Faculty of Medical, Paramedical
&
Allied Health Sciences

SYLLABUS

For

Bachelor of Physiotherapy (B.P.T.)

(Program Code: HS0141)

(Batch 2022-2023)

Approved by the Academic Council vide resolution no 44.03 and dated 30.09.2022

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1. INTRODUCTION

The quality of medical care has improved tremendously in the last few decades due to the advances in technology, thus creating fresh challenges in the field of healthcare. It is now widely recognized that health service delivery is a team effort involving both clinicians and non-clinicians, and is not the sole duty of physicians and nurses. Professionals that can competently handle sophisticated machinery and advanced protocols are now in high demand. In fact, diagnosis is now so dependent on technology, that allied and healthcare professionals (AHPs) are vital to successful treatment delivery. So, the quality of higher education in BPT should be improved in such a manner that young minds are able to compete in this field globally in terms of their knowledge and skills, for this purpose Learning Outcome-based Curriculum Framework (LOCF) is developed.

Incorporation of Learning Outcome-based Curriculum Framework (LOCF) in the undergraduate physiotherapy programme makes it student-centric, interactive and outcome-oriented to achieve well-defined aims, objectives and goals. The learning outcomes are attained by students through skills acquired during a programme of study. Programme learning outcomes will include subject- specific skills and generic skills, including transferable global skills and competencies. It would also focus on knowledge and skills that prepare students for further study, employment and society development. LOCF help ensure comparability of learning levels and academic standards across colleges/universities.

At present, the goal of higher education in BPT may be achieved using the following measures:

i. Curriculum reform based on learning outcome-based curriculum framework (LOCF).
ii. Improving learning environment and academic resources.
iii. Elevating the quality of teaching and research.
iv. Involving students in discussions, problem-solving and out of box thinking about various ideas and their applicability, which may lead to empowerment and enhancement of the social welfare.
v. Motivating the learners to understand various concepts of their educational programme keeping in view the regional context.
vi. Enabling learners to create research atmosphere in their colleges/ institutes/ universities.
vii. Teach courses based on Choice Based Credit System (CBCS).

2. LEARNING OUTCOME-BASED APPROACH TO CURRICULUM PLANNING

The Bachelor's Degree in Physiotherapy is awarded to the students on the basis of knowledge, understanding, skills, values and academic achievements. Hence, the learning outcomes of this programme are aimed at facilitating the learners to acquire these attributes, keeping in view of their preferences and aspirations for knowledge.

The LOCF have designed courses of BPT in the light of graduate attributes, description of qualifications, courses and programme learning outcomes. It may lead to all round development

and delivery of complete curriculum planning. Hence, it provides specific guidelines to the learners to acquire sufficient knowledge during this programme.

The programme has been planned in such manner that there is scope of flexibility and innovation in

i. Modifications of prescribed syllabi.
ii. Teaching-learning methodology.
iii. Assessment technique of students and knowledge levels.
iv. Learning outcomes of courses.
v. Addition of new elective courses subject to availability of experts in colleges/ institutes/ universities across the country.

2.1. Nature and Extent of Bachelor's Degree Programme

As a part of effort to enhance employability of physiotherapy graduates expected learning outcomes are very essential in present day perspective. Therefore, higher education degrees must formulate Graduate Attributes (GAs), qualification descriptors, learning outcomes and course learning outcomes which will help in curriculum planning and development in the form of design and delivery of courses. The overall formulation of the degree programme must equip learner to have competencies to provide deliverables to the profession.

2.2. Aim of Bachelor's Degree program in Physiotherapy

The aim is to-

I. Creating deep interest in physiotherapeutic system of learning and to promote the medical health professionals with enhanced skills who shall serve the society by advanced treatment skills and diagnosing the ailments
II. Develop broad and balanced knowledge and understanding of definitions, concepts, techniques and their principles in order for their better application.
III. Making the students aware of the advanced medical health and physiotherapeutic equipments and specialized techniques related to Physiotherapy Graduate program.
IV. Enhance the ability of learners to apply the knowledge and skills acquired by them during the graduate program in order to let them lead an independent professional life and career ahead.
V. Promoting students and introducing them to the research protocols in order to provide students with sufficient knowledge and skills enabling them to undertake higher education.
VI. Encouraging the students to develop a range of generic skills helpful in employment, internships and social activities.

2.3. Motive behind curriculum planning and development

The committee considered and discussed the following factors for LOCF for the BPT graduates:

i. Framing of syllabi
ii. Learners attributes

iii. Qualification descriptors
iv. Programme learning outcomes
v. Course learning outcomes
vi. Necessity of having elective courses
vii. Academic standard

3. PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

After successful completion of the program, the graduates will be

PEO 1: Able to integrate theoretical knowledge with clinical assessment.

PEO 2: Able to develop effective communication with patients, family, colleagues and students.

PEO 3: Able to actively engage in lifelong learning activities

4. GRADUATE ATTRIBUTES (GAs)

The graduate attributes in BPT are the summation of the expected course learning outcomes mentioned in the end of each course. Some of them are stated below. These learning goals for BPT are divided into Ten key areas:-

GA1. **Role of physiotherapy**:

To recognize the role of Physiotherapy in the context of the health needs of the community and National priorities in the health sector. Using a patient/family-centered approach and best evidence, each student will organize and implement the preventive, investigative and management plans; and will offer appropriate follow-up services. Program objectives should enable the students to:

- Apply the principles of basic science and evidence-based practice
- Use relevant investigations as needed.
- Identify the ailments and as per the indications for basic procedures, perform them in an appropriate and ethical way.
- Provide care to patients – efficiently and in a cost-effective way – in a range of settings, and maintain foremost the interests of individual patients.
- Identify the influence of biological, psychosocial, economic, and spiritual factors on patients' well-being and act in an appropriate manner.

GA2. **Ethics:**

Demonstrate professional and ethical behavior appropriate to at least the minimum standard expected for a physiotherapy graduate. Students will understand core concepts of clinical ethics and law so that they may apply these to their practice as Physical Therapists. Program objectives should enable the students to:

- Describe and apply the basic concepts of clinical ethics to actual cases and situations
- Recognize the need to make health care resources available to patients fairly, equitably and without bias, discrimination or undue influence.
- Demonstrate an understanding and application of basic legal concepts to the practice

of physiotherapy.

- Employ professional accountability for the initiation, maintenance and termination of patient-provider relationships.
- Demonstrate respect for each patient's individual rights of autonomy, privacy, and confidentiality.

GA3. **Acquire knowledge**:

The student will execute professionalism to reflect in his/her thought and action a range of attributes and characteristics that include technical competence, appearance, image, confidence level, empathy, compassion, understanding, patience, manners, verbal and non- verbal communication, an anti-discriminatory and non-judgmental attitude, and appropriate physical contact to ensure safe, effective and expected delivery of healthcare. Program objectives will aim at making the students being able to:

- Demonstrate distinctive, meritorious and high quality practice that leads to excellence and that depicts commitment to competence, standards, ethical principles and values, within the legal boundaries of practice
- Demonstrate the quality of being answerable for all actions and omissions to all, including service users, peers, employers, standard-setting/regulatory bodies or oneself
- Demonstrate humanity in the course of everyday practice by virtue of having respect (and dignity), compassion, empathy, honor and integrity
- Ensure that self-interest does not influence actions or omissions, and demonstrate regards for service-users and colleagues.

GA4. **Assessment and Diagnosis**:

Ability to perform a safe, systematic and appropriate physiotherapy assessment for various conditions and to analyze and interpret physical assessment and diagnosis and set appropriate short and long term goals. The student will utilize sound scientific and/or scholarly principles during interactions with patients and peers, educational endeavors, research activities and in all other aspects of their professional lives. Program objectives should enable the students to:

- Engage in ongoing self-assessment and structure their continuing professional education to address the specific needs of the population.
- Practice evidence-based practice by applying principles of scientific methods.
- Acquire basic skills such as presentation skills, giving feedback, patient education and the design and dissemination of research knowledge; for their application to teaching encounters.

GA5. **Problem analysis**:

Function effectively in identification and analysis of the problem

- Identification of "Red flags" or areas that require action.
- Anticipation of potential problems based on finding.
- Scanning entries to identify areas of need.

Range of knowledge for research and diagnosing skills shall be inculcated by the students in order to give a directed treatment approach

GA6. **Short-term and long-term goal setting**:

Function effectively as an individual and as a member or leader in multidisciplinary rehabilitation facility. The student will lead a high value on effective communication within the team, including transparency about aims, decisions, uncertainty and mistakes. Team-based health care is the provision of health services to individuals, families, and/or their communities by at least two health providers who work collaboratively to accomplish shared goals within and across settings to achieve coordinated, high quality care. Program objectives will aim at making the students being able to:

- Recognize, clearly articulate, understand and support shared goals in the team that reflect patient and family priorities.
- Possess distinct roles within the team; to have clear expectations for each member's functions, responsibilities, and accountabilities, which in turn optimizes the team's efficiency and makes it possible for them to use division of health services advantageously, and accomplish more than the sum of its parts.

GA7. Documentation:

Able to document the problem properly for necessary interventions.

- Develop mutual trust within the team to create strong norms of reciprocity and greater opportunities for shared achievement.
- Communicate effectively so that the team prioritizes and continuously refines its communication channels creating an environment of general and specific understanding.
- Recognize measurable processes and outcomes, so that the individual and team can agree on and implement reliable and timely feedback on successes and failures in both the team's functioning and the achievement of their goals. These can then be used to track and improve performance immediately and over time.

GA8. **Communication**:

Communicate effectively across wide range of professional and personal contexts. The student will learn how to communicate with patients/clients, care-givers, other health professionals and other members of the community effectively and also with the peers appropriately. Communication is a fundamental requirement in the provision of health care services. Program objectives should enable the students to:

- Provide sufficient information to ensure that the patient/client can participate as actively as possible and respond appropriately to the information.
- Clearly discuss the diagnosis with the patient, and decide appropriate treatment plans in a sensitive manner that is in the patient's and society's best interests.
- Explain the proposed healthcare service – its nature, purpose, possible positive and adverse consequences, its limitations, and reasonable alternatives wherever they exist.
- Use effective communication skills to gather data and share information including attentive listening, open-ended inquiry, empathy and clarification to ensure understanding.
- Appropriately communicate with, and provide relevant information to, other stakeholders including members of the healthcare team.

- Explore and consider the patient's ideas, beliefs and expectations during interactions with them, along with varying factors such as age, ethnicity, culture and socioeconomic background.
- Develop efficient techniques for all forms of written and verbal communication including accurate and timely record keeping.
- Assess their own communication skills, develop self-awareness and be able to improve their relationships with others.
- Possess skills to counsel for lifestyle changes and advocate health promotion.

GA9. Research activities:

Ability to choose, demonstrate intervention safely and document the progression appropriately and also able to understand and conduct research activities.

- Incorporate the Research learning process either by introducing research and data oriented protocols of learning practices in curriculum or by introduction to research process via evidence based practice.
- Imbibe the system of data restoration in order for future patient oriented researches and for better outcome of results and treatment for the future perspectives.
- Develop the system of research projects in undergraduate program by keeping in mind the need of the society and for their betterment.

GA10. **The Physiotherapist and society**:

Engage in activities that contribute to the betterment of society and behave ethically and responsible in social environment. The students will recognize that allied and healthcare professionals need to be advocates within the health care system, to judiciously manage resources and to acknowledge their social accountability. They have a mandate to serve the community, region and the nation and will hence direct all research and service activities towards addressing their priority health concerns. Program objectives should enable the students to:

- Demonstrate knowledge of the determinants of health at local, regional and national levels and respond to the population needs.
- Establish and promote innovative practice patterns by providing evidence-based care and testing new models of practice that will translate the results of research into practice, and thus meet individual and community needs in a more effective manner.
- Had vision of an evolving and sustainable health care system for the future by working in collaboration with and reinforcing partnerships with other stakeholders, including academic health centers, governments, communities and other relevant professional and non-professional organizations.
- Advocate for the services and resources needed for optimal patient care.
- Use communication effectively and flexibly in a manner that is appropriate for the reader or listener.

5. QUALIFICATION DESCRIPTORS (QDs)

The qualification descriptor suggests the generic outcomes and attributes to be obtained while obtaining the degree of BPT. The qualification descriptors indicate the academic standards on the basis of following factors:

i. Level of knowledge
ii. Understanding
iii. Skills
iv. Competencies and attitudes
v. Values and Ethics

These parameters are expected to be attained and demonstrated by the learners after becoming graduates in this programme. The learning experiences and assessment procedures should be so designed that every graduate may achieve the programme learning outcomes with equal opportunity irrespective of the class, gender, community and regions. Each graduate in physiotherapy should be able to:

i. Demonstrate fundamental systematic knowledge and its applications. It should also enhance the subject specific knowledge and help in creating jobs in various sectors.
ii. Demonstrate educational skills in areas of their programme.
iii. Apply knowledge, understanding and skills to identify the difficult/unsolved problems in courses of their programme and to collect the required information in possible range of sources and try to analyze and evaluate these problems using appropriate methodologies.
iv. Apply one's disciplinary knowledge and skills in newer domains and uncharted areas
v. Identify challenging problems and obtain well-defined solutions.
vi. Exhibit subject-specific transferable knowledge relevant to job trends and employment opportunities.

6. PROGRAMME OUTCOMES (POs)

The aim of the course is to provide comprehensive, individually focused training that prepares the students for providing a quality physiotherapy care to the patients so that at the end of the course he/she will be able to perform the following

PO1. Recognize the role of Physiotherapy in the context of the health needs of the community and National priorities in the health sector.

PO2. Demonstrate professional and ethical behavior appropriate to at least the minimum standard expected for a Physiotherapy Graduate.

PO3. Ability to acquire knowledge on Basic Medical sciences, Human Movement Sciences, Various Medical Conditions and Surgical treatments to identify Psychological, Social, Economical, Cultural aspects of diseases and its impact on community.

PO4. Ability to practice a safe, systematic and appropriate physiotherapy assessment for various conditions.

PO5. Identify, define and deal with problems of professional practice through logical,

analytical and critical thinking.

PO6. Ability to analyze and interpret physical assessment and diagnosis and set appropriate short and long term goals.

PO7. Ability to choose, demonstrate intervention safely and document the progression appropriately.

PO8. Communicate effectively across wide range of professional and personal contexts.

PO9. Ability to understand and conduct research activities.

PO10. Engage in group activities that contribute to the betterment of society and behave ethically and responsible in social environment.

Mapping of Graduate Attributes (GAs) and Programme Learning Outcomes (PLOs):

	GA1	GA2	GA3	GA4	GA5	GA6	GA7	GA8	GA9	GA10
PO1	■									
PO2		■								
PO3			■							
PO4				■						
PO5					■					
PO6						■				
PO7							■			
PO8								■		
PO9									■	
PO10										■

7. PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Promotion of health and education by the means of improved quality of life through the practice of the profession and also by working effectively in various inter professional collaborative settings like multi, super specialty hospitals, Rehabilitation Centres, Special Schools, Educational Institutions, Health and Fitness Centers, Geriatric Centers, Ergonomic Consultant in Corporate Sectors, Private Consultation, Home Care Services, Industrial Sectors, Sports Management, Fitness Consultant

PSO2: Develop the ability to collect history, perform relevant clinical assessment, diagnose, investigate and frame appropriate treatment strategies by incorporating electrotherapeutic modalities, exercise therapy techniques, manual therapy, manipulations and others means of management for the patients.

8. Types of Courses

Courses in a programme may be of four kinds: Core, Elective, Ability Enhancement and Skill Enhancement.

a) Core Course:-

There may be a Core Course in every semester. This is the course which is to be compulsorily studied by a student as a requirement to complete the programme in a said discipline of study.

b) Elective Course:-

Elective course is a course which can be chosen from a pool of papers. It may be

- Supportive to the discipline of study
- Providing an expanded scope
- Enabling an exposure to some other discipline/domain
- Nurturing student's proficiency/skill.

An Elective Course may be 'Discipline Centric/Specific' & Generic Elective

(i) Discipline Centric/Specific Elective (DSE): Elective courses offered under the main discipline/subject of study is referred to as Discipline Centric/Specific.

(ii) Generic/Open Elective (GE): An elective course chosen from an unrelated discipline/subject is called Generic/Open Elective. These electives will be focusing on those courses which add generic proficiency of students.

c) Ability Enhancement Compulsory Courses (AECC):-

AECC courses are based upon the content that leads to knowledge enhancement, for example: English Communication, Environment Science/ Studies, etc.

d) Skill Enhancement Courses (SEC):-

SEC Courses provide value based and/or skill based knowledge and may content both Theory and Lab/Training/Field Work. The main purpose of these courses is to provide students life- skills in hands- on mode so as to increase their employability.

9. PROGRAM STRUCTURE (BPT)

BPT 1st YEAR

Theory						Practical			Teaching Hours			Total Classes / Week	Credits	
Code No.	Paper	Type	Total	IA	EA	Total	IA	EA	L	T/S	P	C/ Week	Sem.	Yearly
BPT 101	ANATOMY	Core	100	30	70	100	30	70	3	1	2	6	5	10
BPT 102	PHYSIOLOGY	Core	100	30	70	100	30	70	3	1	2	6	5	10
BPT 103 A	BIO-CHEMISTRY	Elective	100	30	70	-	-	-	2	-	-	2	2	4
BPT 103 B	ENVIRONMENTAL SCIENCE	Elective	100	30	70	-	-	-	2	-	-	2	2	4
BPT 104	PSYCHOLOGY & SOCIOLOGY	SEC	100	30	70	-	-	-	2	-	-	2	2	4
BPT 105	BASIC PRINCIPLES OF PHYSIOTHERAPY	SEC	100	30	70	100	30	70	3	-	2	5	4	8
BPT 106	ETHICS & LAW IN PHYSIOTHERAPY	SEC	50	10	40	-	-	-	3	-	-	3	3	6
BPT 107	COMMUNICATION SKILL	AECC	80	30	50	20		20	1	-	-	1	1	2
BPT 108	ANANDAM	-	-	-	-	100	50 (P)	50 (D)	1	-	-	1	2	4
Total			**630**			**420**			**17**	**3**	**6**	**26hrs**	**24**	**48**
Grand Total		**1050 Marks credits**												**48**

BPT 2nd Year

Theory						Practical			Teaching Hours				Credits	
Code No.	**Paper**	**Type**	**Total**	**IA**	**EA**	**Total**	**IA**	**EA**	**L**	**T/S**	**P**	**Classes / week**	**Sem.**	**Yearly**
BPT 201	PATHOLOGY & MICRO-BIOLOGY	Sec	100	30	70	-	-	-	2	-	-	2	2	4
BPT 202 A	PHARMACOLOGY	Elective	50	10	40	-	-	-	2	-	-	2	2	4
BPT 202 B	COMPUTER SCIENCE	Elective	100	30	70	-	-	-	2	-	-	2	2	4
BPT 203	EXERCISE THERAPY	Core	100	30	70	100	30	70	2	-	4	6	4	8
BPT 204	ELECTROTHERAPY	Core	100	30	70	100	30	70	2	-	4	6	4	8
BPT 205	BIOMECHANICS & KINESIOLOGY	Core	100	30	70	100	30	70	3	1	2	6	5	10
BPT 206	RESEARCH METHODOLOGY AND BIOSTATICS	AECC	100	30	70	-	-	-	3	-	-	3	3	6
BPT 207	UNIVERSAL HUMAN VALUES	AECC	80	20	50	30	-	30	1	-	-	1	1	2
BPT 208	ANANDAM	-	-	-	-	100	50 (P)	50 (D)	1	-	-	1	2	4
Total			**630**			**430**			**17**	**2**	**4**	**27hrs**	**23**	**46**
Grand Total		**1060 Marks Credits**												**46**

BPT 3rd Year

Theory						Practical			Teaching Hours				Credits	
Code No.	**Paper**	**Type**	**Total**	**IA**	**EA**	**Total**	**IA**	**EA**	**L**	**T/S**	**P**	**C/week**	**Sem.**	**Yearly**
BPT 301	GENERAL MEDICINE	Core	100	30	70	-	-	-	3	1	-	4	4	8
BPT 302	GENERAL SURGERY AND OBSTETRICS & GYANECOLOGY	Core	100	30	70	-	-	-	3	1	-	4	4	8
BPT 303	CLINICAL ORTHOPEDICS	SEC	100	30	70	-	-	-	3	1	-	4	4	8
BPT 304	CLINICAL NEUROLOGY& PAEDIATRICS	SEC	100	30	70	-	-	-	3	1	-	4	4	8
BPT305 A	COMMUnitY MEDICINE	Elective	100	30	70	-	-	-	3	1	-	4	4	8
BPT 305 B	BIOENGINEERING	Elective	100	30	70	-	-	-	3	1	-	4	4	8
BPT 306	SUPERVISED CLINICAL TRAINING	SEC	-	-	-	100	30	70	-	-	4	4	2	4
BPT 307	LEADERSHIP & MANAGEMENT SKILLS	AECC	80	30	50	-	20	-	1	-	-	1	1	2
BPT 308	ANANDAM	-	-	-	-	100	50 (P)	50 (D)	1	-	-	1	2	4
Total			580			220			17	5	4	26Hrs	25	50
Grand Total		**800 Marks**											**50 Credits**	

BPT 4th Year

Theory						Practical			Teaching Hrs				Credits	
Code No.	**Paper**	**Type**	**Total**	**IA**	**EA**	**Total**	**IA**	**EA**	**L**	**T/S**	**P**	**C/week**	**Sem.**	**Yearly**
BPT 401	PHYSIOTHERAPY IN ORTHOPEDIC CONDITIONS	core	100	30	70	100	30	70	3	-	2	5	4	8
BPT 402	PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS	core	100	30	70	100	30	70	3	-	2	5	4	8
BPT 403	PHYSIOTHERAPY IN GENERAL MEDICINE &SURGERY	core	100	30	70	100	30	70	2	1	1	4	3.5	7
BPT 404	PHYSIOTHERAPY IN CARDIO-THORACIC CONDITIONS	core	100	30	70	100	30	70	2	1	1	4	3.5	7
BPT 405A	COMMUNIY BASED REHABILITATION	Elective	100	30	70	100	30	70	2	-	2	4	4	8
BPT 405 B	FIRST AID	Elective	100	30	70	100	30	70	2	-	2	4	4	8
BPT 406	MINOR PROJECT & CLINICAL TRAINING	AECC	-	-	-	100	30	70	-	-	4	4	2	4
BPT 407	PROFESSIONAL SKILLS	AECC	80	30	50	20	-	20	1	-	-	1	1	2
BPT 408	ANANDAM	-	-	-	-	100	50 (P)	50 (D)	1	-	-	1	2	4
Total			**580**			**720**			**12**	**4**	**12**	**28**	**22**	**48**
Grand Total		**1300 Marks 28 Hrs 48 Credits**												

6 MONTHS (180 DAYS) COMPULSORY CLINICAL INTERNSHIP & PROJECT (MAJOR) SUBMISSION

Code no.	Paper	Credits
BPT 501	CLINICAL INTERENSHIP & PROJECT	**24**
GRAND TOTAL		**24 CREDITS**

NOTE:

- **To pass, a Student must obtain Min. 50% marks in theory & 50% marks in practicals separately.**

The total credit of **BPT** Programme is **216**. The minimum credit required for award of degree shall be 216. However a student may earn minimum 4 credits through MOOCs/Coursera and have the option either to adjust the same 4 credits by leaving an elective paper else go for additional credits.

- **AECC - Ability Enhancement Compulsory Course**
- **SEC - Skill Enhancement Course**
- **L - No. of Lectures per week**
- **T - No. of Tutorial per week**
- **P - No. of Practical's per week**

10. COURSE-WISE LEARNING OBJECTIVES, STRUCTURES AND OUTCOMES (CLOSOs)

Course learning outcomes of each course in BPT have been enshrined in the end of course contents of each course with their objectives those are in the beginning of the every course.

BPT 1st YEAR

Theory						Practical			Teaching Hrs.			Total Classes / Week	Credits	
Code No.	Paper	Type	**Total**	**IA**	**EA**	**Total**	**IA**	**EA**	**L**	**T/S**	**P**	**C/ Week**	**Sem.**	**Yearly**
BPT 101	ANATOMY	Core	100	30	70	100	30	70	3	1	2	6	5	10
BPT 102	PHYSIOLOGY	Core	100	30	70	100	30	70	3	1	2	6	5	10
BPT 103 A	BIO-CHEMISTRY	Elective	100	30	70	-	-	-	2	-	-	2	2	4
BPT 103 B	ENVIRONMENTAL SCIENCE	Elective	100	30	70	-	-	-	2	-	-	2	2	4
BPT 104	PSYCHOLOGY & SOCIOLOGY	SEC	100	30	70	-	-	-	2	-	-	2	2	4
BPT 105	BASIC PRINCIPLES OF PHYSIOTHERAPY	SEC	100	30	70	100	30	70	3	-	2	5	4	8
BPT 106	ETHICS & LAW IN PHYSIOTHERAPY	SEC	50	10	40	-	-	-	3	-	-	3	3	6
BPT 107	COMMUNICATION SKILL	AECC	80	30	50	20		20	1	-	-	1	1	2
BPT 108	ANANDAM	-	-	-	-	100	50 (P)	50 (D)	1	-	-	1	2	4
Total			**630**			**420**			**17**	**3**	**6**	**26hrs**	**24**	**48**
Grand Total		**1050 Marks 48 credits**												

FIRST YEAR BACHELOR OF PHYSIOTHERAPY

(1 YEAR DURATION)

ANATOMY

CODE-BPT101

Course objectives

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

Course Contents:

Unit –I General Anatomy:

Cell	Parts, Name of Cytoplasm organelles and inclusion with their function
Epithelium	Types with example and light microscopic structure.
Connective Tissue	Classification with emphasis on tendon
Cartilage	Types with example
Bone	Types with example, type of ossification (Stage of ossification not required) blood supply, fracture repair.
Joints	Classification with example, emphasis on synovial joint.
Muscles	Types & Structure & Functions
Nervous Tissue	Structure of a neuron, synapse reflex arc, degeneration and regeneration of the nerve.
Embryology	(a) Ovum, spermatozoa, fertilization of the firm layers and their derivation.
	(b) Development of skin, fascia, blood vessels, lymph.
	(c) Development of bones, axial and apendicular skeleton and muscles.
	(d) Neural tube, brain vessels & spinal cord.
	(e) Development of brain (brain stem) structures.

Regional Anatomy

Unit-II Upper Extremity:

Theory

Axilla, brachial plexus, shoulder joints, sterno-clavicular joints, axillary lymph nodes, elbow joints, superior radioulnar joints, nerves of arm and fore arm, Ulnar nerve in hand, cutaneous distribution according to dermatomes, clinical anatomy, surface anatomy.

Practical / Demonstration

Pectoral region, axilla, scapula and clavicle, humerus, muscles of arm (front & back), radius front of forearm, muscles of palm and arterial arches, articulated hand(carpals and metacarpals, name and arrangements in order only)

Unit-III Lower Extremity:

Theory

Lumbar plexus, inguinal group of lymph nodes, hip joint, femoral triangle and femoral sheath, knee joint, venous drainage of inferior extremity, sciatic nerve and its distribution, obturator nerve, arches of foot, midtarsal joint. Cutaneous distribution according to myotome, clinical anatomy, surface markings.

Practical / Demonstration

Hip bone, Glutei Muscles, Femur, front of thigh, back of thigh medial side of thigh, Tibia, Anterior compartment of leg, Fibula, Lateral compartment leg, back of leg, articulated foot (identification of tarsal and meta tarsal only).

Abdomen and pelvis

Theory

Abdominal wall, Inguinal canal, stomach, Liver, pancreas, kidney with ureter and spleen, small Intestine, Large Intestine, Abdominal Aorta, Portal vein, Diaphragm. Sacral plexus, Sacroiliac joint, intervetebral disc.

Practical / Demonstration

Abdominal viscera, sacrum, bony pelvis, viscera of pelvis and blood vessels.

Unit –IV Thorax:

Theory

Thoracic cage and mediastinum, Heart with its internal and external features bloods vessels, typical spinal Nerve, Typical Intercostals space, Mechanism of Respiration, surface marking of heart and lungs.

Practical / Demonstration

Superior mediastinal structures, Sternum, Ribs (only general features), Vertebrae (identification, general features, functional components, Development, vertebral column with weight transmission), Heart, pleura & lungs.

Unit –V Head & Neck:

Theory

Temporomandibular joint, Atlantoccipital and Atlantoaxial Joint, Cutaneous distribution of trigeminal Nerve.

Practical / Demonstration

Mouth cavity, Nasal cavity pharynx and Larynx (parts, sensory distrubution), Cranial bones (identification of Individual born general features, different foramina in relation to cranial fossae and their relations to brain and Hypophysis).

Identification of Anterior and Posterior triangle of neck with their contents.

Radiological Anatomy of Musculoskeletal System.

Nervous System

Theory

General introduction and classification, Autonomic Nervous system (idea about sympathetic and para sympathetic with their difference in distribution and function).

Spinal cord with its Meaning, spinal Reflex, Pyramidal and Extrapyramidal tracts (detail not required) Blood supply.

Parts of brain, meanings, Gross discussion of hindbrain, Mid Brain (cranial Nerve Nucleus Position should be mentioned)

Fore brain – Cerebral hemisphere, functional areas and blood supply.

Practical / Demonstration

Spinal cord and parts of brain.

Cranial Nerves

Name in order, Individual cranial Nerve distribution. Idea about upper Motor Neuron and Lower Motor Neuron, applied anatomy.

Histology Practical

Epithelium (Simple, Compound)

Connective tissue (Cartilage & Bone)

Muscle (smooth & skeletal)

Nervous tissue (Neuron)

Blood vessels (Large artery and vein)

Book References:-

1. Grays Anatomy
2. Human Anatomy- Snell
3. Anatomy – BD Chourasiya, Volume-I,II, & II
4. Human Anatomy – Kadasemn Volume –I , II & III
5. Human Anatomy- Dutta

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Understand & identify all gross anatomical structures, particular emphasis will be placed on description of bones, joints, muscles, brain, cardio-pulmonary and nervous systems as these are related to the application of Physiotherapy
CO2	Demonstrate knowledge in human anatomy as in necessary for the study and practice of physiotherapy
CO3	Apply information gained about human health and medical research as to its social, environmental, and ethical implications as part of being a responsible citizen
CO4	Use scientific laboratory equipment in order to gather and analyze data on human anatomy
CO5	Implement the gross anatomy knowledge while treating the patients.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Anatomy LAB
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	H	M	H	L	-	-	L	M	L	-	-	-
CO2	L3	H	H	M	H	M	M	M	M	-	L	-	-
CO3	L3	M	H	L	M	M	M	M	M	-	L	-	-
CO4	L4	L	-	M	M	H	M	M	M	-	L	-	-
CO5	L3	M	-	H	L	L	-	-	M	-	L	-	-

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Anatomy LAB	CO2
CD3	Seminars	CO1, CO5
CD4	Self- learning advice using internets	CO1
CD5	Hospital visit & OPD	CO2,CO3,CO4

PHYSIOLOGY

CODE: BPT102

Course Objective:

- Define homeostasis and explain how homeostatic mechanisms normally maintain a constant interior milieu.
- State the functions of each organ system of the body, explain the mechanisms by which each functions, and relate the functions and the anatomy and histology of each organ system.
- Understand and demonstrate the interrelations of the organ systems to each other.
- Predict and explain the integrated responses of the organ systems of the body to physiological and pathological stresses.
- Explain the patho physiology of common diseases related to the organ systems of the body.

Course Contents:

Unit-I

General Physiology

1. Introduction and scope of Physiology.
2. Cell and tissue – its structure, principal constituents, properties and function including cell division.
3. Body fluid.

Blood: composition and general function of plasma. Blood cells – structure and function – Red blood cell, white blood cell – including number and approximate length of life – position structure and function of cell of reticulo-endothelial system.

Blood clotting including bleeding time and clotting time, factors accelerating or slowing the process. Blood groups and their significance, Rh- factor, Hemoglobin and E.S.R.

Formation of blood, tissue fluid and lymph.

Unit-II

Cardio-Vascular System and Respiratory System Physiology:

4. Cardiovascular System.

Structure and properties of Heart Muscles and nerve supply of Heat.

Structure and function of arteries, capillaries and veins.

Cardiac cycle and Heart sound.

Cardiac output measurements, factors affecting Heart Rate and its regulation,

Cardiac – vascular reflexes.

Bloods pressure, its regulation, physiological variation, peripheral resistance, Factors controlling blood pressure, Hemorrhage.

ECG study. Stress and stress test.

5. Respiratory System.

Mechanism of Respiration, change in diameters of thorax – intra-pleural and intra-pulmonary pressure.

Quantities of lung volume, tidal and residual volume, vital capacity.

Gaseous inter-changes in lung and tissues.

Control of respiration – Nervous and chemical significance of change in rate and depth, transportation of oxygen and carbon-dioxide.

Respiratory states – anoxia, asphyxia, cyanosis, acclimatization.

Unit –III

Physiology of Digestive Tract and Reproductory system:

6. Digestive System

General arrangements of alimentary canal, liver pancreas – position, structure and functions.

Nutrition and diet – carbohydrates, protein, fat, salt, water, vitamins and minerals digestion, Absorption and Metabolism.

7. Reproductive System.

Sex determination and development of puberty, male sex hormones, spermatogenesis, female sex hormones, menstrual cycle. Ovulation, pregnancy, Function of placenta, location.

8. Excretory System.

Gross and minute structure of kidney, renal circulation, Mechanism of formation of urine, Glomerular rate and tubular function, renal function and renal test. Physiology of micturition.

Unit-IV

Physiology of Thyroid and Skin:

9. Endocrine System.

Structure and function of pituitary (anterior & posterior). Thyroid, Parathyroid, adrenal cortex, adrenal medulla, Thymus and pancreas.

Blood sugar regulation.

10. Skin – Structure and functions.

Unit-V

Neuromuscular Physiology:

1. Cell membrane – ionic and potential gradient and transport.
2. Muscle – Types of muscular tissue – Gross and microscopic structure – function, Basis of Muscle contraction – change in muscle contraction, Electrical – Biphasic and monophasic action potentials, chemical, Thermal and physical change, Isometric and Isotonic contraction.

Motor units and its properties – clonus, tetanus, all or none law, Fatigue.

Nerve – Gross and microscopic structure of nervous tissue, one neuron – Generation of action potential – Nerve impulse – condition.

Neuromuscular junction.

Degeneration – Regeneration of peripheral nerves Wallerian degeneration, electro tonus and pflafgers law.

Types and properties, of receptions, types of sensation, synapse, reflex, are its properties occlusion, summation, sub minimal fatigue ext.

Tracts – Ascending and descending and extra pyramidal tracts.

Function of E.E.G.

Function of Cerebral cortex, cerebrum, cerebellum, Basal ganglia,

Thalamus – connection and functions.

Reticular formation – tone, posture & equilibrium, autonomic nervous system.

Special Senses Eye – Error of refraction, lesions of visual path ways.

Speech and its disorder.

Ear and vestibular apparatus, test, olfactory, somatic sensations.

Practical Physiology/ Demonstration

1. Hematology: - RBC counts, WBC count, different count ESR, Bleeding & Clotting time, Estimation of hemoglobin, Blood groups.
2. Human physiology: - Examination of (a) Respiratory system (b) heart and arterial pulse (c) deep and superficial reflexes (d) cranial nerves (e) motor system. (f) Sensory system including higher function (g) measurement of blood pressure.
3. Effect of exercises on body physiology.

Book Reference:-

1. Textbook of Medical Physiology – Arthur Guyton(Mosby.)
2. Textbook of Physiology-Anand & Manchanda, Tata McGraw Hill
3. Human Physiology- Vol. 1&2 , CC, Calcutta, Medical Allied
4. Concise Medical Physiology- Chaudhari, S.K, New Central Agency, Calcutta
5. Principals of Anatomy and Physiology – Tortora & Grabowski- Harper Collins
6. Textbook of Practical Physiology- Jaypee

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Understand the basis of normal human physiology with special emphasis on the functioning of the cardiovascular, musculo-skeletal and nervous systems.
CO2	Explain the role of body systems and mechanisms in maintaining homeostasis
CO3	Understand how abnormal Physiology affects human function and dysfunction of the human body.
CO4	Evaluate Breath sounds, Blood pressure, Respiratory rate, Heart rate and Pulmonary Function Tests
CO5	Demonstrate an understanding of elementary human physiology and Bio-Chemistry

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Physiology LAB
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	H	M	H	L	L	L	M	M	L	-	-	-
CO2	L4	H	L	H	M	L	L	-	M	L	-	-	-
CO3	L2	H	-	H	M	L	-	-	M	L	L	-	-
CO4	L5	M	H	M	H	M	M	M	M	L	-	-	-
CO5	L3	M	M	M	L	M	M	M	M	L	L	-	-

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2
CD2	Physiology LAB	CO1,CO5
CD3	Seminars	CO1, CO2
CD4	Self- learning advice using internets	CO1,CO2
CD5	Hospital visit & OPD	CO4,CO3,CO5

BIO-CHEMISTRY

CODE: BPT103A

Course Objective:

- To understand the biochemical basis of life sciences.
- To understand the different lab tests and test significances.
- To understand the biological and biochemical processes.

Course Contents:

Unit-I **Bio – Physics And Cell Chemistry**

Concepts of PH and buffer, Acid – base equilibrium, osmotic pressure and its physiological applications.

Morphology, structure and function of cell, cell membrane, Nucleus, Chromatin, Mitochondria reticulum, Ribosome.

Unit-II **Carbohydrates, Lipids, Proteins & Metabolism:**

Definition, Function, Source, classification, & metabolism.

Unit-III **Vitamins :**

Classification, Fat soluble vitamins – A, D, E, K, Water soluble vitamins –B Complex and Vitamin C. Daily requirement, physiological functions and diseases of vitamin deficiency

Unit-IV **Water And Electrolytes & Minerals Metabolism Process:**

Fluid compartment, Daily intake and output, Dehydration, sodium and potassium Metabolism.

Unit- V **Mineral Metabolism & Hormones:**

Iron, Calcium, Phosphorous, Trace elements.

General Characteristic and Mechanism of Hormone actions.

Books Reference -

1. Text Book of Biochemistry by Harbanslal
2. Essentials of medical biochemistry by R.C. Gupta
3. Harper's Illustrated Biochemistry by Murry et.al.26 Ed.
4. Text Book of Biochemistry by D.M. Vasudevan and sreekumari S. 4th Ed.
5. Biochemistry by U. Satyanarayana II Ed.

Course Outcomes:

CO	STATEMENT **(After completion of this course, student will be able to)**
CO1	Demonstrate comprehensive understanding of biochemistry
CO2	Acquire the knowledge in biochemistry that are required to be practiced in community and at all levels of health care system
CO3	Understand relevant investigations which will help to know about the important medical conditions.
CO4	Identify various nutritional disorders in physiotherapeutics system of medicine
CO5	Interpret the common clinical biochemistry investigations report of patients in clinics and Hospitals.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	H	L	L	-	-	L	-	M	L	L	-	-
CO2	L1	M	M	H	L	-	-	-	M	L	M	-	-
CO3	L2	M	L	H	H	M	H	-	M	L	M	-	-
CO4	L3	M	L	H	M	H	M	-	M	L	L	-	-
CO5	L4	H	H	H	M	H	H	M	M	L	H	-	-

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1,CO2,CO3
CD4	Self- learning advice using internets	CO1,CO2
CD5	Hospital visit & OPD	CO4,CO5

ENVIRONMENTAL SCIENCE

CODE: BPT103B

Course Objectives:

- Understand core concepts and methods from ecological and physical sciences and their application in environmental problem-solving.
- imparting basic knowledge about the environment and its allied problems
- to understand how we as humans interact with the environment, and also to determine how we affect the environment.

Course Content:

Unit-I: Fundamentals of Environmental Sciences

- Definition, Principles and Scope of Environmental Science. Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere.
- Laws of thermodynamics, heat transfer processes, mass and energy transfer across various interfaces, material balance.
- Meteorological parameters - pressure, temperature, precipitation, humidity, mixing ratio, saturation mixing ratio, radiation and wind velocity, adiabatic lapse rate, environmental lapse rate. Wind roses. Interaction between Earth, Man and Environment.

Unit-II: Environmental Chemistry

- Fundamentals of Environmental Chemistry: Classification of elements, Stoichiometry, Gibbs' energy, chemical potential, chemical kinetics, chemical equilibria, solubility of gases in water, the carbonate system, unsaturated and saturated hydrocarbons, radioisotopes. Composition of air.
- Particles, ions and radicals in the atmosphere. Chemical speciation. Chemical processes in the formation of inorganic and organic particulate matters, thermochemical and photochemical reactions in the atmosphere, Oxygen and Ozone chemistry.

Unit-III: Environmental Biology

- Ecology as an inter-disciplinary science. Origin of life and speciation. Human Ecology and Settlement.
- Ecosystem Structure and functions: Structures - Biotic and Abiotic components. Functions - Energy flow in ecosystems, energy flow models, food chains and food webs. Biogeochemical cycles, Ecological succession. Species diversity, Concept of ecotone, edge effects, ecological habitats and niche.

Unit-IV: Environmental Geosciences

- Distribution of water in earth, hydrology and hydrogeology, major basins and groundwater provinces of India, Darcy's law and its validity, groundwater fluctuations, hydraulic conductivity, groundwater tracers, land subsidence, effects of excessive use of groundwater, groundwater quality. Pollution of groundwater resources, Ghyben-Herzberg relation between fresh-saline water.

- Natural resource exploration and exploitation and related environmental concerns. Historical perspective and conservation of non-renewable resources.
- Natural Hazards: Catastrophic geological hazards - floods, landslides, earthquakes, volcanism, avalanche, tsunami and cloud bursts. Prediction of hazards and mitigation of their impacts.

Unit-V: Energy and Environment

- Sun as source of energy; solar radiation and its spectral characteristics. Fossil fuels: classification, composition, physico-chemical characteristics and energy content of coal, petroleum and natural gas. Shale oil, Coal bed Methane, Gas hydrates. Gross-calorific value and net-calorific value.
- Principles of generation of hydro-power, tidal energy, ocean thermal energy conversion, wind power, geothermal energy, solar energy (solar collectors, photo-voltaic modules, solar ponds).
- Nuclear energy - fission and fusion, Nuclear fuels, Nuclear reactor – principles and types. Bioenergy: methods to produce energy from biomass.

Books Recommended:-

- Environmental science by Y K Science
- Fundamentals of environmental studies by Mahua basu

Course Outcomes:

CO	STATEMENT **(After completion of this course, student will be able to)**
CO1	Demonstrate comprehensive understanding of environmental science
CO2	Acquire the knowledge in environmental science that are required to be practiced in community and at all levels of health care system
CO3	Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving.
CO4	Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
CO5	Imparting basic knowledge about the environment and its allied problems.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	H	L	L	-	-	L	-	M	L	L	-	-
CO2	L1	M	M	H	L	-	-	-	M	L	M	-	-
CO3	L2	M	L	H	H	M	H	-	M	L	M	-	-
CO4	L3	M	L	H	M	H	M	-	M	L	L	-	-
CO5	L4	H	H	H	M	H	H	M	M	L	H	-	-

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1,CO2,CO3
CD4	Self- learning advice using internets	CO1,CO2
CD5	Hospital visit & OPD	CO4,CO5

PSYCHOLOGY AND SOCIOLOGY

CODE- BPT 104

Course Objectives:

- Define the term Psychology& its importance in the Health delivery System & will gain knowledge of Psychological maturation during human Development & growth & alterations during aging process.
- Understand the importance of psychological status of the person in Health &disease, environmental &emotional influence on the mind & personality.
- Acquire the Knowledge as to how to deal with the patients.

Course Contents:

Unit-I General Psychology

1) Definition of Psychology
   i. Science of mind consciousness and behavior
   ii. Scope and branches of Psychology
2) Development and growth of behavior in infancy and childhood, adolescence, adulthood and old age.
3) Heredity and Environment
   a. Relative importance of heredity and environment
   b. Nature vs. nurture controversy

Unit -II Theories of Learning, Memory and Perception:

4) Learning: meaning, nature, Types of Learning
   a. Trial and error
   b. Classical Learning
   c. Instrumental Learning
   d. Insight for Learning
5) Memory:
   a. Step of memory
   b. Measurement of memory
   c. Definition, nature and theories of forgetting
   d. Concept of STM and LTM
6) Perceptual process
   a. Nature of perceptual process
   b. Structural and function factors in perception
   c. Illusion and Hallucination

Unit-III Psychology of Emotion, Motivation, Intelligence and personality:

7) Emotion
   a. Nature and types of emotion
   b. Theories of emotion (James – Lange and cannon – Bard)

8) Motivation
   a. Nature and types of motivation.
   b. Theories of motivation.
9) Intelligence: Definitions, theory and assessment
10) Personality: Definition, Types and theories of personality**.**

Unit-IV Sociology:

1. Definition of sociology. Sociology as a science, uses of study of Sociology,

2. Factors affecting Disease and Illness, application of knowledge of sociology in Occupation Therapy.

3. Meaning of socialization, gender, relationship between gender and society, influence
4. Concepts of social group health and sickness and its types, the role of primary groups and secondary group in the hospital and rehabilitation setting
5. Influence of family on human personality, discussion of changes in the function of a family, influence of family on the individual's family and psychosomatic disease, human values.

Unit-V: Social problems of the disabled

6. Population explosion

7. Poverty and unemployment

8. Beggary

9. Juvenile delinquency

10. Prostitution

11. Alcoholism & Problems of women in employment

Books Recommended:

1. Introduction to psychology- Mums- I.D.P. Co.
2. Foundation of psychology- Weld- Publishing house, Bombay.
3. Introduction to social psychology- Akolkar- Oxford publishing house.
4. Psychology and sociology – Applied to Medicine – Porter & Alder – W.B. Saunders.
5. Behavioral Science for Medical - undergraduates –Manju Mehta – Jaypee Brothers
6. Elementary Psychology –Mohsin Moti Lal Banarsi Dass, Delhi.
7. Introduction to psychology- Mums- I.D.P. Co.
8. Foundation of psychology- Weld- Publishing house, Bombay.
9. Introduction to social psychology- Akolkar- Oxford publishing house.
10. Psychology and sociology – Applied to Medicine – Porter & Alder – W.B.Saunders.
11. Behavioral Science for Medical - undergraduates –Manju Mehta – Jaypee Brothers
12. Elementary Psychology –Mohsin Moti Lal Banarsi Dass, Delhi.

Course Outcomes:

CO	STATEMENTS **(After completion of this course, student will be able to)**
CO1	Understand the elementary principles of behavior for applying in the therapeutic environment. Explains the role of sociology and its application
CO2	Know about psychology and its importance in the health care delivery system and gain knowledge of psychological maturation during human development, growth and alteration during ageing process.
CO3	Recognize and help with the psychological factors involved in disability, pain, disfigurement, unconscious patients, chronic illness, death, bereavement and medical-surgical patients/conditions
CO4	Perform psychosocial assessment of patients in various developmental stages, understand the concept of stress and its relationship to health, sickness and one's profession and learn counselling techniques to help those in need. And Understand the role of family and community in the development of behaviors
CO5	Implementation of various techniques and therapies in the treatment / management of clinical disorders

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	H	H	H	M	L	L	M	M	L	L	-	-
CO2	L1	H	H	M	L	H	L	M	M	L	L	-	-
CO3	L2	M	H	H	L	-	-	H	M	L	L	-	-
CO4	L3	M	H	H	-	H	L	M	M	L	M	-	-
CO5	L3	H	M	H	M	M	L	L	M	L	M	-	-

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1,CO2,CO3
CD4	Self- learning advice using internets	CO1,CO2
CD5	Hospital visit & OPD	CO4,CO5

BASIC PRINCIPLES IN PHYSIOTHERAPY

CODE-BPT105

Course Objectives:

- To understand the basic principles of exercise therapy.
- To understand the basic principles of electrotherapy.
- To understand the concept of Manual therapy.

Course Contents:

Unit- I **1. Physical Principles**:

- Structure and properties of matter- solids, liquids and gases, adhesion, surface tension viscosity, density and elasticity.
- Structure of atom, molecules, elements and compounds.
- Electron theory, static and current electricity.
- Conductors, Insulators, Potential difference, Resistance & Intensity.

  Ohm's Law- Its application to AC & DC currents.

a) Rectifying devices – Thermionic Valves, Semiconductors, Transistors, Amplifiers, Transducers Oscillator circuits.

b) Capacitance, condensers in DC and AC Circuits.

c) Display devices & indicators- analogue & digital.

Unit-II **2. Effects of Current Electricity**

1. Chemical effects – Ions and electrolytes, Ionization, Production of a E.M.F. by chemical

   actions.
2. Magnetic effects, Molecular theory of Magnetism, Magnetic fields, Electromagnetic induction.
3. Millimeter and Voltmeter, Transformers and Choke Coil, thermal effect-joule law, heat production.
4. Physical principles of sound and its properties.
5. Physical principles of light and its properties.
6. Electromagnetic spectrum – biophysical application.

3. Electrical supply:

a) Brief outline of main supply of electric current.

b) Dangers- short circuits, electric shocks.

c) Precautions – safety devices, earthing, fuses etc.

d) First aid & initial management of electric shocks.

Unit - III Introduction to exercise therapy, principles, technique and general areas of its application, Assessment & its importance.

Biomechanics And Exercise Therapy

a. Force: Composition of force, parallelogram of forces.

b. Equilibrium: Stable, unstable, neutral.

c. Gravity: Center of gravity, Line of gravity.

d. Levers: 1st order, 2nd order, 3rd order, their examples in the human body and their practical applications in physiotherapy, forces applied to the body levers.

e. Pulleys: Fixes, Movable.

f. Springs: Series; Parallel

g. Tension

h. Elasticity: Hook's law.

i. Axis: Sagittal, Frontal, Transverse, vertical.

j. Planes: Sagittal, frontal, Horizontal.

k. Definition of speed, Velocity, work, Energy, power, Acceleration, Momentum, Friction and Inertia.

Unit- IV Introduction to movements including analysis of joint motion, muscle work and Neuro -muscular co- ordination.

Principal classification techniques physiological &therapeutic effects indications & contraindications of therapeutic exercises.

Unit- V Classification of movements: Describe the types, technique of application, indication, contraindications, effects and uses of the following.

a) Active movement

b) Passive movement.

c) Active assisted movement

d) Resisted movement

Book Reference:

1. Clayton's electrotherapy theory and practice IX Edition by Angela Forester Nigel Palastanga.
2. Clayton's electrotherapy theory and practice X Edition by Kitchen & Bazin.
3. Clinical Electrotherapy by Rogar M. Nelson& Dean P. Currier.
4. Electrotherapy explained Principles and practice III Edition by John Low & Ann Reed.
5. Therapeutic heat and cold by Lehmann.
6. Principle and practice of Electrotherapy by Joseph Kahn.
7. Electrotherapy: Clinics in physical therapy- Wolf.
8. Practice exercise therapy- Hollis- Blackwell Scientific Publication
9. Therapeutic Exercises- Basmajjan- Williams and Wilkins.
10. Therapeutic Exercises Foundations and Techniques –Kisner and Colby –F.A. Davis.
11. Proprioceptive Neuromuscular Facilitation –Voss et. al –Williams and Wilkins.
12. Principle of exercise of therapy – Gardiner –C.B.S. Delhi

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Analyze basics normal human movement from a global perspective
CO2	Learn the principles ,technique and effects of exercise as a therapeutic modality in the restoration of physical function
CO3	Analyse the various types of therapeutic exercises, movements
CO4	Demonstrate different techniques and describe their effects
CO5	Practice different exercise therapy techniques and gain confidence in performing these skills before implementing the same on the patients so that high quality patient care is ensured.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Lab and OPD teachings

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L4	M	M	H	M	L	H	L	M	L	L	-	L
CO2	L4	H	M	H	M	H	L	L	M	L	M	-	L
CO3	L2	M	M	H	M	H	L	L	M	L	M	-	L
CO4	L5	H	M	H	H	H	L	L	M	L	M	-	L
CO5	L3	H	M	H	M	M	H	L	M	L	M	-	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1
CD4	Self- learning advice using internets	CO1,CO2,CO3
CD5	Lab and OPD teaching	CO3,CO4,CO5

ETHICS AND LAW IN PHYSIOTHERAPY

CODE-BPT106

Course Objectives:

- To understand the ethical principles in physiotherapy.
- To understand the rights of patients.
- To understand the laws and legal concepts in physiotherapy.

Course Contents:

Unit –I History of physiotherapy.
Philosophy and Philosophical statements.
Major Ethical principles applied to moral issue in health care.

Unit –II Rules of professional conduct.
Scope of practice.
Personnel and professional standard.
Professional standard

Unit-III Relationships with patients.
Relationships with medical collogues
Relationships between professional with carrier.
Relationships with in the profession.

Unit-IV Confidentiality and responsibility.
Pervasion of services and advertising.
Sale of goods.
Professional and government licensing, Accreditation and Education standards.

Unit-V Law
Legal concepts.
Protection from Malpractice claims.
Consumers protection Act.
Liability and Documentation.

Book References:

1. British Journal of Physiotherapy 1994 Issues
2. Medical Ethics- By. CM. Francis.

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Understanding of criteria for choosing between conflicting ethical theories,justification of moral judgements
CO2	Application of ethical standards to practical decision making
CO3	Articulate what makes a particular course of action ethically defensible
CO4	Assess their own ethical values and social context of problems
CO5	Demonstrate knowledge of ethical values in non classroom activities, such as learning ,internships and field work.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	OPD teachings

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L4	M	M	H	M	L	H	L	M	L	L	-	L
CO2	L4	H	M	H	M	H	L	L	M	L	M	-	L
CO3	L2	M	M	H	M	H	L	L	M	L	M	-	L
CO4	L5	H	M	H	H	H	L	L	M	L	M	-	L
CO5	L3	H	M	H	M	M	H	L	M	L	M	-	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1
CD4	Self- learning advice using internets	CO1,CO2,CO3
CD5	Lab and OPD teaching	CO3,CO4,CO5

JEEVAN KAUSHAL

Course 1: COMMUNICATION SKILLS

CODE: BPT 107

Duration: 30 Hours

Context:

In today's world of computers and digital media, a strong communication skill base is essential for learners and for smooth functioning of an organization.

Course Objectives:

- To identify common communication problems that may be holding learners back
- To identify what their non-verbal messages are communicating to others
- To understand role of communication in teaching-learning process
- To learn to communicate through the digital media
- To understand the importance of empathetic listening
- To explore communication beyond language.

Module Outline :

Module 1: Listening

- Techniques of effective listening
- Listening and comprehension
- Probing questions
- Barriers to listening

Module 2: Speaking

- Pronunciation
- Enunciation
- Vocabulary
- Fluency
- Common Errors

Module 3: Reading

- Techniques of effective reading
- Gathering ideas and information from a given text

i. Identify the main claim of the text
ii. Identify the purpose of the text
iii. Identify the context of the text
iv. Identify the concepts mentioned

- Evaluating these ideas and information

i. Identify the arguments employed in the text
ii. Identify the theories employed or assumed in the text

- Interpret the text

i. To understand what a text says

ii. To understand what a text does

iii. To understand what a text means

Module 4: Writing and different modes of writing

- Clearly state the claims
- Avoid ambiguity, vagueness, unwanted generalizations and oversimplification of issues
- Provide background information
- Effectively argue the claim
- Provide evidence for the claims
- Use examples to explain concepts
- Follow convention
- Be properly sequenced
- Use proper signposting techniques
- Be well structured

i. Well-knit logical sequence

ii. Narrative sequence

iii. Category groupings

- Different modes of Writing -

i. E-mails

ii. Proposal writing for Higher Studies

iii. Recording the proceedings of meeting

iv. Any other mode of writing relevant for learners

Module 5: Digital Literacy 4 Hours

- Role of Digital literacy in professional life
- Trends and opportunities in using digital technology in workplace
- Internet Basics
- Introduction to MS Office tools

i. Paint

ii. Office

iii. Excel

iv. PowerPoint

Module 6: Effective use of Social Media

- Introduction to social media websites
- Advantages of social media
- Ethics and etiquettes of social media
- How to use Google search better
- Effective ways of using Social Media

- Introduction to Digital Marketing

Module 7: Non-verbal communication

- Meaning of non-verbal communication
- Introduction to modes of non-verbal communication
- Breaking the misbelieves
- Open and Closed Body language
- Eye Contact and Facial Expression
- Hand Gestures
- Do's and Don'ts
- Learning from experts
- Activities-Based Learning

Bibliography:

- Sen Madhucchanda (2010), *An Introduction to Critical Thinking*, Pearson, Delhi
- Silvia P. J. (2007), *How to Read a Lot*, American Psychological Association, Washington

ANANDAM – An Exercise in Trusteeship

CODE: BPT- 108

Course Objectives:

- To instill the joy of giving in young people, turning them into responsible citizens to build up a better society.
- To inculcate the habit of service in students across the University..
- Students to be excepted to engage in individual and group acts of service and goodness.

Action Plan:

1. Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- There will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join

2. Inputs

A. From the Anandam Platform
   a. An online platform to manage and share service opportunities
   b. A list of suggested programs or volunteering organizations.
   c. Training for faculty members on how to facilitate the Anandam program

B. From the University
   a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
   b. The act of goodness will not be evaluated, just if it was recorded or not
   c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
   d. Mentors to guide and review the student's activities on an regular basis
   e. There will be one Anandam coordinator to monitor the program in every University.

3. Outcomes

Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO1: Develop a great sense of understanding towards social issues.(Bloom's Level- L2)

CO2: Able to engage in individual and group acts of service and goodness.(Bloom's Level- L3)

BPT 2nd Year

Theory						Practical			Teaching Hrs				Credits	
Code No.	**Paper**	**Type**	**Total**	**IA**	**EA**	**Total**	**IA**	**EA**	**L**	**T/S**	**P**	**Classes / week**	**Sem.**	**Yearly**
BPT 201	PATHOLOGY & MICRO-BIOLOGY	Sec	100	30	70	-	-	-	2	-	-	2	2	4
BPT 202 A	PHARMACOLOGY	Elective	50	10	40	-	-	-	2	-	-	2	2	4
BPT 202 B	COMPUTER SCIENCE	Elective	100	30	70	-	-	-	2	-	-	2	2	4
BPT 203	EXERCISE THERAPY	Core	100	30	70	100	30	70	2	-	4	6	4	8
BPT 204	ELECTROTHERAPY	Core	100	30	70	100	30	70	2	-	4	6	4	8
BPT 205	BIOMECHANICS & KINESIOLOGY	Core	100	30	70	100	30	70	3	1	2	6	5	10
BPT 206	RESEARCH METHODOLOGY AND BIOSTATICS	AECC	100	30	70	-	-	-	3	-	-	3	3	6
BPT 207	UNIVERSAL HUMAN VALUES	AECC	80	20	50	30	-	30	1	-	-	1	1	2
BPT 208	ANANDAM	-	-	-	-	100	50 (P)	50 (D)	1	-	-	1	2	4
Total			**630**			**430**			**17**	**2**	**4**	**27hrs**	**23**	**46**
Grand Total		**1060 Marks** **46 Credits**												

SECOND YEAR BACHELOR OF PHYSIOTHERAPY
(1-YEAR DURATION)
PATHOLOGY and MICRO BIOLOGY

CODE: BPT 201

Course Objectives:

- Acquire the knowledge of concepts of cell injury and changes produced in different tissues and organs.
- Understanding disease process and their clinical significance (with special emphasis on Neuro, Musculo- skeletal and Cardio-respiratory system).
- Acquire the knowledge of concepts of Neoplasia with reference to the etiology, gross and microscopic features diagnosis and prognosis in different tissues and organs of the body.

Course Contents:

Unit-I Introduction to Pathology and Cell Injury

1. Aims and objectives of study of pathology.
2. Brief outline of cell injury, degeneration, necrosis and gangrene.
3. General Pathology of Inflammatory Process and Circulatory System disorders.
4. Inflammation: definition, vascular and cellular phenomenon difference between transudates and exudates. Granuloma
5. Circulatory disturbances: Hemorrhage, Embolism Thrombosis Infarction, Shock, Volkmann's ischemic contracture.
6. Blood disorder: Anemia, Bleeding disorder.

Unit-II Pathology of Cardiovascular and Respiratory System

1. CVS: Heart and blood vessels, Coronary heart disease.
2. Respiratory System: Ch. Bronchitis, Asthma Bronchiectasis, Emphysema, COPD etc.
3. Pathology of Skeletal System and Nervous System
4. Bones and Joint : Arthritis & Spondyloarthropathy

Unit-III General Pathology of Neoplasm and Bodily Disorders

1. Neoplasia
2. Growth and its disorder like hypertrophy hyperplasia & atrophy
3. Autoimmune diseases.
4. Healing and repair

Unit-IV Introduction to Microbiology and its History of Microbiology

1. General lectures on Microorganisms (brief)
2. Sterilization

3. Immunity – Natural and Acquired
4. Allergy and hypersensitivity.

Unit V Microbiology of Pathogens and Pathogenic Processes

1. Respiratory tract infection
2. Meningitis.
3. Enteric infections.
4. Anaerobic infections
5. Urinary tract infections
6. Leprosy, tuberculosis and miscellaneous infections.
7. Wound infection and wound healing
8. Sexually transmitted diseases.
9. Hospital acquired infections.

Books Recommended:

1. Text Book Of Pathology For Dental Student By Harsh Mohan
2. Basic Pathology By Cotran Kumar Robbins.
3. Text Book Of Microbiology For Dental Student By Baveja
4. Text Book Of Medical Microbiology By Rajesh Bhatia
5. Textbook Of Medical Microbiology By Arora & Arora

Course Outcomes:

CO	STATEMENTS (After completion of this course, student will be able to)
CO1	Learn the pathological changes in various conditions, diseases and disorders, which are commonly treated by physiotherapy.
CO2	Demonstrate an understanding of the pathology of common diseases that therapists would encounter in their daily practice.
CO3	Understanding of core concepts of microbiology
CO4	Know the methods used in study bacteria and can classify them.
CO5	Understand the various pathogens of humanity like bacteria's, viruses and fungi.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets

Mapping between Objectives and Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L1	H	M	H	L	-	L	L	M	L	L	-	-
CO2	L2	H	L	M	L	-	-	-	M	L	L	-	-
CO3	L3	H	-	-	-	L	-	-	M	L	-	-	-
CO4	L4	H	-	-	L	L	L	-	M	L	L	-	-
CO5	L5	H	L	H	L	-	-	-	M	L	-	-	-

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcome
CD1	Lecture by use of boards/ LCD projectors/ OHP projectors	CO1, CO2,CO4
CD2	Tutorials/ Assignments	CO1,CO3
CD3	Seminars	CO1, CO2,CO3
CD4	Self-learning advice using internets	CO1, CO2,CO3, CO4
CD5	Laboratory teaching	CO2,CO3,CO5

HARMACOLOGY

CODE: BPT-202A

Course Objectives:

- To understand pharmaco-kinetics, pharmaco-dynamics.
- Usage of common drugs with indications, contra-indications, side-effects.
- Course is not prescription oriented.
- To understand the drug action that may affect the physical therapy treatment.

Course Contents:

Unit-I Introduction to Pharmacology

1. **General pharmacology:**

   Introduction and definition, Nature and source of drugs, Dosage form of drugs' Routes of drug administration, Pharmacokinetics (Absorption, Bioavailability, Distribution, Metabolism Excretion, First order Zero order Kinetics), Pharmacodynamics (site and mechanism of drug and factors influencing dosage and drug response).

Unit-II Pharmacology of Nervous System

1. **Drugs Affecting ANS:-** General Introduction, Drug affecting parasympathetic nervous system, Drugs affecting sympathetic nervous systems,
2. **Drugs affecting Peripheral (Somatic) nervous System:-**Skeletal Muscle Relaxants: Local Anesthetics.
3. **Drugs Affecting CNS: -** General anesthetics Anxiolytics and hypnotics, Alcohal, Opioid analgesics Drugs dependence and abuse Antiepileptic drugs, Drug therapy for Neurodegenerative disorders.

Unit III Pharmacology of Cardiovascular, Respiratory and Renal System

1. **Renal and CVS :-** Diuretics : Renin – angiotension system and its inhibitors, Drug treatment of Hypertension, Angina pectoris Myocardial infarction Heart failure, and hypercholesterolemia.
2. **Drugs Affecting Respiratory system:** Drug therapy of bronchial asthma and chronic obstructive pulmonary disease.

Unit-IV Drugs of Inflammation and Endocrine Disorders

1. **Anti – inflammatory drugs and related autacoids: -** Histamine Bradykinin, 5 – HT and their antagonists, Prostaglandins and leukotrienes, Nonsteroidal Anti - inflammatory drug (NSAIDs), Anti rheumatic drugs and drugs used in gout.
2. **Endocrines:** Parathyroid hormone, Vitamin D, calcitonin and drugs affecting Calcium balance, Thyroid and antithyroid drugs, Adrenocortical and anabolic steroids, Insulin and Oral Hypoglycemic agents.

Unit-V Pharmacology of Cancer and General Ailments

1. **Chemotherapy:** Introduction, sulfonamides, Fluoroquionolones, penicillin, Cephalosporism, newer B – lactam antibiotic, aminoglycosides, Macrolides and Newer antibiotics,
    a. Teatracyclines, Chloramphenicol Chemotherapy of Tuberculosis and leprosy antiseptics – disinfectants.
2. **Miscellaneous Topics :** Management of stroke, Toxicology and heavy metal poisoning, special aspects of paedicatric and geriatric Pharmacology, Drug interaction with drugs commonly used by physiotherapists, Hematinics, vitamins and antioxidants.

Books Recommended:

1. Essentials of pharmacology by Surendra Singh
2. pharmacology by Bhattacharya Sen ray choice editor P.K. Das
3. Clinical Pharmacology by Sennet.

Course Outcomes:

CO	STATEMENTS **(After completion of this course, student will be able to)**
CO1	Possess are levant knowledge in basic principles of pharmacology and its recent advances
CO2	Understand the basic pharmacology of common drugs used, their importance in the overall treatment including Physiotherapy
CO3	Understand the general principles of drug action on the gastric system of body.
CO4	Understand the general principles of various antibiotics and the handling of drugs by the body.
CO5	Relate the contribution of both drug and physiotherapy factors in the outcome of treatment.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L1	M	M	H	H	L	-	L	M	L	-	-	-
CO2	L2	M	H	L	L	H	L	L	M	L	L	-	-
CO3	L4	H	M	L	M	M	L	L	M	M	L	-	-
CO4	L3	L	M	H	-	H	L	L	M	H	L	-	-
CO5	L5	M	M	M	H	H	H	H	M	M	M	-	-

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcome
CD1	Lecture by use of boards /LCD projectors/ OHP projectors	CO1, CO2,CO3, CO5
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1
CD4	Self-learning advice using in ternets	CO1, CO2,CO3, CO4
CD5	Laboratory teaching	CO5

BPT202B: COMPUTER SCIENCE

Course Objective:

- Understand the fundamental principles of computer science, and continue to develop their technical competencies.
- Develop in them the skill of thinking and analyzing
- Ability to identify, formulate, and develop solutions to computational challenges.

Course Content:

Unit-I: Basic Structure of Computers (Qualitative Discussion) Computer Types, Basic Functional Units, Basic Operational Concept, Bus Structure, Software, Performance, Multiprocessor and Multicomputer, IAS Computer, Historical perspectives.

Unit-II: Register Transfer and Micro-operation Register Transfer Language, Register Transfer, Bus and Memory Transfers, Three State Bus Buffers, memory Transfer, Arithmetic and Logical micro-operations, Shift and Arithmetic shifts.

Unit-III: Basic Computer Organization and Design Instruction Codes, Stored Program Organization, Indirect Address, Computer Registers, Common Bus System, Computer Instruction, Timing and Control, Instruction Cycle, fetch Decode, Register Reference Instructions, Memory Reference Instruction, Input-Output and Interrupt, Design of Basic Computer, Design of Accumulator Logic.

Unit-IV: CPU Organization Arithmetic and Logic Unit (ALU)- Combinational ALU, 2'S Complement Addition, Subtraction Unit, Booths Algorithm for Multiplication, Division Hardware using Restoration Division Algorithm. General register organization, Control Word, Accumulator Based, Register Based, Stack Type CPU organization.

Unit-V: Introduction to C++: Principles Of Object Oriented Programming (Oop) – Software Evolution - Oop Paradigm – Basic Concepts Of Oop, Benefits Of Oop – Applications Of Oop. Tokens, Keywords, Identifiers, Variables, Operators, Manipulators, Expressions and Control Structures in C++

Books recommended :

- A Textbook for beginners in informatics ‘introduction to computer science’ by Gilbert brands
- Computer fundamentals by Pradeep K Sinha
- Computer science handbook ALLEN B TUCKER

Course Outcomes:

CO	STATEMENTS (After completion of this course, student will be able to)
CO1	Possess a relevant knowledge in basic principles of computer science and its recent advances
CO2	Understanding the role of computer technology including computer organization, computer operating system and software, and MS• windows, Word processing, Excel data worksheet and PowerPoint presentation.
CO3	Understand the ability to design, implement, and evaluate a computational system to meet desired needs within realistic constraints.
CO4	Understand the An ability to apply design and development principles in the construction of software systems of varying complexity.
CO5	Ability to apply knowledge of computing and mathematics appropriate to the discipline.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L1	M	M	H	-	L	-	L	M	L	-	-	-
CO2	L2	H	M	H	L	H	L	L	M	L	L	-	-
CO3	L2	L	M	H	M	L	L	L	M	M	L	-	-
CO4	L2	H	M	H	L	M	L	L	M	H	L	-	-
CO5	L4	M	M	M	H	H	H	H	M	M	M	-	-

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3,CO3,CO5
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO4

EXERCISE THERAPY

CODE: BPT 203

Course Objectives:

- To understand the knowledge of physical therapy .
- To apply therapeutic exercises.
- To understand the different approaches in manual therapy.

Course Contents:

Unit-I Introduction to Exercise Therapy with Various Exercises and Starting positions

1. Starting positions – Fundamental starting positions – standing, sitting, kneeling, lying and hanging. All the derived positions of the above five fundamental starting positions.
2. Massage : definition of massage, type of massage, general effects and used of massage, local effects of individual manipulation (physiological effects), contra – indications, techniques of application of all manipulations – stroking, effleurage, kneading and picking up, skin rolling (back) clapping, tapping, friction etc.

Unit-II Physiotherapeutic Specialized Techniques and Assessment

1. Suspension Therapy: Principals of suspension types – of suspension Therapy, effects and uses of Suspension Therapy. Their application either to mobilize a joint to increase joints range of motion or to increase muscle power – explaining the full details of component used for Suspension Therapy.
2. Muscles strength MMT: Anatomy and Physiology of muscle tissue causes of muscle weakness paralysis, prevention of muscle weakness / paralysis Types of muscle work and contraction ranges of muscle work prevention of muscle atrophy.

   Muscle assessment M.R.C. grading Principal of muscle strengthening / re-education, early re-education of a paralyzed.
3. Joint Mobilization and Goniometry; classification of joint movements causes of restriction of joint movement, prevention of joint range of motion etc. principles of mobilization of a point in increasing its range of motion Technique of mobilization of a stiff joint, Goniometry, peripheral joint mobilization, Concave convex rule.

Unit-III Physiology of respiration and Exercise in Water and walking techniques

1. Breathing exercises: physiology of respiration, types of breathing exercise, technique of various types of breathing exercises, its effects and uses & postural drainage.
2. Hydrotherapy : Introduction, various types of hydrotherapy units, construction and equipments used in hydrotherapy Principles, indication, contraindication, effects and uses of hydrotherapy, Precautions towards patient, towards therapist, equipment unit etc.
3. 2 point, 3 point & 4 point gait: Introduction, crutch measurement, crutch balance, various types of crutch gait details.

Unit-IV Exercise Physiology with Stretching, Yoga and Project

1. Individual, group and mass exercises maintenance exercises, plan of exercise – therapy table and schemes.
2. Aerobic exercise
3. Stretching
4. Yoga Definition History Principles Concepts, General effects of yogic posture on the body.
5. Students Project and Presentations: Vestibular Ball, Continuous Passive Motion Machine, Treadmill, Bicycle Ergometry, Dynamometer.

Unit-V Neuromuscular Techniques and Assessment

1. PNF: Definition, Principles, Basic procedure, Techniques of facilitation. PNF patterns for Upper Extremity PNF pattern for Lower Extremity.
2. Balance: Definition, Causes of balance disorder, Conditions and Evaluation. Balance exercise: Exercise for weakness, Exercise for movement strategies, Static balance exercise, Dynamic balance exercise, Balance exercise for vestibular dysfunction
3. Co – ordination Exercises: Definition of coordinated movements, in coordinated movements, Factors for coordinated movements technique of coordination exercises.
4. Functional Re-Education

Practical:

1. Massage Therapy
2. Suspension Therapy
3. Relax passive movement / types of exercise.
4. MMT
5. Goniometry
6. Breathing exercise.
7. Practical record
8. Gait and crutch walking.
9. Resistive Exercise.
10. Range of motion exercise.
11. Stretching.
12. Mobilization techniques.
13. Breathing exercise and postural drainage.
14. Mat exercises
15. Balance
16. PNF
17. Practical record.

Book Recommended:

1. Practice exercise therapy- Hollis- Blackwell Scientific Publication
2. Therapeutic Exercises- Basmajjan- Williams and Wilkins.
3. Therapeutic Exercises Foundations and Techniques –Kisner and Colby –F.A. Davis.
4. Proprioceptive Neuromuscular Facilitation –Voss et. al –Williams and Wilkins.
5. Principle of exercise of therapy – Gardiner –C.B.S. Delhi
6. Beard's Massage –Wood- W.B. Saunders.
7. Motor control theory and practical application Shumway–Cook & Wallcott. - Lippincott.
8. Hydrotherapy, principle and practice- Campion – Butterworth Heinemann.
9. Muscle testing and functions – Kendall- Williams & Wilkins.
10. Daniels and Worthingham's- Muscle testing- Hislop & Montgomery –W.B. Saunders.
11. Measurement of joint motion: A guide to Goniometry- Norkins & White- F.A. Davis.

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Describe the basic principles of exercise therapy and communicate with the patient in a professional and ethical manner
CO2	Practice various assessment strategies like Goniometry, Tone assessment, Muscle power assessment etc. for detailed learning
CO3	Understand principles and procedures, indications, contraindications and precautions, appropriate methods of application of each of the assessment strategy and treatment techniques hands on models.
CO4	Categorize various therapeutic techniques that can be used in physiotherapy
CO5	Evaluate high quality, ethical, effective, and cost efficient practices by studentsand gain expertise in the exercise prescription to patients

Course Delivery methods	
CD1	Lecture by use of boards/ LCD projectors/ OHP projectors Tutorials
CD2	Assignments
CD3	Seminars
CD4	Self-learning advice using internets
CD5	Lab and OPD teaching

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L1	H	H	H	M	M	M	M	M	L	H	-	L
CO2	L3	H	H	H	H	L	M	L	M	H	M	-	L
CO3	L2	H	M	H	M	L	M	H	M	M	M	-	L
CO4	L4	H	H	H	H	H	H	H	M	M	M	-	L
CO5	L5	H	H	H	-	-	-	L	M	H	H	-	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3,CO3,CO5
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO4

ELECTRO THERAPY

CODE: BPT 204

Course Objectives:

- To describe the basic physics which is used in electrotherapy modalities.
- To explain the construction of electrotherapy modalities.
- To understand the indications and contra-indications of different electrical modalities.

Course Contents:

Unit-I Basics of Electrotherapy

1. Magnetic Energy: Nature and property of a management electromagnetic induction, principle of working of choke coil- transformation – rectification of A.C.to D.C Metal Oxide Rectifier, Semi – conductor – Diode and Triode.
2. Valves – Principle working – condenser – principle – Detail on charging and discharging, etc. transistors measurement of current intensity EMS and power – moving coil millimeter and voltmeter.

Unit-II Low Frequency Currents

1. Principals and uses of LOW FREQUENCY CURRENTS: Nature and principles of production of muscle stimulating current – types of low frequency currents used for treatment. High Voltage Galvanic current, Rectifying currents.
2. Principles of electro diagnosis – strength duration curve, chronaxie and Rheobase – Their relationship, etc.
3. TENS.

Unit-III Medium frequency Currents

1. Medium Frequency Current: Definition, Production (brief), Physiological effects and therapeutic effects of Interferential Current,
2. Russian currents and Di dynamic Currents

Action Therapy Techniques

1. Action Therapy: Definition, Production (Brief), Physiological & Therapeutic effects of the following – Infrared radiation, Ultraviolet Radiation.
2. Traction.

Unit-IV Therapeutic Heat and Cold

1. Therapeutic Heat: Definition, Principles, Physiological & therapeutic effects of moist heat, paraffin wax bath, and Contrast bath whirl pool bath Fluidotherapy, Electric heating pads.
2. Cryotherapy: Principles, Physiological effects, uses of Cold packs, Ice massage, Commercial Cold Packs, Ice Towels, Cold compression Units, Evaporating Sprays.

Unit-V High Frequency Currents

1. SWD, Principle and Production and Types, Therapeutic Effects, Indications, Contraindication and Dangers
2. MWD, Principle, Types, Therapeutic Effects, Indications, Contraindication and Dangers
3. Ultrasound. Principle and Production Types, Therapeutic Effects, Indications, Contraindication and Dangers
4. Laser: Principle and production Types, Therapeutic Effects, Indications, Contraindication and Dangers

PRACTICAL

1. Galvanic & faradic current
2. Cold pack
3. Paraffin wax bath
4. Hot pack
5. Motor point stimulation
6. Traction
7. Technique of application of electrotherapeutic modalities in various conditions and to various parts of the body. Maintenance of practical records.
8. Practical application of the above.
9. Practical record.

Books Recommended:

1. Electrotherapy explained principles &practice low & reed – Butterworth Heinemann.
2. Claytons electrotherapy (10^{th} edition) kitchen & Bazin- w.b. Saunders..
3. Therapeutic heat and cold Lehman William & Wilkins.
4. Principles and practice of electrotherapy Kahn Churchill Livingstone.
5. Electrotherapy: clinics in physical therapy- wolf Churchill Livingstone

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Construct the principles ,technique and effects of electrotherapy as a therapeutic modality in the restoration of physical function in various conditions in physiotherapy
CO2	Describe the indications and contra-indications of various types of electrotherapy modalities and equipments.
CO3	Understanding the instrumentation, Biophysical principles and effects, dangers, safety measures, judicial use, appropriate methods of application, contraindications of the various low, medium and high frequency equipments.
CO4	Categorize various electrotherapeutic techniques that can be used in physiotherapy
CO5	Evaluate high quality, ethical, effective, and cost efficient practices by students and gain expertise in the electrotherapeutic system of therapy prescription to patients

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L3	H	M	H	H	M	M	L	M	L	H	-	L
CO2	L1	H	M	H	M	M	L	M	L	M	M	-	L
CO3	L2	H	H	H	M	M	M	L	H	H	M	-	L
CO4	L4	H	M	H	M	M	-	-	-	-	M	-	L
CO5	L5	H	H	H	H	M	H	H	M	-	H	-	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3,CO3,CO5
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO4

BIOMECHANICS & KINESIOLOGY

CODE: BPT 205

Course Objectives:

- To understand the biomechanical principles.
- To understand structure and function of human body.
- To understand application of various Biomechanical modalities

Course Contents:

I. Essential concepts: Unit-I

i. Motion and forces, Axis and planes, Mechanical lever, Lever in Human body.
ii. Force distribution – linear force, resultant force & Equilibrium, parallel force in one concurrent force.
iii. Newton's laws – Gravity and its effects on human body
iv. Moments
v. Forces and moments in action
vi. Concepts of static equilibrium and dynamic equilibrium
vii. Composition and resolution of forces
viii. Friction

II. Joints, Muscles & Nerve Structure & Function & Kinematical concepts: Unit-II

i. Basic principles – general properties & function
ii. Types / classification
iii. Biomechanical properties
iv. General effects of diseases , injury and immobilization

III. Kinetic aspects of limb movement: Unit-III

Biomechanics of Upper Extremity

i. Scapulo – shoulder joint
ii. Elbow joint
iii. Wrist joint & Hand
iv. Motion of hip & pelvis
v. Force of hip & pelvis
vi. Motion of knee joint
vii. Force of knee joint
viii. Patello-femoral joint
ix. Ankle and foot Kinematics
x. Motion of ankle
xi. Force of ankle joint
xii. Temporo- mandibular joint

IV. Vertebral Column :Unit-IV

i. General structure and function of cervical, thoracic, lumber & sacral vertebral.
ii. Movements of vertebral column.
iii. Thorax & chart wall – structure, function.
iv. Effects of age, diseases, injury.

V. Biomechanics of Posture & Gait: Unit-V

i. Gait cycle
ii. Parameters of gait
iii. Myo-kinetics of human gait
iv. Gait deviations
v. Crutch and cane exercises
vi. Anatomical aspects of posture
vii. Factors affecting posture
viii. Assessment of posture
ix. Types of posture
x. Postural deviation

Books Recommended:

1. Joint Structure and Function – A Comprehensive Analysis - Norkins & Levangie - F.A. Davis.
2. Measurement of Joint Motion – A Guide to Goniometry - Norkins & White - F.A. Davis.
3. Brunnstrom's Clinical Kinesiology - Smith et al - F.A. Davis.
4. Basic Biomechanics explained - Low & Reed - Butterworth Heinemann.
5. Kinesiology: Applied to Pathological Motion - Soderberg Lippincott

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Analyze normal human movement from a global perspective, integrating biomechanics,muscle mechanics and motor control theory
CO2	Experience quantitative methods of movement analysis of spine by using various methods
CO3	Explain the kinetics and kinematics of upper limb and lower limb
CO4	Evaluation methods of the musculoskeletal system
CO5	Utilize quantitative methods of gait &posture analysis using various methods in physiotherapy

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L4	M	M	H	M	L	H	L	M	L	L	-	L
CO2	L1	H	M	H	M	H	L	L	M	L	M	-	L
CO3	L2	M	M	H	M	H	L	L	M	L	M	-	L
CO4	L5	H	M	H	H	H	L	L	M	L	M	-	L
CO5	L3	H	M	H	M	M	H	L	M	L	M	-	L

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3,CO3,CO5
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO4

RESEARCH METHODOLOGY AND BIOSTATISTICS

CODE: BPT 206

Course Objectives:

- To understand the significance of various research methodology.
- To understand the principles of biostatistics and its significances.
- To understand the applied methodology for research.

Course Contents:

Unit-I

1. Objective and types of research.
2. Study design.
3. Research process
4. Sample size.
5. Structure of a research proposal.
6. Protocol writing.
7. Ethical aspects

Unit-II

8. Research Proposal
9. Data collection analysis, interpretation and presentation.
10. Common statistical terms.
11. Measures of location, average & percentiles.
12. Normal distribution & normal curve.
13. Demography & vital statistics.
14. Correlation of measures of population & vital statistics
15. Use of micro Computers in Research.

Unit-III

16. Probability.
17. Variability & its measures.
18. Significance of difference in mean.
19. Chi- square test.
20. Correlation & regression.
21. Hypothesis

Unit-IV

22. **Questionnaires**
23. **Surveys**
24. Sampling variability & significance

25. Review of literature
26. Pilot study
27. Schedule

Unit-V

28. **ANOVA, basic principle of ANOVA,ANOVA technique**
29. **ANCOVA**
30. **Reading 2 published research paper**
31. **Synopsis writing**
32. **Difference between thesis and dissertation**

Books Recommended:

1. Methods in Biostatistics- Mahajan- J.P.
2. Statistics in Medicine-Colton-Little Brown, Boston.
3. Research for Physiotherapist: Project Design and Analysis-Hicks – Churchill Livingstone
4. Biostatistics: The manual for Statistical methods for in health and nutition-K.V.Rao. J.P.
5. Research methods in behavioural Sciences- Mohsin- Orient Publication.

Course Outcomes:

CO	STATEMENTS **(After completion of this course, student will be able to)**	**Bloom's Level**
CO1	Remembering various methodology of research and biostatics in physiotherapy	L1
CO2	Demonstrate understanding of the concepts of research methodology and biostatistics that are required in the profession and community at all levels of research process.	L2
CO3	Apply the knowledge and concepts of research methodology and biostatistics in physiotherapy	L3
CO4	Analyze the principle concepts of biostatistics and research in physiotherapy	L4
CO5	Interpret the data collected while practicing the techniques on subjects during clinical postings by using the concepts of research methods and biostatics learnt.	L5

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L1	L	M	M	-	-	-	-	M	L	-	-	-
CO2	L2	H	M	M	-	-	-	-	M	M	M	-	-
CO3	L3	L	M	M	-	M	L	M	M	M	M	-	-
CO4	L4	M	M	M	-	-	-	M	M	H	M	-	-
CO5	L5	H	M	M	L	H	M	-	M	H	M	-	-

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	**Course Delivery methods**	**Course Outcomes**
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2,CO4,CO5
CD2	Tutorials/Assignments	CO1,CO2,CO3
CD3	Seminars	CO1, CO2
CD4	Self- learning advice using internets	CO1,CO2,CO4
CD5	Hospital visit & OPD	CO1,CO2

BPT 207: UNIVERSAL HUMAN VALUES

Duration: 60 Hours

Course Objectives :

The present course deals with meaning, purpose, and relevance of universal human values and how to inculcate and practice them consciously to be a good human being and realize one's potentials.

Course Contents:

Unit I: Love & Compassion

Introduction: What is love? Forms of love—for self, parents, family, friend, spouse, community, nation, humanity and other beings, both for living and non-living, Love and compassion and inter- relatedness, Love, compassion, empathy, sympathy and non-violence, Individuals who are remembered in history for practicing compassion and love. Narratives and anecdotes from history, literature including local folklore , Practicing love and compassion: What will learners learn gain if they practice love and compassion? What will learners lose if they don't practice love and compassion?, Sharing learner's individual and/or group experience(s)

Simulated Situations Case studies

Unit II: Truth

Introduction: What is truth? Universal truth, truth as value, truth as fact (veracity, sincerity, honesty among others), Individuals who are remembered in history for practicing this value, Narratives and anecdotes from history, literature including local folklore, Practicing Truth: What will learners learn/gain if they practice truth? What will learners lose if they don't practice it?, Learners' individual and/or group experience(s)

Simulated situations Case studies

Unit III: Non-Violence

Introduction: What is non-violence? Its need. Love, compassion, empathy sympathy for others as pre- requisites for non-violence, Ahimsa as non-violence and non-killing, Individuals and organisations that are known for their commitment to nonviolence, Narratives and anecdotes about non-violence from history, and literature including local folklore, Practicing non-violence: What will learners learn/gain if they practice nonviolence? What will learners lose if they don't practice it? , Sharing learner's individual and/or group experience(s) about non-violence,

Simulated situations Case studies

Unit IV: Righteousness & Peace

Introduction: What is righteousness? ,Righteousness and *dharma*, Righteousness and Propriety, Individuals who are remembered in history for practicing righteousness, Narratives and anecdotes from history, literature including local folklore ,racticing

righteousness: What will learners learn/gain if they practice righteousness? What will learners lose if they don't practice it?, Sharing learners' individual and/or group experience(s), Simulated situations, Case studies ,Introduction: What is peace? Its need, relation with harmony and balance ,Individuals and organisations that are known for their commitment to peace, Narratives and Anecdotes about peace from history, and literature including local folklore, Practicing peace: What will learners learn/gain if they practice peace? What will learners lose if they don't practice it? ,Sharing learner's individual and/or group experience(s) about peace ,Simulated situations,Case studies,

Unit V: Service & Renunciation (Sacrifice)

Introduction: What is service? Forms of service, for self, parents, family, friend, spouse, community, nation, humanity and other beings—living and non-living, persons in distress or disaster. Individuals who are remembered in history for practicing this value.Narratives and anecdotes dealing with instances of service from history, literature including local folklore.

Practicing service: What will learners learn/gain gain if they practice service? What will learners lose if they don't practice it? Sharing learners' individual and/or group experience(s) regarding service. Simulated situations. Case studies Introduction: What is renunciation? Renunciation and sacrifice. Self-restrain and Ways of overcoming greed. Renunciation with action as true renunciation

Individuals who are remembered in history for practicing this value., Narratives and anecdotes from history and literature, including local folklore about individuals who are remembered for their sacrifice and renunciation., Practicing renunciation and sacrifice: What will learners learn/gain if they practice Renunciation and sacrifice? What will learners lose if they don't practice it? , Sharing learners' individual and/or group experience(s),

Simulated situations Case studies

Text Books:

1. Mookerji Radha Kumud, Ancient Indian Education,
2. Motilal Banarasidass Saraswati Swami Satyananda,
3. Asana Pranayama Mudra Bandha, Bihar School of yoga Joshi Kireet, Education for Character Development, Dharma Hinduja Center of Indic Studies Joshi Rokeach (1973).
4. The Nature of Human Values. New York: The Free Press Ghosh, Sri Aurobindo. 1998. The Foundations of Indian Culture. Pondicherry: Sri Aurobindo

Course Outcomes:

CO	Statement
	After the completion of this course, students will be able to:
CO1	Know about universal human values and understand the importance of values in individual, social circles, career path, and national life
CO2	Understand from case studies of lives of great and successful people who followed and practised human values
CO3	Adapt self-actualisation
CO4	Become conscious practitioners of human values.
CO5	Apply their potential as human beings and conduct themselves properly in the ways of the world.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Industrial visit

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Levels	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	**L**	**L**	**-**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**-**	**-**
CO2	L2	**L**	**L**	**-**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**-**	**-**
CO3	L3	**L**	**L**	**-**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**-**	**-**
CO4	L2	**L**	**L**	**-**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**-**	**-**
CO5	L3	**L**	**L**	**-**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**-**	**-**

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3
CD2	Tutorials/Assignments	CO1,CO2,CO3, CO5
CD3	Seminars	CO3
CD4	Self- learning advice using internets	CO4
CD5	Industrial visit	-

BPT- 208 ANANDAM

Duration: 64 Hours

Course Objectives:

- To instill the joy of giving in young people, turning them into responsible citizens to build up a better society.
- To inculcate the habit of service in students across the University..
- Students to be excepted to engage in individual and group acts of service and goodness.

Action Plan:

1. Students will be expected to

- Do at least one act of individual service each day
- Record this act of service in a dedicated Register / Personal Diary
- Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
- Undertake one group service project for 64 hours every term (outside college hours)
- Upload the report on the group project on the Anandam platform
- Participate in a sharing and presentation on the group service in the discussion sessions held once a month
- (There will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)

2. Inputs

A. From the Anandam Platform

a. An online platform to manage and share service opportunities
b. A list of suggested programs or volunteering organizations.
c. Training for faculty members on how to facilitate the Anandam program

B. From the University

a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
b. The act of goodness will not be evaluated, just if it was recorded or not
c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
d. Mentors to guide and review the student's activities on an regular basis
e. There will be one Anandam coordinator to monitor the program in every University.

3. Outcomes-Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO1: Develop a great sense of understanding towards social issues.(Bloom's Level- L2)

CO2: Able to engage in individual and group acts of service and goodness. .(Bloom's Level- L3)

Mapping of Course Outcomes onto Program Learning Outcomes

Course outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	L	-	-	-	-	-	-	-	-	H	-	-
CO2	L3	L	-	-	-	-	-	-	-	-	H	-	-

BPT 3rd Year

Theory						Practical			Teaching Hrs				Credits	
Code No.	**Paper**	**Type**	**Total**	**IA**	**EA**	**Total**	**IA**	**EA**	**L**	**T/S**	**P**	**C/week**	**Sem.**	**Yearly**
BPT 301	GENERAL MEDICINE	Core	100	30	70	-	-	-	3	1	-	4	4	8
BPT 302	GENERAL SURGERY AND OBSTETRICS & GYANECOLOGY	Core	100	30	70	-	-	-	3	1	-	4	4	8
BPT 303	CLINICAL ORTHOPEDICS	SEC	100	30	70	-	-	-	3	1	-	4	4	8
BPT 304	CLINICAL NEUROLOGY& PAEDIATRICS	SEC	100	30	70	-	-	-	3	1	-	4	4	8
BPT305 A	COMMUnitY MEDICINE	Elective	100	30	70	-	-	-	3	1	-	4	4	8
BPT 305 B	BIOENGINEERING	Elective	100	30	70	-	-	-	3	1	-	4	4	8
BPT 306	SUPERVISED CLINICAL TRAINING	SEC	-	-	-	100	30	70	-	-	4	4	2	4
BPT 307	LEADERSHIP & MANAGEMENT SKILLS	AECC	80	30	50	-	20	-	1	-	-	1	1	2
BPT 308	ANANDAM	-	-	-	-	100	50 (P)	50 (D)	1	-	-	1	2	4
Total			580			220			17	5	4	26Hrs	25	50
Grand Total		**800 Marks**											**50 Credits**	

THIRD YEAR BACHELOR OF PHYSIOTHERAPY

(1 YEAR DURATION)

PAPER - GENERAL MEDICINE

CODE-BPT 301

Course Objectives:

- To understand the diseases and its pathogenesis.
- To understand the different lab tests and test significances.
- To understand the biological and biochemical processes

Course Contents:

Unit –I General medicine of Cardio-Respiratory System

1. Introduction of medicine.
2. Diseases of the respiratory system:
   a. Common Infectious diseases like Tuberculosis, Pneumonia, Lung Abscess, Bronchiectasis.
   b. Diseases of Pleura like Pleural Effusion, Pneumothorax, Empyema.
   c. Occupational lung diseases like Silicosis, Asbestosis, Pneumoconiosis, Brucellosis, Farmer's Lung.
   d. Obstructive Lung Diseases like COPD: Bronchitis, Emphysema, Bronchial Asthma, Cystic Fibrosis.
   e. Interstitial Lung Diseases
   f. Introduction of clinical examination — Breath sounds / X ray chest / Blood gas analysis / P.F.T.
3. Cardio-vascular diseases: Basic anatomy and physiology of heart.
   a. Hypertension — systemic
   b. I.H.D. —Myocardial infarction ▪ Arrhythmia — classification
   c. Congestive heart failure
   d. Rheumatic Fever
   e. Congenital Heart Disease
   f. Infective Endo Carditis
   g. Peripheral vascular diseases & Deep vein thrombosis
   h. ECG — Normal & Variations due to ischemia & infarction

Unit – II Ailments of Renal and Endocrine System

4. Diseases of Kidney - Physiology, Clinical presentation in relation to A R F,C R F
5. Endocrine & metabolic diseases: Diabetes, Thyroid, Pituitary & Adrenal conditions, Vit.D, Calcium Metabolism

Unit – III Diseases related to Nutrition, Viral And Bacterial Origin

6. Nutritional Diseases: Anemia, Physiology, Clinical presentation in relation to Obesity
7. Connective Tissue Diseases: Rheumatoid arthritis, Gout, SLE
8. Infection Diseases :Tetanus , Leprosy
9. HIV / AIDS.
10. Psychiatric Aliments: Mania, Depression, Schizophrenia, Psychosis Obsessive Compulsive disorders
11. Geriatric Conditions: Aging, Osteoporosis, Falls

Unit –IV Neurology

12. Stroke — Level of Lesion & Management
13. Extra Pyramidal lesions — Parkinsonism
14. Polyneuropathy- G B Syndrome
15. Disorders & Diseases of muscle (i) Myopathy (ii) Muscular Dystrophy
16. Disorders of Anterior Horn Cell (i) Motor Neuron Disease (ii) Polio
17. Multiple Sclerosis
18. Infections of the nervous system like Encephalitis, Neurosyphilis, HIV infection,
19. Meningitis, Transverse Myelitis, Tabes Dorsalis & T.B. Spine
20. Epilepsy, Alzheimer's Disease
21. Disorders of cranial nerves: Bells palsy
22. Disorders of Myoneural Junction — Myasthenia Gravis

Unit – V Dermatology and Pediatrics Medicine:

Dermatology:

23. Introduction to Dermatology, basic skin lesions
24. Skin infections (Part I) — Scabies / Pediculosis / Bacterial infections
25. Skin infection (Part Il) viral / Fungal / Cutaneous T.B.
27. Psoriasis / Sebaceous Dermatitis / Atopic Dermatitis / Hand eczemas (Psoriasis & Eczema)
28. Acne & treatment of Acne & Disorders of Scalp (Dandruff, Chronic Hair loss, Alopecia)

Pediatrics:

29. Normal development & growth
30. Immunization, Handling of the child, Significance of breast-feeding
31. Common causes for Developmental disorders like Sepsis, Prematurity, Asphyxia & Hyper-bilirubinemia
32. Brain damage- Cerebral Palsy: Types & Medical Management

33. Spinal Cord Disorders like Poliomyelities, Spinal Dysraphism, Spina Bifida, Meningocele, Myelomeningocele
34. Common infections (i) C.N.S. & peripheral nervous system (ii) Typhoid, rubella, mumps, measles, tetanus, diphtheria, chicken pox, hepatitis
35. Epilepsy
36. Mental Retardation
37. Malnutrition related condition
38. Juvenile R A & other immunological conditions of Musculoskeletal system
39. Common diseases of the respiratory system like Asthma, Bronchitis, T.B. & Pneumonia & bronchiectasis
40. Rheumatic & Congenital heart disease
41. Muscular Dystrophy

CLINICAL

42. Normal & abnormal reflexes in neonate & child
43. Examination of the nervous system
44. Examination of respiratory system
45. Examination of cardiovascular system

Book Recommended:

1. Davidson- principle and practice of medicine
2. Brain clinical neurology
3. Medicine& neurology by Golwalla
4. Nelson text book of pediatrics- Behraman & Varghan.
5. API- Text book of Medicine
6. Essentials of Pediatrics — by O.P. Ghai
7. DK. series in Pediatrics
8. Bailey & love short practice of surgery.

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Demonstrate comprehensive understanding of general diseases and its pathology.
CO2	Acquire the knowledge in medicine that are required to be practiced in community and at all levels of health care system
CO3	Understand relevant investigations which will help to know about the important medical conditions
CO4	Observe the sign & symptoms of different medical conditions.
CO5	Demonstrate the ability to conduct a focused medical history and targeted physical examination appropriate to patient's chief complaint.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping between Objectives and Outcomes

Course Outcome	Bloom' s Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PSO1	PSO2
CO1	L2	H	M	H	M	L	L	H	H	M	L	M	M
CO2	L1	H	M	M	M	M	-	M	H	M	L	M	M
CO3	L2	H	M	H	M	-	-	L	H	M	L	M	M
CO4	L2	H	M	H	M	L	L	L	H	M	L	M	M
CO5	L3	M	L	M	M	M	M	M	H	M	L	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2 ,CO4
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1, CO2
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO4
CD5	Hospital visit & OPD	CO3,CO5

PAPER - GENERAL SURGERY AND OBSTETRICS & GYNAECOLOGY

CODE-BPT 302

Course Objective-

- Understand operative technique, surgical anatomy and pathology.
- Read about common surgical problems and principles.
- Understand the normal progress of pregnancy and delivery .
- Understand the general surgeries of ENT and ophthalmology .
- Demonstrate sufficient understanding of basic sciences and the clinical applications related to the special surgeries to be able to integrate this knowledge into clinical practice.

Course Contents:

Unit –I General surgery

1. Principles of pre and post- operative management of surgical patients.
2. Common pre and post- operative complications.
3. Surgical intensive care.
4. Description of events frequently accompanying in general anesthesia, blood transfusion and physiological response of the body to surgery.

Unit – II Cardiothoracic Surgery

Incisions used in cardiothoracic surgery – General pre and post operative managements of cardiothoracic surgery – Various surgical procedures for various chest cardiac condition / disease.

Unit – III OBS and GYN

1. Anatomy of pelvic organs mechanism & physiology of pelvic floor sphincter muscles.
2. Pregnancy – stage of pregnancy – Labor – stage of labor – delivery, effect of menopause in emotions and musculoskeletal system & common gynecological problems.

Unit- IV Plastic surgery

Principal of cinesplasty, tendon transplant, cosmetic surgery, types of grafts, Surgery of hand with emphasis on managements of traumatic injuries and leprosy.

Unit – V Abdominal Surgeries and Burns

1. Abdominal surgery: Incision complication and management of various abdominal surgeries.
2. Wounds, Sinuses and ulcers.
3. Burns: Degrees of burns and managements and reconstructive surgery following burns and complication of Burns.

Practicals:

1. Case demonstration of various conditions, Exposure to various surgical techniques & Procedures.
2. General viva.

Books Recommended:-

1. Bailey & Love Shorts
2. Surgery by Nan
3. General surgery operations by R.M Kirk & Williston.
4. Modern trend of ophthalmology- Arnold Sorsby.
5. ENT of general Practitioners.

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Explain the concepts and knowledge of the general terminology, surgical incisions and postoperative care after various surgeries.
CO2	Explain the various abdominal, thoracic and cardiac surgeries with skin grafting procedures.
CO3	Understand the anatomy and physiology in Obstetrics and Gynecology and also should be familiar with common eye and ear problems and its treatment.
CO4	Evaluate the common investigations like X Rays, MRI,s , CT Scans in relation of physiotherapy
CO5	Adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.

Course Delivery Methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcomes	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	H	M	H	M	L	L	L	M	L	M	M	M
CO2	L2	H	M	H	M	-	L	M	M	L	M	M	M
CO3	L2	H	H	H	M	L	L	H	M	M	M	M	M
CO4	L5	H	M	H	L	-	-	-	M	L	M	M	M
CO5	L3	M	H	M	M	M	M	M	M	L	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2 ,CO4
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1, CO2
CD4	Self- learning advice using internets	CO1
CD5	Hospital visit & OPD	CO2,CO3,CO5

PAPER- CLINICAL ORTHOPEDICS

PAPER CODE: BPT 303

Course Objectives:

- To understand diagnosis, differential diagnosis ,and evaluation related with skeletal system
- To demonstrate and develop the ability of medical and surgical management, procedures and its significance
- To demonstrate and develop diagnostic skills in orthopedic conditions.
- To understand various orthopedic conditions involved various (adults and pediatric) conditions

Course Contents:

Unit I Fractures and Dislocations

1. Fractures general, Specific, Types, fracture healing, Complications, Management of the fractures.
   a. Upper limb : (Clavicle, Humerus, Radius etc.)
   b. Lower limb : Pelvis, Femur etc.
   c. Spine: Cervical, Thoracic, Lumbar.

Unit –II Soft tissue injuries, Inflammatory and Infective Conditions

1. Etiology, pathology, clinical features, operative and non-operative management of Tuberculosis and pyogenic osteomyelitis, Neuropathic Joints, Hemophilic joints etc
2. Synovitis, Capsulitis, tendonitis, Ligament injuries, muscular injuries

Unit- III Deformities

1. Torticolis, Cervical rib, CTEV, CDH, PesCavus, PesPlanus, spina Bifida, Klippelfeil Syndrome,
2. Goucher's diseases, scoliosis, increased thoracic Kyphosis, Increased lumbar lordosis, coxavara,
3. Genu varum, Genu valgum, genu recurvatum, hallux valgus, hammer toe.

Unit - IV Degenerative & Metabolic disorders:

1. Etiology, Pathology, Clinical features, Investigations, management of
2. Arthritic Conditions and types of arthritic conditions (O.A, R.A,etc)
3. Rickets, osteomalacia, osteoporosis, spondylosis, spondylolisthesis, PIVD

Unit – V Bone tumors , Malignancies & Amputations & Corrective procedures:

1. Benign & Malignant, Classification, Pathology, Clinical Features, Management including chemotherapy and Radiotherapy.

2. Level of amputation of lower Limb and upper limb, causes of amputation
3. Corrective procedures : Osteotomy, Arthroplasty (Hip, Knee, Ankle, shoulder & elbow), Bone Grafting, arthodesis, tendon transfers, Soft tissue release etc.

Unit VI Radiological examinations & Miscellaneous conditions:-

1. X-Ray, M.R.I etc and diffential diagnosis
2. Overview of Sports injuries and its management
3. De- Querveins Diseases, Duputerynes Contracture, Myositis Ossificans, Carpal Tunnel syndrome, Chondromalacia Patella, Perthes's Diseases, Avascular necrosis of femoral head, Internal derangement of Knee, Osteochondrosis.

Books Recommended:

1. Orthopedics & Traumatology – Natarajan
2. Applied orthopedics
3. Outline of fracture -- Adams.
4. Outline of orthopedics – Adams.
5. Essential orthopedics : Maheshwari & Mhaskar

Course Outcomes:

CO	STATEMENTS (After completion of this course, student will be able to)
CO1	Remember the concepts in skeletal system that is required to be practiced in community and at all levels of health care system.
CO2	Understand the common operative procedures.
CO3	Demonstrate comprehensive understanding of skeletal system including bones and joints.
CO4	Assess of all the major and minor joints using special tests.
CO5	Evaluation of all the relevant investigations which will help to know about the important medical and orthopedic conditions

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	**L1**	H	M	H	M	-	-	H	M	M	M	M	M
CO2	**L2**	H	M	H	H	M	L	M	M	L	M	M	M
CO3	**L2**	H	H	H	H	L	L	L	M	-	M	M	M
CO4	**L4**	H	M	M	M	H	H	H	M	L	M	M	M
CO5	**L5**	H	M	H	M	L	L	L	M	L	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2 ,CO3
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1, CO2
CD4	Self- learning advice using internets	CO1,CO2
CD5	Hospital visit & OPD	CO1,CO4,CO5

PAPER - CLINICAL NEUROLOGY AND PAEDIATRICS

CODE-BPT 304

Course Objectives:

- To understand pathology related with nervous system .
- To understand the different surgical procedure and its significances.
- To understand the anatomy and physiology of nervous system

Course Contents:

Unit –I Neurology General Principle

1. Introduction to neurological terminology and neuro- anatomy and its working

Unit -II

2. Cerebrovascular diseases
3. Cerebral vascular accident

Unit -III Nervous system related diseases

4. Acute infection of C N S
5. Parkinsonism and other extra- pyramidal disorder.
6. M S & other disease.
    a. ALS (amyotrophic lateral sclerosis) and other motor neuron diseases.
    b. Diseases of peripheral nerves, cranial nerves, G.B.S. including peripheral nerve injury
    c. Myasthenia Gravis
    d. Diseases of muscles (polymyositis muscular dystrophy)
    e. Cervical and lumbar spondylitis and disc prolapsed.
    f. Neurosurgical Intensive care

Unit-IV Conditions in neurology

7. Head injury – Cause and mechanism of head injury subdural, epidural and intracranial bleeding, types of neurological disorder, management of head injury.
8. Stroke and its complications
9. Tumors of neurological system management.
10. Cranial & spinal cord legion management.
11. Paraplegia, hemiplegia, quadriplegia.
12. Neurogenic bladder – classification

Unit-V Pediatric Neurology:

13. Pediatric conditions – Spina Bifida, Hydrocephalus, Meningities
14. Peripheral nerve lesion
15. Surgical management of brain disease and CVA.
16. C.P
17. Autism

Practicals

1. Clinical exposure to various conditions.
2. General viva

Books recommended:

1. Adam and Victor principles of neurology
2. Lindsay Neurology and Neurosurgery Illustration

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Demonstrate comprehensive understanding of nervous system
CO2	Understand relevant clinical features which will help to know about the important medical conditions
CO3	Acquire the knowledge in nervous system that are required to be practiced in community and apply the same at all levels of health care system in physiotherapy
CO4	Interpret the important medical and neurological conditions in physiotherapy
CO5	Assess and differentiate neurological disorders.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcomes	Bloom's Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PSO 1	PSO 2
CO1	L3	M	H	H	H	M	L	M	M	L	M	M	M
CO2	L2	H	H	H	M	M	L	M	M	L	M	M	M
CO3	L2	H	H	H	M	M	L	M	M	L	M	M	M
CO4	L4	H	M	M	H	H	H	M	M	L	M	M	M
CO5	L4	H	L	L	M	H	H	H	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2
CD2	Tutorials/Assignments	CO1,CO3
CD3	Seminars	CO1, CO2
CD4	Self- learning advice using internets	CO1,CO2,CO3
CD5	Hospital visit & OPD	CO3,CO4,CO5

PAPER - COMMUNITY MEDICINE

CODE-BPT 305A

Course Objectives:

- To understand the problems associated with the community.
- To understand the different preventive and curative methods for communicable diseases.
- To understand the role of social workers in community health.

Course Contents:

Unit – I Introduction to Community Medicine

1. General concepts of health and diseases, health determinants , with reference to natural history of disease with propathogenic and pathogenic phases. The role of socio economic and culture environment in health and disease. Epidemiology, emerging demographic changes, definition and scope.
2. Introduction to community health.
3. Public health administration an overview of health administration set up at Central and state levels.

Unit - II National Health Programmes and Strategies

4. The national health programme – highlighting the role of social, economic and culture factors in the implementation of the national programme.
5. Health problems of vulnerable groups- pregnant and lactating woman, infant and pre – school children, occupational groups.
6. CBR and Institutional based rehabilitation and strategies to intervene in rural health system.
7. CBR in relation to different medical & surgical conditions.

Unit –III Occupational Health and Social Security

8. Occupational Health – definition scope occupational disease prevention of occupational diseases and hazards.
9. Social security and other measurement for the protection from occupational hazards accident and diseases. Details of compensation acts.

Unit –IV Family Planning and Mental Health

10. Family planning – objectives of national family planning programmes and family methods. A general idea of advantage and disadvantage of the methods.
11. Mental health emphasis on community aspects of mental, role of occupational therapist in mental health problems such as mental retardation etc.

Unit –V Communicable Diseases and Epidemiology

12. Communicable disease- an overall view of communicable role of insect and other factors.
13. International health agencies.
14. Community medicine and rehabilitation epidemiology, habitat nutrition, environment anthropology.

a. The philosophy and needs of rehabilitation
b. Principles of physical medicine
c. Basic principles of administration of organization.

Books recommended:

1. Textbook of preventive and social medicine, Park

Course Outcomes:

CO	STATEMENTS (After completion of this course, student will be able to)
CO1	Demonstrate comprehensive understanding of community health workers.
CO2	Acquire the knowledge in preventive and curative measures that are required to be practiced in community and at all levels of health care system.
CO3	Understand relevant investigations which will help to know about the important medical conditions and occupational health conditions.
CO4	Describe the common community diseases.
CO5	Evaluate the influence of nutritional deficiency on community.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Outcomes

Course Outcomes	Bloom's Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PSO 1	PSO 2
CO1	L2	H	H	H	M	L	-	M	M	L	M	M	M
CO2	L1	H	M	H	L	-	-	-	M	M	M	M	M
CO3	L2	M	L	M	M	H	M	H	M	M	M	M	M
CO4	L2	H	H	M	-	-	-	-	M	L	M	M	M
CO5	L4	M	M	L	M	M	H	H	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2 ,CO4
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1, CO2,CO3
CD4	Self- learning advice using internets	CO1,CO2
CD5	Hospital visit & OPD	CO1,CO2,CO3,CO5

BPT 305 B: BIOENGINEERING

Course Objective:

- Apply the core concepts of Bio-Engineering, its underlying sciences, and relevant technologies in their chosen profession.
- Utilise effective communication, learning, and teamwork skills to facilitate continued professional development.
- To understand principles of orthosis and prosthesis.

Course Content:

Unit-I:

- Introduction and terminology: prosthesis and orthosis.
- Classification of orthoses and prostheses.

Unit-II:

- Bio-mechanical principles of orthotic application.
- Bio-mechanical principles of prosthetic application.

Unit-III:

- Designing of upper and lower extremity and spinal orthosis including indications and check out.

Unit-IV:

- Designing of upper extremity prostheses, indications and check out.
- Designing of lower extremity prostheses, indications and check out
- Materials used for fabrications.

Unit-V:

- Psychological aspects of orthotic and prosthetic application.
- Prescription and design of foot wear and modifications.
- Wheel chairs
- Design and construction of adaptive devises.

Practicals :

The student is trained in evaluation and planning prosthesis and orthosis as well as in acquiring ability to do the check out.

Recommended Books:

1. Atlas of Orthotics: Biomechanical Principles and Applications, St. Louis, C.V. 2.Mosby, 1975. 2. American Academy of Orthopedics

Course Outcomes:

CO	STATEMENTS **(After completion of this course, student will be able to)**
CO1	Demonstrate comprehensive understanding of bioengineering
CO2	Utilise effective communication, learning, and teamwork skills to facilitate continued professional development.
CO3	Understanding of contemporary issues, professional responsibilities and ethical responsibilities in biology and medicine..
CO4	The ability to use modern techniques, skills and tools necessary for bioengineering practice and for disseminating the results of their work
CO5	Ability to design systems, devices and processes for use in medicine, health care or biological applications

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	H	H	H	M	L	-	M	M	L	M	M	M
CO2	L1	H	M	H	L	-	-	-	M	M	M	M	M
CO3	L2	M	L	M	M	H	M	H	M	M	M	M	M
CO4	L2	H	H	M	-	-	-	-	M	L	M	M	M
CO5	L4	M	M	L	M	M	H	H	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2 ,CO4
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1, CO2,CO3
CD4	Self- learning advice using internets	CO1,CO2
CD5	Hospital visit & OPD	CO1,CO2,CO3,CO5

LEADERSHIP & MANAGEMENT SKILLS

Code: BPT 306 **Duration: 60 Hours**

Course Objectives:

- To help students to develop essential skills to influence and motivate others
- To inculcate emotional and social intelligence and integrative thinking for effective leadership
- To create and maintain an effective and motivated team to work for the society
- To nurture a creative and entrepreneurial mindset
- To make students understand the personal values and apply ethical principles in professional and social contexts.

Course Contents

Unit- I Leadership Skills

Understanding Leadership and its Importance: What is leadership? Why Leadership required? Whom do you consider as an ideal leader? Traits and Models of Leadership: Are leaders born or made? Key characteristics of an effective leader, Leadership styles, Perspectives of different leaders. Basic Leadership Skills: Motivation, Team work, Negotiation, Networking. Innovative Leadership. Concept of emotional and social intelligence, Synthesis of human and artificial intelligence, Why does culture matter for today's global leaders.

Unit- II Managerial Skills

Basic Managerial Skills, Planning for effective management, How to organise teams? Recruiting and retaining talent, Delegation of tasks, Learn to coordinate, Conflict management, Self Management Skills, Understanding self concept, Developing self-awareness, Self-examination, Self-regulation.

Unit-III Entrepreneurial Skills

Basics of Entrepreneurship: Meaning of entrepreneurship, Classification and types of entrepreneurship, Traits and competencies of entrepreneur, Creating Business Plan, Problem identification and idea generation, Idea validation, Pitch making.

Unit- IV Design Thinking

Design Thinking: What is design thinking? Key elements of design thinking: Discovery, Interpretation, Ideation- Experimentation – Evolution, How to transform challenges into opportunities?

How to develop human-centric solutions for creating social good?

Unit- V Ethics and Integrity

Learning through Biographies: What makes an individual great? Understanding the persona of a leader for deriving holistic inspiration, Drawing insights for leadership, How leaders sail through difficult situations? Ethics and Conduct, Importance of ethics, Ethical decision making, Personal and professional moral codes of conduct, creating a harmonious life.

Books Recommended:

1. Ashokan, M. S. (2015). *Karmayogi: A Bbiography of E. Sreedharan*. Penguin, UK.
2. Brown, T. (2012). *Change by Design.* Harper Business
3. Kalam A. A. (2003). *Ignited Minds: Unleashing the Power within India*. Penguin Books India
4. Kelly T., Kelly D. (2014). *Creative Confidence: Unleashing the Creative Potential Within Us All.* William Collins
5. McCormack M. H. (1986).*What They Don't Teach You at Harvard Business School: Notes From A Street-Smart Executive*. RHUS

Suggested Readings:

- Sternberg R. J., Sternberg R. J., & Baltes P. B. (Eds.). (2004). *International Handbook of Intelligence*. Cambridge University Press.

E-Resources

- India's Hidden Hot Beds of Invention Ted Talk by Anil Gupta - https://www.ted.com/talks/anil_gupta_india_s_hidden_hotbeds_of_invention
- Knowledge@Wharton Interviews Former Indian President APJ Abdul Kalam - . "A Leader Should Know How to Manage Failure" https://www.youtube.com/

NPTEL Course on Leadership - https://nptel.ac.in/courses/122105021/9

Course Outcomes:

CO	Statement
	After completion of this course, students will be able to:
CO1	Examine various leadership models and understand/assess their skills, strengths and abilities that affect their own leadership style and can create their leadership vision
CO2	Learn and demonstrate a set of practical skills such as time management, self - management, handling conflicts, team leadership, etc.
CO3	Understand the basics of entrepreneurship and develop business plans
CO4	Apply the design thinking approach for leadership
CO5	Discuss the importance of ethics and moral values for making of a balanced personality

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Industrial visit

Mapping between Objectives and Outcomes Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom' s Levels	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PS O 1	PS O 2
CO1	L4	**M**	**M**	**-**	**-**	**M**	**M**	**M**	**H**	**-**	**L**	**-**	**-**
CO2	L3	**M**	**M**	**M**	**M**	**M**	**M**	**L**	**M**	**-**	**M**	**-**	**-**
CO3	L2	**M**	**M**	**M**	**H**	**M**	**M**	**M**	**M**	**-**	**L**	**-**	**-**
CO4	L3	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**H**	**-**	**L**	**-**	**-**
CO5	L1`	**-**	**M**	**L**	**H**	**H**	**H**	**M**	**M**	**-**	**L**	**-**	**-**

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3, CO4,CO5
CD2	Tutorials/Assignments	CO1,CO2,CO3, CO4,CO5
CD3	Seminars	CO1,CO2,CO3, CO4,CO5
CD4	Self-learning advice using internets	CO1,CO2,CO3, CO4
CD5	Industrial visit	CO2

SUPERVISED CLINICAL TRAINING

CODE-BPT 307

Course Objectives:

- To demonstrate knowledge of the clinical site's organization, administration, policies and procedures.
- To review the Physical Therapy documentation including the PT POC, goals, and objectives:
- To review the patient health record prior to treatment.
- To describe safe environments, appropriate risk management strategies, and emergency responses.

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Students will successfully demonstrate knowledge of the clinical site's organization, administration, policies and procedures, organizational planning and operation
CO2	Under direct personal supervision, students will review the Physical Therapy documentation including the PT POC, goals, and objectives.
CO3	Under direct personal supervision, students will review the patient health record prior to treatment.
CO4	Under direct personal supervision, students will describe safe environments, appropriate risk management strategies, and emergency responses.

BPT- 308: ANANDAM

Duration: 64 Hours

Course Objectives:

- To instill the joy of giving in young people, turning them into responsible citizens to build up a better society.
- To inculcate the habit of service in students across the University..
- Students to be excepted to engage in individual and group acts of service and goodness.

Action Plan:

1. **Students will be expected to**
   - Do at least one act of individual service each day
   - Record this act of service in a dedicated Register / Personal Diary
   - Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
   - Undertake one group service project for 64 hours every term (outside college hours)
   - Upload the report on the group project on the Anandam platform
   - Participate in a sharing and presentation on the group service in the discussion sessions held once a month
   - (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)
2. **Inputs**
   A. From the Anandam Platform
      a. An online platform to manage and share service opportunities
      b. A list of suggested programs or volunteering organizations.
      c. Training for faculty members on how to facilitate the Anandam program
   B. From the University
      a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
      b. The act of goodness will not be evaluated, just if it was recorded or not
      c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
      d. Mentors to guide and review the student's activities on an regular basis
      e. There will be one Anandam coordinator to monitor the program in every University.
3. **Outcomes**-Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO1: Develop a great sense of understanding towards social issues.(Bloom's Level- L2)
CO2: Able to engage in individual and group acts of service and goodness. .(Bloom's Level- L3)

Mapping of Course Outcomes onto Program Learning Outcomes

Course outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	L	-	-	-	-	-	-	-	-	H	-	-
CO2	L3	L	-	-	-	-	-	-	-	-	H	-	-

BPT 4th Year

Theory						Practical			Teaching Hrs				Credits	
Code No.	**Paper**	**Type**	**Total**	**IA**	**EA**	**Total**	**IA**	**EA**	**L**	**T/S**	**P**	**C/week**	**Sem.**	**Yearly**
BPT 401	PHYSIOTHERAPY IN ORTHOPEDIC CONDITIONS	core	100	30	70	100	30	70	3	-	2	5	4	8
BPT 402	PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS	core	100	30	70	100	30	70	3	-	2	5	4	8
BPT 403	PHYSIOTHERAPY IN GENERAL MEDICINE &SURGERY	core	100	30	70	100	30	70	2	1	1	4	3.5	7
BPT 404	PHYSIOTHERAPY IN CARDIO-THORACIC CONDITIONS	core	100	30	70	100	30	70	2	1	1	4	3.5	7
BPT 405A	COMMUnitY BASED REHABILITATION	Elective	100	30	70	100	30	70	2	-	2	4	4	8
BPT 405 B	FIRST AID	Elective	100	30	70	100	30	70	2	-	2	4	4	8
BPT 406	MINOR PROJECT & CLINICAL TRAINING	AECC	-	-	-	100	30	70	-	-	4	4	2	4
BPT 407	PROFESSIONAL SKILLS	AECC	80	30	50	20	-	20	1	-	-	1	1	2
BPT 408	ANANDAM	-	-	-	-	100	50 (P)	50 (D)	1	-	-	1	2	4
Total			**580**			**720**			**12**	**4**	**12**	**28**	**22**	**48**
Grand Total		**1300 Marks 28 Hrs 48 Credits**												

FOURTH YEAR BACHELOR IN PHYSIOTHERAPY (1 – YEAR DURATION)
PHYSIOTHERAPY IN ORTHOPEDIC CONDITIONS AND SPORTS CONDITIONS

CODE: BPT 401

Course Objectives:

- To integrate the physiotherapeutic knowledge of orthopedic and Traumatology.
- To improve skills in clinical situation of dysfunction and musculoskeletal pathology.
- To make student able to identify disabilities, plan and set treatment goals.

Course Contents:

Unit-I: Introduction to General principles and concepts of physiotherapy

Brief review of approach to a patient with orthopedic disorders, patient history, Examination , Role of physical agents in Physiotherapy , Therapeutic exercises.

Unit-II: Rehabilitation of Fractures and Dislocations

- Dislocations: Classification – types of displacements methods of immobilization. Healing of fracture and factor influencing union, non – union, delayed union etc.
- Specific fracture and their complete Physiotherapeutic management.

  a) Upper limb: Clavicle, humerus, ulna, radius, crush injuries of hand.

  b) Lower Limb: fracture neck of femur, shaft of femur, patella, tibia fibula, pott's fracture, fracture of tarsal and metatarsals.

  c) Spine: fracture and dislocations of cervical, thoracic and lumbar vertebrae with and without neurological deficits.

Unit-III: a) Rehabilitation of Soft Tissue Injuries and Amputation

- Physiotherapy in relation to soft tissue injuries- Synovitis, Capsulitis, Tendonitis and other tendon injuries around wrist, elbow, knee, shoulder, ankle, Bursitis, volkman's ischemic contracture, Tear of semilunar cartilage, menisectomy, Injury to cruciate ligaments of knee, Internal derangement of knee and other overuse injuries important for a Physiotherapist.
- Physiotherapy in relation to amputation

b) Physiotherapy in relation to various deformities e.g. CTEV, Pes planus, pes cavus etc

c) Physiotherapy in various acquired & congenital spinal cord disorders.

d) Deficiency disease- Rickets, Osteomalacia, Osteoporosis and other deficiency disorders

Unit-IV: a) Rehabilitation of Inflammatory Conditions and Sports Injuries

Degenerative and infective conditions: Etiology, pathology, clinical presentation, diagnostic criterion, general, orthotic, and Physiotherapy Management of the following: osteoarthritis of major joints, Spondylosis, Spondylolisthesis, PIVD, Periarthritis of shoulder, Tuberculosis of spine, bone and major joints and other miscellaneous orthopaedic conditions treated by Physiotherapy.

b) Physiotherapy in relation to arthritis- Etiology, pathology, clinical presentation, diagnostic criterion general, orthotic, and Physiotherapy Management of the following: Osteo Arthritis-generalized, Degenerative and traumatic, Rheumatoid Arthritis, Still's disease, infective Arthritis, Spondylitis, Ankylosing spondylitis, Non articular Rheumatism, Fibrositis, trigger point, fibromyalgia, Perthes disease, Ganglion,Duputuren's contracture

c) Physiotherapy in Sports Injuries- Principle of sports physiotherapy, Causes of sports injury, Prevention of sports injuries, Management of acute sports injury, Common occurred injuries. Role of physiotherapist in sports principle and advanced rehabilitation of the injured athlete.

Unit-V: Special techniques of Rehabilitation and Treatment in Physiotherapy

BASIC Concepts of: Maitland, Kaltenborn, Cyriax, Mulligan, McKenzie, Neurodynamics, Muscle Energy Techniques. Myofascial Release techniques

Special techniques Brief Introduction and Application Principles, Indications, Contraindications of : Dry Needling, Taping and Cupping

Practical:

1. Various techniques of Physiotherapy for the above mentioned condition /diseases should be demonstrated and practical by the students.
2. Assessment planning and management of orthopedics conditions
3. General viva
4. Practical record

Reference Books -

1. Tidy's physiotherapy- Tomson et. al Butterworth Heinmann
2. Essentials of orthopaedics and applied physiotherapy – Joshi and Kotwal- B.L. Churchill Livingstone.
3. Tetraplegia & Paraplegia- Bromley- W.B. Saunders.
4. Orthopaedics physiotherapy- Donatelli & Wooden- WB. Saunders.
5. Rheumatological Physiotherapy- David – Mosby
6. Orthopaedic Physiotherapy- Tid well – Mosby
7. Physiothearpy for amputee- Engstrom & Van de van – Churchill Livingsstone
8. Sports Injuris: Diagnosis and management: Norris Butterworth Heinmann.
9. orthopedic physical assessment: David J. Magee

Course Outcomes:

CO	STATEMENT **(After completion of this course, student will be able to)**
CO1	Examine relevant investigations technique which will help to diagnosed various orthopedic and sports conditions.
CO2	Plan clinical decision making ability and treatment techniques in different musculoskeletal conditions with physiotherapeutic approach
CO3	Implement pre and post operative management/special techniques.
CO4	Evaluate degenerative joint and spine diseases.
CO5	Understand the principles of sports physiotherapy.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L4	H	M	H	H	H	H	M	H	M	M	H	H
CO2	L3	H	M	H	H	H	H	H	H	M	M	M	M
CO3	L3	M	M	H	H	H	H	H	M	M	H	M	M
CO4	L5	H	M	H	H	H	M	M	H	M	M	M	M
CO5	L2	H	M	H	L	-	-	-	H	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2 ,CO5
CD2	Tutorials/Assignments	CO2, CO3
CD3	Seminars	CO1, CO2, CO3
CD4	Self- learning advice using internets	CO1,CO2, CO3
CD5	Hospital visit & OPD	CO1,CO2, CO3,CO4

PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS

Code: BPT 402

Course Objectives:

- Student will be able to identify disability due to neurological dysfunction, set treatment goals.
- Apply skills in exercise therapy, electrotherapy in clinical situation to restore neurological function.
- Integrate the knowledge gain by students in clinical situation of dysfunction due to pathology in nervous system.

Course Contents:

Unit-I **Cerebellar and coordination disorders:** Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Congenital ataxia, Friedreich's ataxia, Ataxia talengiectasia, Metabolic ataxia, Hereditary, cerebellar ataxia, Tabes dorsalis and Syphilis

Unit-II **Neurosciences**: Cerebro-vascular diseases: Define stroke, TIA, RIA, stroke in evolution, multi infarct dementia and Lacunar infarct. Classification of stroke – Ischemic, hemorrhagic, venous infarcts. Risk factors, cause of ischemic stroke, causes of hemorrhagic stroke. Classification of hemorrhagic stroke, classification of stroke based on symptoms, stroke syndrome, investigations, differential diagnosis, medical and surgical management.

Unit-III **Pediatric, Degenerative And Infection Management Of Nervous System**

A. Clinical Features & Managements

Briefly outline the clinical features and management of the following Neurological Disorders.

1. Congenital and childhood disorders.
    a. Hydrocephalus
    b. Spina Bifida
    c. Arnold Chiari malformation, Dandy
2. Degenerative disorders.
    a. Parkinson's disease
    b. Dementia
3. Infections
    a. Pyogenic Meningitis sequelae
    b. Tuberculosis infection of central nervous system
    c. Poliomyelitis
    d. Brain abscess
4. Infections of brain and spinal cord: Meningitis, Encephalitis, Poliomyelitis and Post-polio syndrome. Complications of systemic infections on nervous system

– Septic encephalopathy, AIDS, Rheumatic fever, Brucellosis, Tetanus, and Pertussis.

5. Polyneuropathy

Unit-IV PT Management of Stroke and Brain Anomalies

6. Cerebrovascular accidents.
    a. General classification, thrombotic, embolic, hemorrhagic and inflammatory stroke
    b. Gross localization and sequelae
    c. Detailed rehabilitative programme.
7. Trauma – board localization, first aid and management of sequelae of head injury and spinal cord injury.
8. Diseases of the spinal cord
    a. Craniovertebral junction anomalies.
    b. Syringomyelia
    c. Tumors
    d. Spinal arachnoiditis
9. Demyelinating diseases (central and peripheral)
    a. Gullian – Barre Syndrome
    b. Acutre disseminated encephalomyelitis
    c. Transverse myelitis
    d. Multiple sclerosis
10. Diseases of the muscle including myopathies: Classification, signs, symptoms, progression and management.
11. Peripheral nerve disorder
    a. Epilepsy ; Definition, Classification and management
    b. Myasthenia Gravis : Definition, course and management
    c. Motor neuron disease
    d. Herniation of brain

Unit-V Neurological Assessment

Clinical assessment of neurological function to be taught through beside or demonstration clinics spread out over at least 5 session.

1. Basic history to determine whether the brain, spinal cord or peripheral nerves is involved
2. Assessment of higher mental function such as orientation, memory, attention, speech and language.
3. Assessment of cranial nerves.
4. Assessment of motor power.

5. Assessment of sensory function tough, pain and position
6. Assessment of tone – spasticity, rigidity and hypotonic.
7. Assessment of cerebellar function
8. Assessment of higher cortical function – apraxia etc.
9. Assessment of gait abnormalities

Practical:

1. Various techniques of Physiotherapy for the above mentioned condition /diseases should be demonstrated and practical by the students.
2. Assessment planning and management of orthopedics conditions
3. General viva
4. Practical record

Reference Books-

1. Cash's textbook of neurology for physiotherapists – Dowani – J.P. Brothers.
2. Adult Hemiplegia – Evaluation & treatment – Bobath – Oxford Butterworth Heinman
3. Neurological Rehabilitation – Carr & Shepherd – Butterworth Heinman
4. Tetraplegia and paraplegia – A guide for physiotherapist – Bromley – Churchill Livingstone.
5. Neurological physiotherapy – A Problem solving approach – Susan Edwards – Churchill Linvigstone.
6. Neurological Rehabilitation – Umpherd – Mosby.
7. Geriatric physical therapy – Gucciona – Mosby.
8. Motor assessment of Developing Infat – Piper & Darrah – W.B. Saunders.
9. Paediatric physical therapy – Teckling Lippincott.
10. Treatment of cerebral Palsy and motor Delay – Levitts- Blackwell Scientific Publications, London.
11. Aging the Health care Challenge – Levis- F.A. Davis.
12. Physiotherapy in Paediatrics – Shepherd – Butterworth Heinman

Course Outcomes:

CO	STATEMENTS (After completion of this course, student will be able to)
CO1	Understand theoretical knowledge with clinical assessment.
CO2	Evaluate relevant investigations technique which will help to diagnosed various Neurological condition conditions
CO3	Plan clinical decision making ability with different physiotherapeutic treatment techniques in different neurological conditions.
CO4	Analyze various spinal cord conditions.
CO5	Plan the treatment of various disorders related to childhood and old age.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PSO 1	PSO 2
CO1	L3	H	H	H	M	L	M	M	M	M	M	H	H
CO2	L2	H	H	H	H	L	M	M	M	M	L	H	H
CO3	L5	H	H	H	H	M	H	M	M	M	M	H	H
CO4	L5	M	M	L	M	H	H	H	M	H	M	M	H
CO5	L5	M	M	L	M	H	H	H	M	H	M	L	H

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2
CD2	Tutorials/Assignments	CO2, CO3
CD3	Seminars	CO1, CO2, CO3
CD4	Self- learning advice using internets	CO1,CO2, CO3
CD5	Hospital visit & OPD	CO1, CO3,CO4,CO5

PHYSIOTHERAPY IN GENERAL MEDICAL & SURGICAL CONDITIONS

Code: BPT 403

Course Objectives:

- Able to integrate theoretical knowledge with clinical assessment.
- Develop the ability to collect history, perform relevant clinical assessment and frame appropriate electrotherapeutic and exercise therapy management for the patients.
- Demonstrate clinical decision making ability and provide appropriate patient care.
- Develop effective communication with patients, family, colleagues and students
- To carry out research and publications towards up liftment of the field of Physiotherapy.

Course Contents:

Unit-I **Introduction and PT Management of General and Neuro Surgeries**

Brief review of the following surgical condition and various Physiotherapeutic modalities aims means and techniques of physiotherapy should be taught and complication. Peripheral Nerve Injuries. Pre & Post operative physiotherapeutic managements of Nerve Repair / Grafting.

Unit-II **Rehabilitation in Cardio-Respiratory Surgery** Postural drainage & respiratory physiotherapy in CTVS Physiotherapy in patients on ventilators Pre and post Operative physiotherapy management of following conditions Thoractomy Lobectomy Thoracoplasty Pneumonectomy Orientation about atelectasis, pneumothorax, pre and post operative physiotherapy management of cardiac surgery, open heart surgery.

Unit-III **PT Management following Burns, skin graft and Hand**

Burn & its classification physiotherapy management. Pre & postoperative physiotherapy of skin grafting. Physiotherapy of case after reconstructive surgery of hand. Physiotherapy in Hand Injury.

Unit-IV **Rehabilitation of Abdomen**

Abdominal Surgical Quadrants

Pre and post Operative physiotherapy management of following abdominal surgical conditions including incisions pre and postoperative complications Herniorraphy Nephrectomy Radical Mastectomy etc

Unit-V **Physiotherapy Rehabilitation in Obstetrics/Gynecology**

Physiotherapy in obstetrics

Physiotherapy in PID, Stress incontinence, prolapsed uterus, etc.

Pre & post operative physiotherapeutic managements of Neurosurgical conditions

Practical:

1. Various techniques of Physiotherapy for the above mentioned condition/diseases should be demonstrated and practical by the students.
2. Assessment planning and management of orthopedics conditions
3. General viva
4. Practical record

Book Recommended:

1. Cash textbook of general medical and surgical conditions for physiotherapists- Downie Jaypee Brothers.
2. Cash textbook of heart, chest and vascular disorders for physiotherapists- DownieJaypee Brothers.
3. Principle and practices of cardiopulmonary physical therapy – Frown Felter- Mosby.
4. Chest physiotherapy in intensive care unit- Mackanzie – Wiiliams& Wilkins.
5. Restoration of motor functions in stroke patient: A Physiotherapist approach- Johnstone Churchill Livingstone.
6. Physiotherapy Obstetrics and Gynecology – Polden – F.A. Davis

Course Outcomes:

CO	STATEMENTS **(After completion of this course, student will be able to)**
CO1	Understanding the knowledge on Basic Medical sciences, Human Movement Sciences, Various medical Conditions and Surgical Treatments to identify Psychological, Social, Economical, Cultural aspects of diseases and its impact on community.
CO2	Apply the knowledge to perform a safe, systematic and appropriate physiotherapy assessment and treatment for various medical Conditions.
CO3	Examine the various pathological changes and make the treatment plan accordingly.
CO4	Examine the wound and deformity to give proper treatment plan.
CO5	Decide the treatment plan according to surgical procedure performed.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping between Objectives and Outcomes

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	H	M	M	L	H	-	-	M	M	M	M	H	H
CO2	L3	H	M	M	M	L	H	-	M	M	L	L	M	M
CO3	L4	M	H	M	H	H	H	L	M	M	M	M	M	M
CO4	L4	M	M	M	H	H	H	M	M	M	M	M	M	M
CO5	L5	M	M	M	H	H	H	M	M	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1, CO,C03
CD4	Self- learning advice using internets	CO1,CO2
CD5	Hospital visit & OPD	CO2,CO3,CO4,CO5

PHYSIOTHERAPY IN CARDIO-RESPIRATORY CONDITIONS

CODE: BPT 404

Course Objectives:

- Identify discuss and analysis of various cardiothoracic dysfunction and arrive at appropriate functional diagnosis.
- Acquire knowledge of evaluation and physiotherapeutic treatment for various cardiothoracic physiotherapy.
- Select strategies for cure, care and prevention, adopt rehabilitative measure for maximal possible functional independence.

SECTION - I

Respiratory

a. Review of respiratory anatomy and physiology.

b. Respiratory system history taking and assessment.

c. Chest examination, including auscultation, percussion, knowledge of various investigative procedures (invasive & non-invasive) use in the diagnosis of various respiratory disorders.

d. Techniques of physical treatment: Breathing exercise, Chest mobilization exercises Postural drainage, Huffing, Coughing, Percussion, Vibration & Chest Shaking.

Review of the Pathological and principles of management by physiotherapy to the following conditions:

1. COPD, Asthma, Lung abscess, Bronchiectasis.
2. Pleurisy and Empyema, Pneumonia, restrictive and obstructive respiratory disease .
3. Bacterial Disease.
4. Rheumatic fever, Carcinoma of respiratory tract.
5. Paralysis of diaphragm.
6. Chest wall deformities.
7. ICU, principles of Intensive Care Physiotherapy and ventilators, Aerosol Therapy, Humidification, Oxygen therapy and nebulizers.
8. Pulmonary Rehabilitation

SECTION-II

Cardiovascular

1) Review of anatomy and physiology of the cardiovascular system.
2) Cardiovascular system history taking and assessment.
3) Knowledge of various investigative procedures, Physical assessment (invasive & non invasive) used in the diagnosis of 'various cardio vascular disorders.
3) Review of pathological changes, Clinical presentation, Principle of management by Physiotherapy of the following conditions:
   - Hypertension.

- Hypotension.
- Aneurysm.
- Congestive Cardiac failure.
- Peripheral Vascular Disordes:
    a. Atherosclerosis.
    b. Arteriosclerosis.
    c. Thrombosis.
    d. Embolism.
    e. Burger's diseases.
    f. Thrombophlebitis.
    g. Phlebitis.
        - Gangrene.
        - Lymphedema.
    h. Deep vein thrombosis
    i. Cardiac rehabilitation, MET, Exercises for diabetes and obesity

SECTION-III

Cardio -Thoracic Surgery.

Review of pathological changes and principle of pre and post-operative management by physiotherapy of the following conditions:

1) Lobectomy, Pneumonectomy, Thoracotomy, Thoracoplasty, Endoscopy & Eye Hole surgeries, lung transplant.
2) Corrective surgeries of congenital heart defects, Angioplasties, Blood vessel grafting, Open heart surgeries& Heart transplant.

SECTION-IV

Rehabilitation In Pediatric Medicine

1. Cerebral palsy define and
2. Prenatal, peri-natal and postnatal physiotherapy care
3. Muscular Dystrophy: PT Management.
4. PT Management of Meningitis, Encephalitits, Hydrocephalus, Spina Bifida, CTEV, CDH,general Cardiac rehabilitation and pulmonary rehabilitation in children and adults.

Practical

1. Various physiotherapy modalities and treatment techniques for the above-mentioned conditions to be demonstrated and practiced by the students in clinical setup.
2. Assessment planning and management of cardio-thorarcic conditions
3. General viva
4. Practical record

Reference Books-

1. Cash Textbook of general medical and surgical conditions for physiotherapists- Donnie Jaypee Brothers.
2. Essential of Cardiopulmonary physical therapy- Hillegass & Sadowsky- W,B. Saunders.
3. Cash textbook of Chest, Heart and Vascular Disorders for physiotherapists- Downie- J.P. Brothers.
4. The Brompton Guide to chest physical therapy
5. Cardiopulmonary Physical Therapy- Irwin and Tecknin, Mosby.
6. Cardiovascular/Respiratory physiotherapy- Smith & Ball- Mosby
7. ACSM Guidelines for exercise testing and prescription- ACSM- Williams and Wilkins.
8. Chest physiotherapy in intensive care unit- Mackenzie et al – Williams and Wilkins.
9. Hough's Cardiorespiratory Care an evidence-based, problem-solving approach 5th Edition - November 23, 2017

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Evaluate relevant investigations technique which will help to diagnosed various cardiothoracic conditions
CO2	Analyze various cardio thoracic ICU management techniques
CO3	Understanding and acquiring the Knowledge of various investigating procedure for cardiac and thoracic conditions.
CO4	Plan clinical decision making ability with the various physiotherapy treatment approaches in different cardiac and thoracic condition.
CO5	Perform pre and post operative management.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Outcomes

Course Outcomes	Bloom' s Level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PSO 1	PSO 2
CO1	**L5**	H	H	H	M	L	-	-	M	M	M	H	H
CO2	**L4**	M	L	M	H	L	M	M	M	M	L	M	M
CO3	**L2**	H	H	H	H	M	H	M	M	M	M	M	M
CO4	**L3**	M	M	L	M	H	H	M	M	M	M	M	M
CO5	**L2**	M	H	L	M	H	H	M	M	M	M	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1,CO2,CO3,CO3,CO5
CD2	Tutorials/Assignments	CO1,CO2
CD3	Seminars	CO1
CD4	Self- learning advice using internets	CO1,CO2,CO3,CO4

COMMUNITY BASED REHABILITATION

Code: BPT 405A

Course Objectives:

- Understand role in the management of the disability with in rehabilitation team.
- Understand the concept of team approach in rehabilitation.
- Understand the medical and surgical aspect of disabling conditions

Course Contents:

Unit-I Introduction to CBR with scope and team linked in the rehabilitation

1. Introduction to rehabilitation medicine
2. Define concerned in the phases of disability process, explanation of its aims 7 principles. Scope of rehabilitation.
3. Definition concerned with the causes of Impairment functional limitation and disability
4. Disability prevention. Limitation & Rehabilitation
5. Present Rehabilitation Services
6. Legislation for rehabilitation service for the disabled and P.W.D. Act.
7. Rehabilitation team & its members, their role.
8. Community & Rehabilitation including C.B.R. Advantage of C.R.B. over I.B.R

Unit-II Structural Rehabilitation in CBR

9. Contribution of Social Worker towards rehabilitation
10. Vocational evaluation & Goal for disabled, role of Vocational Counselor.
11. Rural rehabilitation incorporated with Primary Health Center
12. Principal of Communication & its problem and management
13. Behavioral problems in the disabled its principle of management
14. Architectural barriers possible modification in relation to different disabled conditions.
15. Achieving functional independence

Unit-III Concepts of condition specific CBR

16. Concepts in cardiac rehabilitation
17. Concepts in pulmonary rehabilitation
18. Deconditioning, conditioning & benefits of exercise
19. Spine cord injury rehabilitation

Unit-IV CBR related to occupation and age with disability and socioeconomic status

20. Occupational rehabilitation
21. Concepts in geriatric rehabilitation
22. Introduction to sports medicine, concept of team, approach to sports occupational therapy
23. Disability evaluation
24. Visual disability: definition and classification, mobility techniques, communication skill, prevention of blindness.
25. Socioeconomic Rehabilitation:

    Outline of Social and Vocational Counseling.

    Outline the social implication of disability for the individual and for the

community.

Pre – vocational Evaluation & role of V.C., Govt. & NGO. Discuses methods and team involvement in pre –vocational evaluation and training.

Unit-V Prosthesis and Orthosis:

1. Definition and Basic Principles
2. Designing and Construction of upper & lower extremity Orthosis & spinal Orthosis.
3. Prescription and design of footwear - & its modification.
4. Wheel Chairs
5. Ambulatory Aids & Assistive devices.
6. Measurement and P.O.P. cast techniques.
7. Low cost thermo – labile material for construction of Orthosis
8. Upper limb amputee rehabilitation & prosthetic training.
9. Lower limb amputee rehabilitation & prosthetic training.
10. Footwear modification in various conditions.
11. Wheel Chairs & seating system.
12. Design and construction of adoptive devices.
13. Classification of Aids & Appliances.
14. Ambulatory, Aids & Assistive devices.
15. Simple splint techniques.
16. Thermoplastic materials.
17. Computer assistive devices & environmental control.
18. Musculoskeletal problems of the upper limb.
19. Musculoskeletal problems of the lower limb.
20. Sports physiology, Physiotherapy in sports and sports injuries.
21. Rehabilitation concerns in rehabilitation.
22. Neuro-rehabilitation.
23. Surgical rehabilitation.
24. Rheumatology & Rehabilitation.

Practical

A. Practical demonstration of difficulties Orthotics / Prosthetics
B. Practical demonstration of different types of Orthotics / Prosthetics /Mobility / Assistive.
C. Demonstration of disability evaluation procedure.
D. General viva

Books Recommended-

1. Rehabilitation –Evans.
2. Directory for disabled people.
3. Improvement residential life for disabled people- truly.
4. Physical medicine & rehabilitation- Okawanta.
5. Community diagnosis & Health action- Bennerth.
6. Hand book of Physical medicine & rehabilitation.- Rusk

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Evaluate the principle of organization and administration.
CO2	Formulate appropriate goal in treatment and rehabilitation
CO3	Describe the health care delivery system including rehabilitation of the disabled in the country.
CO4	Understand & Describe the health information systems.
CO5	Examine social problems and evaluate disability.

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping between Objectives and Outcomes

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcomes	Bloom' s level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PSO 1	PSO2
CO1	**L4**	H	M	H	M	M	M	H	M	M	H	H	H
CO2	**L3**	H	H	H	M	M	M	M	M	M	H	M	M
CO3	**L4**	H	M	L	M	M	M	H	M	M	H	M	M
CO4	**L2**	H	M	L	M	M	M	M	M	M	H	M	M
CO5	**L4**	H	M	L	M	M	M	H	M	M	H	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2,CO4
CD2	Tutorials/Assignments	CO, CO2
CD3	Seminars	CO1, CO2,CO3
CD4	Self- learning advice using internets	CO1,CO3
CD5	Hospital visit & OPD	CO2,CO3,CO5

BPT405B: FIRST AID

Course Objective:

- For learners to have knowledge and understanding of a selection of different emergencies
- For the learner to be able to assist with emergencies that they may come across in the workplace
- Understand the role and responsibilities of a first aider

Course Content:

Unit-I: Advanced First Aid, CPR & AED

Practical demonstration of first aid, CPR, AED skills IV.

Unit-II: Automated External Defibrillators (AED)

- Airway Obstructions
- Controlling Bleeding
- Shock
- Wounds and Soft Tissue Injuries

Unit-III: Burns

- Head and Spinal Injuries
- Chest, Abdominal and Pelvic Injuries
- Bone, Joint and Muscle Injuries
- Extremity Injuries and Splinting

Unit-IV: Assessment Measures :

- Cold and Heat Emergencies
- Rescuing and Moving Victims

Unit-V: General Outline of Topics Covered:

Acting in an Emergency- The Human Body Assessing the Victim Cardiopulmonary Resuscitation (CPR)

- Sudden Illness
- Poisoning
- Substance Misuse and Abuse
- Bites and Stings

Books Recommended:

- Manual of First aid by LC GUPTA
- FIRST-AID emergency care by Dr. Swapna naskar

Course Outcomes:

CO	STATEMENT (After completion of this course, student will be able to)
CO1	Candidates will be able to assess situations and circumstances in order to provide First Aid safely, promptly and effectively in a range of emergencies
CO2	Understand the role and responsibilities of a First Aider
CO3	Be able to assess an incident
CO4	Be able to manage an unresponsive casualty who is not breathing normally
CO5	Be able to manage an unresponsive casualty who is breathing normally

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Hospital visit

Mapping of Course Outcomes onto Program Learning Outcomes

Course Outcome	Bloom's level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	**L4**	H	M	H	M	M	M	H	M	M	H	H	H
CO2	**L3**	H	H	H	M	M	M	M	M	M	H	M	M
CO3	**L4**	H	M	L	M	M	M	H	M	M	H	M	M
CO4	**L2**	H	M	L	M	M	M	M	M	M	H	M	M
CO5	**L4**	H	M	L	M	M	M	H	M	M	H	M	M

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2,CO4
CD2	Tutorials/Assignments	CO, CO2
CD3	Seminars	CO1, CO2,CO3
CD4	Self- learning advice using internets	CO1,CO3
CD5	Hospital visit & OPD	CO2,CO3,CO5

PROFESSIONAL SKILLS

Code: BPT 407

Duration: 60 Hours

Course Objectives:

1. To acquire career skills and fully pursue to partake in a successful career path
2. To prepare good resume, prepare for interviews and group discussions
3. To explore desired career opportunities in the employment market in consideration of an individual SWOT.
4. Understand the significance of Team Skills and help them in acquiring them
5. To help them design, develop and adapt to situations as an individual and as a team.

Course Contents:

Unit I: Resume Skills & Interview Skills

Resume Skills : Preparation and Presentation, Introduction of resume and its importance, Difference between a CV, Resume and Bio data, Essential components of a good resume, Resume skills : common errors, Common errors people generally make in preparing their resume, Prepare a good resume of her/his considering all essential components

Interview Skills : Preparation and Presentation, Meaning and types of interview (F2F, telephonic, video, etc.), Dress Code, Background Research, Do's and Don'ts, Situation, Task, Approach and Response (STAR Approach) for facing an interview, Interview procedure (opening, listening skills, closure, etc.), Important questions generally asked in a job interview (open and closed ended questions), Interview Skills : Simulation, Observation of exemplary interviews, Comment critically on simulated interviews, Interview Skills : Common Errors, Discuss the common errors generally candidates make in interview, Demonstrate an ideal interview

Unit II: Group Discussion Skills & Exploring career opportunities

Meaning and methods of Group Discussion, Procedure of Group Discussion, Group Discussion- Simulation, Group Discussion - Common Errors, Knowing yourself – personal characteristics

Knowledge about the world of work, requirements of jobs including self-employment, Sources of career information, Preparing for a career based on their potentials and availability of opportunities

Unit III: Presentation Skills, Trust and Collaboration

Types of presentations, Internal and external presentation, Knowing the purpose, Knowing the audience, Opening and closing a presentation, Using presentation tools, Handling questions, Presentation to heterogenic group, Ways to improve presentation skills over time, Explain the importance of trust in creating a collaborative team, Agree to Disagree and Disagree to Agree – Spirit of Team work, Understanding fear of being judged and strategies to overcome fear.

Unit IV: Listening as a Team Skill & Brainstorming

Advantages of Effective Listening, Listening as a team member and team leader. Use of active listening strategies to encourage sharing of ideas (full and undivided attention, no interruptions, no prethink, use empathy, listen to tone and voice modulation, recapitulate points, etc.)., Use of group and individual brainstorming techniques to promote idea generation., Learning and showcasing the principles of documentation of team session outcomes

Unit V: Social and Cultural Etiquette & Internal Communication

Need for etiquette (impression, image, earn respect, appreciation, etc), Aspects of social and cultural/corporate etiquette in promoting teamwork, Importance of time, place, propriety and adaptability to diverse cultures, Use of various channels of transmitting information including digital and physical, to team members.

Course Outcomes:

CO	Statement (After the completion of this course, students will be able to:)
CO1	Prepare their resume in an appropriate template without grammatical and other errors and using proper syntax and Participate in a simulated interview
CO2	Actively participate in group discussions towards gainful employment, Capture a self - interview simulation video regarding the job role concerned and Enlist the common errors generally made by candidates in an interview.
CO3	Perform appropriately and effectively in group discussions and Explore sources (online/offline) of career opportunities
CO4	Use common technology messaging tools that are used in enterprises for flow of information and transition from command and control to informal communication during an online/offline team session & Actively use and operate online team communication tools: Webinar, Skype, Zoom, Google hangout etc
CO5	Appreciate and demonstrate Team Skills & Generate, share and maximise new ideas with the concept of brainstorming and the documentation of key critical ideas/thoughts articulated and action points to be implemented with timelines in a team discussion (as MOM) in identified applicable templates

Course Delivery methods	
CD1	Lecture by use of boards/LCD projectors/OHP projectors
CD2	Tutorials/Assignments
CD3	Seminars
CD4	Self- learning advice using internets
CD5	Industrial visit

Mapping between Objectives and Outcomes

Mapping of Course Outcomes onto Program Outcomes

Course Outcome	Bloom's Levels	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO 1	PSO 2
CO1	L6	**L**	**H**	**L**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**-**	**-**
CO2	L3	**L**	**H**	**L**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**-**	**-**
CO3	L3	**L**	**H**	**L**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**-**	**-**
CO4	L3	**L**	**H**	**L**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**-**	**-**
CO5	L3	**L**	**H**	**L**	**M**	**L**	**H**	**H**	**M**	**-**	**H**	**-**	**-**

H- High, M- Moderate, L- Low, '-' for No correlation

Mapping between CO and CD

CD	Course Delivery methods	Course Outcomes
CD1	Lecture by use of boards/LCD projectors/OHP projectors	CO1, CO2, CO3, CO4, CO5
CD2	Tutorials/Assignments	CO1, CO2, CO3, CO4, CO5
CD3	Seminars	CO3, CO4
CD4	Self- learning advice using internets	CO1, CO2, CO3, CO4, CO5
CD5	Industrial visit	CO3, CO4, CO5

BPT- 408 ANANDAM

Duration : 64 Hrs

Course Objectives:

- To instill the joy of giving in young people, turning them into responsible citizens to build up a better society.
- To inculcate the habit of service in students across the University..
- Students to be excepted to engage in individual and group acts of service and goodness.

Action Plan:

1. **Students will be expected to**
   - Do at least one act of individual service each day
   - Record this act of service in a dedicated Register / Personal Diary
   - Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
   - Undertake one group service project for 64 hours every term (outside college hours)
   - Upload the report on the group project on the Anandam platform
   - Participate in a sharing and presentation on the group service in the discussion sessions held once a month
   - (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)
2. **Inputs**
   A. From the Anandam Platform
      a. An online platform to manage and share service opportunities
      b. A list of suggested programs or volunteering organizations.
      c. Training for faculty members on how to facilitate the Anandam program
      d. From the University
      e. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
      f. The act of goodness will not be evaluated, just if it was recorded or not
      g. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
      h. Mentors to guide and review the student's activities on an regular basis
      i. There will be one Anandam coordinator to monitor the program in every University.
3. **Outcomes-**Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO1:Develop a great sense of understanding towards social issues.(Bloom's Level- L2)

CO2: Able to engage in individual and group acts of service and goodness. .(Bloom's Level- L3)

Mapping of Course Outcomes onto Program Learning Outcomes

Course outcom e	Bloom' s Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	L	-	-	-	-	-	-	-	-	H	-	-
CO2	L3	L	-	-	-	-	-	-	-	-	H	-	-

CLINICAL INTERENSHIP & PROJECT

CODE-BPT501

Course Objectives:

- To undertake a research study under the guidance of Guide.
- To undergo a project viva-voice by examining committee.

Course Outcomes:

CO	Statement (After completion of this course, student will be able to)
CO1	Demonstrate the skill to evaluate, diagnose (physical diagnosis) and manage subjects under supervision of a faculty.
CO2	Demonstrate the records and relevant patient's information, treatment and follow up.
CO3	Demonstrate skill and presentation of a patient under his/ her during clinical meetings.

BPT- 502: ANANDAM

Duration: 64 Hours

Course Objectives:

- To instill the joy of giving in young people, turning them into responsible citizens to build up a better society.
- To inculcate the habit of service in students across the University..
- Students to be excepted to engage in individual and group acts of service and goodness.

Action Plan:

1. **Students will be expected to**
   - Do at least one act of individual service each day
   - Record this act of service in a dedicated Register / Personal Diary
   - Share this Register / Personal Diary day in the 30 minute Anandam time a lot dedicated by the University
   - Undertake one group service project for 64 hours every term (outside college hours)
   - Upload the report on the group project on the Anandam platform
   - Participate in a sharing and presentation on the group service in the discussion sessions held once a month
   - (there will be some suggested projects and organizations that students can work with. Students can also suggest their own projects which others can join)
2. **Inputs**
   B. From the Anandam Platform
      a. An online platform to manage and share service opportunities
      b. A list of suggested programs or volunteering organizations.
      c. Training for faculty members on how to facilitate the Anandam program
   C. From the University
      a. Faculty will review every student's Register / Personal Dairy to see if they recorded an act of goodness for that day
      b. The act of goodness will not be evaluated, just if it was recorded or not
      c. The faculty will mentor the group service projects. They will strive to mobilize the required resources and support for the group service projects.
      d. Mentors to guide and review the student's activities on an regular basis
      e. There will be one Anandam coordinator to monitor the program in every University.
3. **Outcomes**
   Each student will finish the year with a portfolio of giving. This will include their Register / Personal Diaries and their reports on group service projects.

CO1:Develop a great sense of understanding towards social issues.(Bloom's Level- L2)

CO2: Able to engage in individual and group acts of service and goodness.(Bloom's Level- L3)

Mapping of Course Outcomes onto Program Learning Outcomes

Course outcom e	Bloom' s Level	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	L2	L	-	-	-	-	-	-	-	-	H	-	-
CO2	L3	L	-	-	-	-	-	-	-	-	H	-	-

11. TEACHING-LEARNING PROCESS/ METHODOLOGY (TLM):

The teaching-learning process should be aimed at systematic exposition of basic concepts so as to acquire knowledge of physiotherapy in a canonical manner. In this the various components of teaching learning process are summarized in the following heads.

1. **Class room Lectures:** The most common method of imparting knowledge is through lectures. There are diverse modes of delivering lectures such as through blackboard, power point presentation and other technology aided means. A judicious mix of these means is a key aspect of teaching-learning process.
2. **Tutorials:** To reinforce learning, to monitor progress, and to provide a regular pattern of study, tutorials are essential requirements. During these tutorials, difficulties faced by the students in understanding the lectures, are dealt with. Tutorials are also aimed at solving problems associated with the concepts discussed during the lectures.
3. **Practical:** To provide scientific visualization and obtaining results of Physiotherapy the practical sessions are conducted in exercise therapy and electrotherapy labs. These sessions provide vital insights into scientific concepts and draw learner's attention towards limitations of exercise therapy.
4. **OPD AND HOSPITAL (FIELD BASED LEARNING) :** Students may enhance their knowledge through rotatory clinical postings, medical camps and visits to special school.
5. **Textbooks learning:** A large number of books are included in the list of references of each course for enrichment and enhancement of knowledge.
6. **E-learning:** Learner may also access electronic resources and educational websites for better understanding and updating the concepts.
7. **Self-study materials:** Self-study material provided by the teachers is an integral part of learning. It helps in bridging the gaps in the classroom teaching. It also provides scope for teachers to give additional information beyond classroom learning.
8. **Assignment/Problem solving:** Assignments at regular intervals involving applications of theory are necessary to assimilate basic concepts of courses. Hence, it is incumbent on the part of a learner to complete open-ended projects assigned by the teacher.
9. **WORKSHOP AND SEMINARS:** Workshop and seminar on recent trends in the field of physiotherapy are organized time to time to update with the current scenario.

Clinical learning opportunities imparted through the use of advanced techniques

Teaching modality	**Learning opportunity examples**
Patients	Teach and assess in selected clinical scenarios
	Practice soft skills
	Practice physical examination
	Receive feedback on performance
Mannequins	Perform acquired techniques
	Practice basic procedural skills
	Apply basic science understanding to clinical problem solving

Simulators	Practice teamwork and leadership
	Perform cardiac and pulmonary care skills
	Apply basic science understanding to clinical problem solving
Task under trainers	As specific to the physiotherapy profession. Joint manipulation , chest physiotherapy etc.

12. ASSESSMENT AND OUTCOME MEASUREMENT METHODS (AOMM):

A range of assessment methods which are appropriate to test the understanding of various concepts of courses will be used. Various learning outcomes will be assessed using time-bound examinations, problem solving, assignments and viva-voce examination. For various courses in this programme, the following assessment methods shall be adopted:

1. Scheduled/unscheduled tests
2. Problem solving sessions aligned with classroom lectures
3. Mid semester examination and semester end comprehensive examination
4. Mini Case Evaluation Exercise
5. Case-based discussion
6. Direct observation of procedures
7. Multi-source feedback
8. Patient satisfaction questionnaire

Examination and Evaluation:

I. The medium of instructions and examination shall be English.

II. Candidates shall be examined according to the scheme of examination and syllabus as approved by the BOS and Academic Council from time to time.

III. To pass each semester examination, a candidate must obtain at least 50% marks in each written paper, practical work semester examination.

IV. Each theory paper for the respective semester examination shall be set and evaluation of the answer books shall be done as per the University rules.

V. The assessment of External Evaluation i.e. End Term Semester Examination will be made out of 70 (Seventy) marks in theory Papers and Internal Evaluation of 30 (Thirty) marks.

Criterion for awarding Grading System:

Criterion for Awarding AGPA and CGPA: The criterion for awarding the Annual Grade Point Average (AGPA) and Cumulative Grade Point Average (CGPA) for BPT programme shall be as follows:

a) The criterion for passing in a subject is that a student should secure minimum 50% marks in individual paper.

b) A student obtaining less than pass marks as specified above, in each subject (sum of internal and End-Term examinations) he will be declared fail in that subject and will have to re-appear in a End-Term examination of the course in subsequent odd / even semester end term examination, subject to maximum permissible period of n+4

semesters to complete the course.

c) The University has adopted Absolute Grading System for converting marks into grades. The formula of 10- point grading system for conversion of marks obtained into Letter Grades and converting Letter Grades to Grade Point is given below:

Table: Marks, Letter Grades and Grade Points

Marks	Letter Grade	Grade Points
91-100	O (Outstanding)	10
81-90	A+(Excellent)	9
71-80	A(Very Good)	8
61-70	B+(Good)	7
56-60	B(Above Average)	6
51-55	C (Average)	5
50	P (Pass)*	4
0-49	F(Fail)	0
-	AB (Absent)	0

***Pass Mark: 50% in individual paper**

d) The criterion for passing in a subject is that a student should secure minimum 50% marks in individual paper.

e) While converting the marks into Letter Grade, the rounding off marks must be considered.

f) A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

g) For noncredit courses "Satisfactory" or Unsatisfactory" shall be indicated instead of the letter grade and this will not be counted for the computation of AGPA/CGPA.

Computation of AGPA and CGPA:

The university has adopted UGC recommended procedure for computation of Annual Grade Point Average (AGPA) and Cumulative Grade Point Average (CGPA)

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

$$\textbf{AGPA}\ (Ai) = \Sigma\ (Ci \times Gi) / \Sigma Ci$$

where Ci is the number of credits of the i^{th} course and Gi is the grade point scored by the student in the i^{th} course. The university shall issue Annual Grade Card to the student.

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

$$\textbf{CGPA} = \Sigma\ (Ci \times Ai) / \Sigma\ Ci$$

Where Ai is the AGPA of the ith semester and Ci is the total number of credits in that semester.

c) The AGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts

Illustration of Computation of AGPA, CGPA, and Format for Transcripts:

a) Computation of AGPA and CGPA

Illustration of Computation of AGPA, CGPA, and Format for Transcripts:

Computation of AGPA and CGPA

Illustration for AGPA

Course	Credit	Grade Letter	Grade Point	Credit Point (Credit x Grade)
BPT 101	10	O	10	100
BPT 102	10	C	5	50
BPT 103	4	A	8	32
BPT 104	10	B+	7	70
BPT 105	4	B	6	24
BPT 106	4	C	5	20
BPT 107	2	B	6	12
ANANDAM I	4	A	8	32
MOOC	2	B	6	12
Total	52			352

Thus, AGPA= 352/50 = 7.04

Illustration for CGPA

BPT-1st Year	BPT-2nd Year	BPT-3rd Year	BPT-4th Year	Internship
Credit: 48	Credit: 46	Credit: 50	Credit: 48	Credit: 24
AGPA:7.04	AGPA: 7.65	AGPA: 6.76	AGPA: 7.04	AGPA: 14.66

Thus, CGPA = $\frac{50x7.04+46x7.65+52x6.76+50x7.04+24x14.66}{222}$ = 7.92

13. TEACHERS TRAINING (TT):

Learning Outcomes Based Curriculum Framework (LOCF) Quality initiative of UGC based on Outcome Based Education (OBE) is being implemented by the University Grants Commission to enhance the Quality of Higher Education and that of Higher Education Learners and Teachers. Therefore, university arrange following activities for teachers training:

1. Workshops for LOCF implementation.
2. Seminar for LOCF implementation.
3. FDP on LOCF.
4. Outcome based higher education and understanding the learning objectives, learning outcomes, new approaches in the area of outcome measurement, preparing future ready teachers and students.
5. Developing a battery of quality speakers/educators to become resource persons to play role for Training of Trainers (TOT).

14. KEY WORDS:

AHP, LOCF, CBCS, Course Learning Outcomes, Employability, Graduate Attributes Communication Skills and Critical Thinking

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