complications. Also to write about Schizophrenic , psychoneurosis and MR.

Unit – I

Review of Neuroanatomy and Neurophysiology- Formation and circulation of C.S.F, Cerebrum : Motor & sensory representation areas, Broca's area, Wernick's area, Visual area, Auditory area, Fibres in the internal capsule, Lateral and medial 58ccessory58 bodies

- (1) Brain Stem: Location of the various cranial nerve nuclei and an outline of their supra nuclear & infra nuclear components
- (2) Neural pathway :Tracts-origin, course, termination & ascending function, Descending tracts-Origin, course termination & function, Components of visual pathway, Components od auditory pathway

Unit –II

Blood Supply: Of spinal cord, Of cerebrum, Of internal capsule, Circle of willis.

Unit – III

1. Congenital and childhood disorders : Clinical features & management of : Cerebral ischemia & infarction, Embolism, Spontaneous intracranial haemorrhage – sub arachonaid haemorrhage primary intracranial haemorrhage.

2. Cerebrovascular accidents: Clinical features, investigation & management- Cerabral ischemia & infarction, Embolism, Spontaneous intracranial haemorrhage – sub arachonaid haemorrhage primary intracranial haemorrhage

Unit IV

Trauma :Head Injury – Pathophysiology, clinicaol features, investigations, 58ccessory58& late

Complications

Spinal cord injuries, aetiology, pathology , clinical features, diagnosis & accessory.

Spinal cord disorders : Syringomyelia, Tumors, Cervical and lumbar disc diseases,
Demyelinating diseases : Gullion Barry syndrome, Transverse myelitis, Multiple sclerosis,

Degenerative diseases : Parkinson's disease, Dementia

Unit V

Infections : Pyogenic meningitis, Tubercular infections of C.N.S., Tabes Dorsalis

(1) Lesions of cerebellum

(2) Lesions of cranial nerves, assessment, Management:

(a) Optic nerve: Optic neuritis and retinobulbar: clinical features diagnosis & treatment.

(b) Trigeminal nerve: Trigeminal neuralgia

(c) Facial nerve (i) Facial palsy & Bells palsy (ii) Hemifacial spasm

(d) Vestibulo cochlear nerve (a) Tinnitus (b) Vertigo

(e) Glossopharyngeal nerve : Glossopharyngeal neuralgia

(f) Accessory nerve : Nuclear & infranuclear lesions of accessory nerve.

(3) Peripheral nerve disorders.

(4) Diseases of muscle and neuromuscular junction

(a) Myopathies, classification and prominent clinical features

(b) Myasthenia gravis Pathophysiology, clinical features and management.

(5) Miscellaneous :

(a) Epilepsy-definition, classification and management

(b) Intra cranial tumors

(6) Investigations : Electro encephalography (EEG), Electromyography (EMG),
Ventriculography, Myelography

Imaging (i) Computer tomography (C.T. Scan) (ii) Magnetic Resonance Imaging (M.R.I scan)

Unit VI –

(Psychiatry)

1. Defense mechanism causes and types of mental disorders, psychosomatic complications.
2. Schizophrenic, Manic depressive psychosis.
3. Psychoneurosis : Conversion and anxiety disorders, Hysterical anxiety states, Reactive depression, observation compulsive disorder.
4. Electro convulsive therapy
5. Mental retardation

Practical : The Syllabus for practical examination shall be relevant portion of theory.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M											
CO2			L									
CO3										H		
CO4											H	
CO5								M				
CO6		M										

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	CLINICAL CARDIOTHORACIC CONDITIONS
Course Code	BP303
Year/Semester	3 rd Year

Course Outcome:

C01: To describe the anatomy and physiology of pulmonary segment, lung, heart and thorax and

also to assess the basic principles of cardiothoracic sciences like; examination of respiratory

system, cardiac system disorders, investigation technique, pulmonary function test, X-Ray,

exercise tolerance, ECG, eco- cardiograph, etc.

C02: To understand the common deformities related to thoracic cage like; funnel chest, pigeon

chest, barrel chest, rib fracture, etc; and common conditions related to cardio vascular system

like; cardiac failure, rheumatic fever, CHD, IHD, hypertension, infective endocarditis, myopathies, pericarditis, atherosclerosis, etc

C03: To demonstrate and understand the definition, etiology, clinical feature, diagnosis of respiratory disease conditions like; acute and chronic bronchitis, COPD, restrictive disease,

emphysema, asthma, pneumonia, T.B., etc

C04: To classify the common surgical procedure related to cardiac and thoracic regions, its indication, contraindication, types, sites of incision, management and complications.

Examples of the surgeries are; open heart surgery, coronary angioplasty, cardiac transplant,

Vascular surgeries, lobectomy, pneumonectomy, segmentectomy, rib resection, etc

C05: To evaluate and describe the procedures like; management of ET tubes, tracheal suction,

extubation, CPR, ICU,ICCU care, etc.

Introduction Review of Anatomy and Physiology and Branchy Pulmonary Segment. Lungs, Heart and thorax.

Basic Principles of assessment in Cardiothoracic Sciences-Examination of Respiratory system and cardiac system disorders, investigation techniques used in Pulmonary function tests bronchoscopy, blood gas analysis, X-Rays, exercise tolerance test, Mediastinoscopy, ECG, Angiography Doppler & Ecl. Cardiography etc.

Unit – II

Thoracic cage abnormality- Common deformities like -Funnel chest, Pigeon Chest, Barrel Chest, Fracture rib & flail chest etc.

Cardio vascular system- Common condition like- Cardiac failure, Rheumatic fever, Congenital Heart Disease, Ischemic Heart disease, Hypertension, Infective Endocarditis, Cardiac Myopathies and Myocarditis, Pericarditis Vascular diseases like Atherosclerosis, Buerger's disease, Phlebitis, Aneurysm Thrombosis, Varicose vein etc.

Unit –III

Respiratory Diseases- Definition, Etiology, Clinical features diagnosis acute & chronic bronchitis COPD Restrictive Disease, Emphysema, Bronchial asthma, Pneumonia, Pulmonary tuberculosis lung abscess, Bronchiectasis, Occupational lung diseases.

Respiratory failure & AIDS

UNIT -IV

Common cardiac surgeries- Type of incision, Pre & Post-operative assessment & MGT & complication, Valvular diseases & its SURGERIES, Congenital heart diseases, Surgeries of Pericardium, Open heart surgery and coronary angioplasty, Cardiac transplant, Vascular surgeries

Thoracic surgeries- Outline – indications, Contraindications, site of incisions, Pre & Post-Operative management of following:-Lobectomy, Pneumectomy, Segmentectomy, thoroplasty, tracheostomy & Rib Resection.

Unit – V

Description of the following procedures-Management of Endotracheal tubes Tracheal suction, Post extubation care cardio plumonary resuscitation.

Cardiac Massage, Artificial respiration, Defibrillators & ICU, ICCU care.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H											
CO2			L									
CO3											M	
CO4											M	
CO5				M								

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course name	PHYSIOTHERAPY IN GENERAL MEDICINE, SKIN & PAEDIATRICS
Course Code	BP404
Year/Semester	3 rd Year

Course Outcomes

CO1: To define about Infectious diseases, Measles, Enteric fever, Tuberculosis, leprosy, Syphilis, malaria, Amoebiasis, etc.

CO2:To describe about common heart and respiratory comditions like- Ischaemic Heart disease, Hypertension, Valvular heart diseases, Pericareditis, COPD, Asthma, Bronchiectasis, Pneumonia, Pleurisy, etc

CO3: To demonstrate about conditions related to Digestive and Kidney system like- Reflex oesophagitis, Peptic Ulcers, Ulcerative colitis Hepatitis, Cirrhosis of liver, Jaundice,

Glomerulonephritis, Nephrotic syndrome, Renal failure, etc.

CO4: To classify about various Endocrine, Metabolic and blood diseases like- Diabetes Mellitus, Hypothyroidism, Hyperthyroidism, Cushing syndrome, Anaemia, Leukemia, Haemophilia, etc.

CO5: To evaluate Diseases of the connective tissues, Joints, bones and skin like- Rheumatoid Arthritis, Ankylosing Spondylitis, Juvenile Arthritis, Vasculitis, Osteoporosis, Rickets, Osteomalacia, Acne, Psoriasis, Dermatitis, Leucoderma, etc.

CO6: To evaluate the Pediatrics Mile stone & reflexes, Poliomyelitis, Vitamin deficiency disorders, etc.

Unit – I

Infectious diseases, Measles, Enteric fever, Tuberculosis, leprosy, Syphilis, malaria, Amoebiasis, etc.

Unit – II

C.V.S, Ischaemic Heart disease, Hypertension, Valvular heart diseases, Pericarditis etc.

Respiratory System, COPD, Asthma, Bronchiectasis, Pneumonia, Pleurisy, etc

Unit – III

Digestive system, Reflex oesophagitis, Peptic Ulcers, Ulcerative colitis Hepatitis, Cirrhosis of liver, Jaundice, etc

Kidney and Genitourinary system, Glomerulonephritis, Nephrotic syndrome, Renal failure (Acute & Chronic) etc.

Unit – IV

Endocrine & Metabolic diseases, Diabetes Mellitus, Hypothyroidism, Hyperthyroidism, Cushing syndrome, etc

Diseases of Blood, Anaemia- Classification, Iron deficiency Anaemia, Megaloblastic Anaemia, Pernicious Anaemia, Leukemia, Haemophilia, etc.

Unit –V

Diseases of the connective tissues, Joints & bones, Crystal deposition diseases, Rheumatoid Arthritis, Ankylosing Spondylitis, Juvenile Arthritis, Infective Arthritis, Vasculitis, Osteoporosis, Rickets, Osteomalacia, etc.

Unit – VI

Skin, Acne, Psoriasis, Dermatitis, Leucoderma

Unit - VII

Pediatrics, Mile stone & reflexes, Poliomyelitis, Vitamin deficiency disorders, etc.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
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CO1	L											
CO2		L										
CO3										M		
CO4			M									
CO5							H					
CO6									M			

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course name	GENERAL SURGERY, OBS, GYNAE, ENT & PLASTIC SURGERY
Course Code	BP305
Year/Semester	3 rd year

Course Outcomes

CO1: To describe the Types, Clinical Features, Pathology & Management of Shock, Haemorrhage,

Anesthesia and Pain Relief, etc.

CO2: To explain about the Wounds, Tissue repair, scars, acute and chronic wounds management,

Ulcers, Tumors, Burns and Skin grafting

CO3: To illustrate about the causes, clinical presentation, diagnosis and treatment of various ENT

related conditions, sinusitis, Rhinitis, tonsil CSOM, Vertigo, etc

CO4: To explain about the various disorders related to Pregnancy & labor : Rectal Prolapse,

Uterine Prolapse, Incontinence, Pelvic inflammatory diseases

Unit –I

SHOCK- Types, Clinical Features, Pathology & Management

Haemorrhage, Anaesthesia and Pain Relief, etc.

Unit – II

Wounds, Tissue repair and scars, classification, acute and chronic wounds management, Ulcers, Tumors, Burns, Classification, C/F, management, Skin grafting, indication, types, methods

Unit – III

Common abdominal surgeries, common incision, pre and post-operative management of the following surgeries.

Appendectomy, Splenectomy, Hernia, Gall-bladder surgeries, Renal surgeries, etc

Unit – IV

ENT- Anatomy & Physiology of Ear, Nose, Throat, sinusitis, Rhinitis, tonsil CSOM, Vertigo

Unit – V

Obs & Gynae

Pregnancy & labor : Common complications and treatment

Rectal Prolapse

Uterine Prolapse

Incontinence

Pelvic inflammatory diseases

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1										H		
CO2									M			
CO3											M	
CO4									L			
CO5										M		

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	DISABILITY, PREVENTION AND REHABILITATION
Course Code	BP306
Year/Sem	3 rd Year

Course Outcome:

C01: To describe the principle of practical application, history and development of occupation

therapy and physiotherapy with special reference and ethics, also to describe the rehabilitation of the handicapped, scope of rehabilitation in India and abroad, organization

structure of rehabilitation, which includes- finances, space, etc

C02: To understand the administration principles of relationship between personnel of rehabilitation unit with other department, institute, various government and semi-government bodies; also to understand the principles of maintaining department secrecy, job

analysis, methods of teaching to handicapped, etc

C03: To demonstrate and understand the principle of Physical therapy philosophy, need of rehabilitation, principle of rehabilitation nursing and mental retardation.

C04: To classify and evaluate the principle in managing of social problems related to patients,

rehabilitation center, community resources, etc and vocational problems.

Unit –I

ORGANISATION- A general Survey of the fields: Correlating of theoretical principles with practical-application history and Development of Occupational therapy and Physiotherapy with special reference to present uses and techniques in the major medical fields professional and Hospital Ethics and Etiquettes.

Supplementary reading and reports- Definition of Rehabilitation of the handicapped, Scope of rehabilitation programme in India & abroad, Organization structure of the Rehabilitation

Units of the Handicapped including :- Finances: Budgets and income and expenditure statement and other financial detail of Rehabilitation Units including details of various part of Rehabilitation; Space : Locations, survey sites, climatic and environmental conditions; Miscellaneous:- Preparation of scheme for set up of Rehabilitation units in a Hospital of outside Hospitals with a given number of children or specific conditions.

Unit – II

ADMINISTRATION- Principles of Relationship between personnel of Rehabilitation unit and other departments; Principles of Relationship between the Institution and the guardians of the Handicapped patient; Principles of Relationship between head of the Unit with various Government and Semi-Government, Trusts and juniors; Principles of maintaining Department Secrecy; handling difficult problems day to day work; Introduction to job analysis of importance; Methods of teaching to Handicapped and other workers in Rehabilitation units; Principles of teaching and guiding students, juniors and seniors in O.T. and training schools and centers.

Unit – III

REHABILITATION THERAPY- (a)The philosophy and need of Rehabilitation (b)
Principles of Physical therapy

Principles of Rehabilitation Nursing- (a)Organisation and Functions of nursing Personnel, (b)Nursing Activities on the Rehabilitation team, (c)Nursing Practice in Rehabilitation
Mental Retardation- Definition, Classification, Therapeutic approach for children with mental retardation in special schools, Home care programme for children with mental retardation, Organization & administration of special schools in different field disabilities

Unit – IV

MANAGEMENT

1.Principles in Management of social Problems- Social needs of the patient, Rehabilitation center environment, The social worker as a member of the Rehabilitation team, Contribution on social work, Community resources

2.Principles in Management of Vocational problem and Occupational therapy- Vocational Evaluation, Vocational Goals for the Severally disabled.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	L											
CO2											M	
CO3				M								
CO4		H										

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	PT in orthopaedics
Course Code	401
Year/Semester	BPT IVth year

Course Outcomes

CO1: To describe General PT assessment and approaches for traumatic conditions, classification

of fractures ,causes and types, signs & symptoms, complication of fractures and principles of fracture management and PT management. Also to define dislocations and describe common sites, sign & symptoms and its management.

CO2 :To discuss about specific fractures and their complete PT assessment and management.

Fractures of bone of upper limb , lower limb, spine and soft tissue injuries.

CO3: To demonstrate principles of PT assessment & management in dislocations & fracture dislocation.

CO4: To explain degenerative and infective conditions, osteo-arthritis, PIVD, RA and ankylosing

Spondilitis. Also to explain deformities , congenital and acquired.

CO5: To evaluate orthopaedic surgery, pre and post operative assessment and management Surgeries like arthroplasty, osteotomy etc. Also to evaluate amputation with their assessment and management.

CO6: To write about low back ache with their etiology, clinical features, investigations, differential diagnosis and PT assessment and PT management. Also write about regional orthopaedics, PT assessment and PT management of all regional joints, bones and soft tissue.

Unit-I

Gen. PT assessment and approaches for traumatic conditions

Classification of fracture, causes & types, Sign & symptoms of fracture, Complication of fractures, Healing & factors affecting it

Principles of fracture management, Principles of PT management in fracture, PT management of complications, Dislocations – Common sites, sign & symptoms & its PT management.

Unit II

Specific fracture & their Complete PT assessment & management

Upper Limb- Scapula, Clavical, Humerus, Ulna & radius, colles fracture & cruch injuries of Hand.

Lower Limb- Fracture of pelvis, Neck of Femur shaft of femur, Patelle, tibia & fibula Pott's fracture, fracture of tarsal and metatarsal bones.

Spine- Management of fracture of spine with or without neurological deficiet.

Soft Tissue Injuries- Soft tissue injuries, synvitis, Capsulitis, VIC, tear of

semilunar cartilage & cruciate ligament of knee etc.

Unit_III

Principles of PT Assessment & management in Dislocation & fracture dislocation.

Unit-IV

Degenerative and infective conditions:-Osteoarthritis of major joints, spondylosis, spondylitis, prolapsed IVD, Spondylolisthesis, Periarthritis, Rotator cuff lesion of shoulder etc. TB of Spine, bones & major joint, gout, pseudogout, perthes disease, rheumatoid arthritis, Ankylosing spondylitis etc. and other miscellaneous conditions commonly treated by PT.

Osteoarthritis of major joints, spondylosis, spondylitis, prolapsed IVD, Spondylolisthesis, Periarthritis, Rotator cuff lesion of shoulder etc. TB of Spine, bones & major joint, gout, pseudogout, perthes disease, rheumatoid arthritis, Ankylosing spondylitis etc. and other

miscellaneous conditions commonly treated by PT.

Unit-V

Orthopaedic Surgery-Pre & post operative assessment & management of surgeries like Arthroplasty, Arthrodesis, Osteotomy, Tendon transplant. Soft tissue release, grafting, total & complete joint replacement, Arthroscopy, spinal stabilization.

Reattachment of limbs, Ilizarov surgeries in C.P. and Polio external fixators.

Unit-VI

Amputation – Levels of amputation of Upper & lower limb, stump care, stump bandaging. Pre & post prosthetic fitting assessment & management. Complication of amputation & management.

Low back Ache- Etiology, Clinical features investigation.

Differential diagnosis. PT assessment & management.

Regional Orthopaedics – P.T. Assessment & Management of all regional joints, bones & soft tissues.

Practicals : The syllabus of practical will be relevant portions of the theory

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
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CO1								H				
CO2									M			
CO3										M		
CO4											M	
CO5									M			
CO6								H				

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	PT IN NEUROLOGY & NEUROSURGERY
Course Code	BPT402
Year/Semester	4TH

Course Outcomes-

CO1: Describe about Nervous system including CNS, peripheral nerves and ANS.

CO2: Describe about various techniques used in assessment and treatment of nervous tissue disorders, Neuro developmental therapy, Bobath techniques, Broomstick techniques, PNF, Transfer techniques, Rood technique, MRP, RIP's etc.

CO3: Illustrate about Detailed assessment and Management of diseases of CNS

CO4: Analyze about the assessment and treatment of peripheral nerve injuries. Myopathies, Muscular Dystrophy, Myasthenia Gravis, Polyneuropathies, Leprosy etc.

CO5: Evaluate about the assessment and treatment of following; Traumatic paraplegia, quadriplegia, nerve suturing, coma, and head injuries etc.

Unit-I

Brief discussion of Nervous system including CNS, peripheral nerves and ANS.

Unit – II

Basic technique used in assessment and treatment of nervous tissue disorders, reflexes, sensory testing, cranial nerve testing. Milestones and neonatal reflex

testing Remedial exercise, Neuro developmental therapy, Bobath techniques, Broomstick techniques, PNF, Transfer techniques, Rood technique, MRP, RIP's etc.

Unit – III

Detailed assessment and Management of diseases of CNS, Hemiplegia (stroller Cerebral Palsy, Polio, Multiple Sclerosis, Meningitis, Encephalitis, Ataxia, , Tally Dorsalis, Parkinsonism, Spina Bifida, Motor Neuron Disease, Compressive Myelopathy Etc.

Unit – IV

Assessment and treatment of peripheral nerve injuries.

Myopathies, Muscular Dystrophy, Myasthenia Gravis, Polyneuropathies, Leprosy etc.

Unit – V

Assessment and treatment of following;Traumatic paraplegia, quadriplegia, nerve suturing, coma, and head injuries etc.

Practicals : The syllabus of practical will be relevant portions of the theory.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M											
CO2				M								
CO3									M			
CO4								L				
CO5										H		

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course Name	PT IN CARDIOTHORACIC CONDITIONS
Course Code	BP403
Year/Sem	4 th Year

Course Outcome:

C01: To describe the anatomy and physiology of pulmonary and cardiac system, peripheral

vascular system, mechanism of respiration, respiratory muscles, lung volume, gas exchange.

C02: To demonstrate the basic physiotherapy techniques like postural drainage, breathing Exercise, FET, vibration, percussion shaking, etc along with brief discussion of suction, mechanical ventilation, AMBU bag procedures.

C03: To demonstrate and manage the conditions related to cardiothoracic system like chest deformities, rib and sternum fractures, IHD, CHD, asthma, COPD, lung abscess, pneumonia, etc.

C04: To assess and apply the pre and post-operative physiotherapy management in cardiorespiratory surgical conditions like open heart surgery, heart transplant, lung transplant, valvular surgery, lobectomy, thoracotomy, artificial respirations, etc.

Unit – I

Introduction outline of pulmonary & cardiac surface anatomy, Broncho pulmonary segments and peripheral vascular systems, mechanism of respiration, respiratory muscles, lung volumes, gas exchange.

Unit – II

Basic Physiotherapy techniques like postural drainage, Breathing exercise, forced expiratory techniques, vibration, percussion, shaking etc.

Brief idea about other cardio thoracic procedures like suction, mechanical ventilation, AMBU bag, extubation care.

Unit – III

Physiotherapy assessment and management of chest deformities, conservative management of Rib and Sternum Fractures, Ischemic Heart disease, Congenital Heart Disease, Cardiac Myopathies and Endocarditis, Pericarditis, Asthma, Emphysema, Bronchitis, Bronchiectasis, Pulmonary Tuberculosis, Pleurisy. Pleural Effusion, Empyema. Lung abscess, Pneumonia, Atherosclerosis, Burger's disease and other peripheral vascular problems, AIDS etc.

Unit – IV

Pre & post operative physiotherapy management of open heart surgery, heart transplant, heart lung transplant valvular and other congenital heart disease surgery, Lobectomy, Pneumonectomy, Thoracotomy, Rib Resection, Vascular Surgeries, Artificial Respiration etc.

Practicals : The syllabus of practical will be relevant portions of the theory.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	L											
CO2				H								
CO3											M	
CO4											M	

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Name	BPT
Programme Code	M101
Course name	Physiotherapy in general medicine
Course Code	BP404
Year/Semester	IV th year

Course Outcomes

CO1: To define about

oedema, inflammation, atherosclerosis, diabetes, obesity, lymphedema.

CO2: To describe about general surgery-wound, ulcers, burns, pre & post operative

P.T., common abdominal incisions and surgeries with their

P.T. treatment & post operative complications, hernia, skin grafting, mamoplasty.

CO3: To demonstrate about ante natal & post natal

physiotherapy, PID, incontinence, prolapsed rectum etc. and pediatric conditions.

CO4: To classify about various ENT conditions and its P.T management.

CO5: To evaluate and prepare various programmes for sportsmen like mechanism of

injury, PT treatment of common sports injuries and

ergonomics

Unit I

Oedema, Inflammation, Atherosclerosis, Aneurysma, Tumors, Rickets, Diabetes panniculitis, obesity, Lymphedema, Tetanus.

Unit – II

Gen. Surgery: Wound, Ulcers, Boils, carbuncles, Burns, pre & post operative P.T. Common Abdominal Incisions & common surgeries with their P.T. Treatment & Post Operative Complications, Appendectomy, Gallbladder

Surgeries, Hernia, Splenectomy Nephrectomyetc.

Unit – III

Obs. And Gynae : Ante natal and post natal Physiotherapy,
Painless delivery complication of pregnancy.

PID and Salphingitis, Incontinence and Bladder conditions, Prolapsed Rectum and Uterus, Radical mastectomy.

Unit – IV

ENT : Rhinitis, Sinusitis, Vertigo, Tonsillitis, Otitismedia, Palatal surgeries.

Unit-V

Preparation of programmes for sportsmen.

Mechanism of injury, Muscle building

therapies

PT treatment of common

sports injuries Nutrition in

sports, Ergonomics.

Practicals : The syllabus of practical will be relevant portions of the theory.

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M											
CO2											M	
CO3									L			
CO4									M			
CO5										M		

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated

Programme Code	M101
Course name	Research methodology computer
Course Code	BP405
Year/Semester	IV th year

Course Outcomes

CO1: To describe about the measurement of central tendency, dispersion, theory of probability, its laws and theorems.

CO2: To discuss about various test like t-test, f-test etc. sampling methods, its types and its application.

CO3: To illustrate about correlation and regression line-coefficient of correlation, its properties, its calculations, regressions and condition for constancy of data, coefficient of measuring associations.

CO4: To analyze about computers and its applications, soft & hardware, application in medicine, programming etc. Modern concept of computer technology in rehabilitation of persons with disabilities.

Unit-I

Measurement of Central Tendency (Mean, Median, Mode)

Measurement of Dispersion, Collection and classification of data, Graphical representation of data. Measurement of Central tendency.

Theory of Probability – Definition, Mathematical definition, Law of Probability (Addition and Multiplication Theorems)

Condition Probability, Expectations – Expected values of the Mathematical expectation, addition and multiplication theorem on expectation.

Unit – II

Test-t-test, f-test and X^2 -test, Theoretical distribution (Binomial, Poisson and Normal distribution), theory of sampling Population and sampling-introduction, main steps in sample survey, purposive sampling Probability Sampling simple Random sampling, quota sampling, systematic sampling, cluster sampling, multistage sampling.

Unit – III

Correlation and regression line:-

Coefficient of correlation

Properties of coefficient of correlation (r) calculation of (r) from table rank (Rank coefficient of correlation)

Linear and non linear regression. Regression Coefficient and Regression line.

Condition for constancy of data, coefficient of measuring associations.

Unit – IV

Computer: Application, Soft and Hardware, Application in Medicine, Programming etc. Modern concept of Computer Technology in

Rehabilitation of persons with disabilities

CO-PO Mapping

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M											
CO2												
CO3			L									L
CO4				L								

3: Highest Correlated, 2: Medium Correlated, 1: Lowest Correlated