PRESIDENCY UNIVERSITY

Presidency University Act, 2013 of the Karnataka Act No. 41 of 2013 | Established under Section 2(f) of UGC Act, 1956
Approved by AICTE, New Delhi | Approved By BCI
Bengaluru

Presidency School of Allied Health Sciences

Bachelor of Physiotherapy

(BPT)

Program Regulations and Curriculum

Based on Choice Based Credit System (CBCS) and Outcome Based Education (OBE)

Program: BACHELOR OF PHYSIOTHERAPY

BPT

2025-2030

Table of Contents

PART A – PROGRAM REGULATIONS

1. Vision and Mission of the University and the School / Department

1.1 Vision of the University

To be a Value-driven Global University, excelling beyond peers and creating professionals of integrity and character, having concern and care for society.

1.2 Mission of the University

- Commit to be an innovative and inclusive institution by seeking excellence in teaching, research and knowledge-transfer.
- Pursue Research and Development and its dissemination to the community, at large.
- Create, sustain and apply learning in an interdisciplinary environment with consideration for ethical, ecological and economic aspects of nation building.
- Provide knowledge-based technological support and services to the industry in its growth and development.
- To impart globally-applicable skill-sets to students through flexible course offerings and support industry's requirement and inculcate a spirit of new-venture creation.

1.3 Vision of Presidency School of Allied Health Sciences

. To be a value-based, practice-oriented school committed to producing competent, ethical, and globally relevant physiotherapy professionals who lead advancements in health, rehabilitation, and community well-being

1.4 Mission of Presidency School of Allied Health Sciences

- To deliver innovative and inclusive physiotherapy education that blends academic excellence with clinical expertise, fostering ethical and socially responsible professionals.
- Pursue interdisciplinary research and evidence-based practice in rehabilitation sciences and ensure its dissemination for the benefit of individuals and communities.
- Create, sustain, and apply learning in physiotherapy within a collaborative and professional environment, with strong consideration for ethical, ecological, and societal well-being.
- Provide therapeutic, technological, and knowledge-based services aligned with healthcare industry needs, supporting system development and quality care.
- To impart globally relevant physiotherapy competencies through flexible learning pathways, support the evolution of healthcare delivery, and nurture an entrepreneurial spirit in emerging professionals.

1.5 Vision of Department of Physiotherapy

To be a nationally and globally recognized center of excellence in physiotherapy education, research, and clinical practice, committed to developing competent, ethical, and compassionate professionals who contribute significantly to health promotion, disease prevention, rehabilitation, and evidence-based patient care across all levels of healthcare.

1.6 Mission of Department of Physiotherapy

- To deliver a competency-based education that integrates scientific knowledge with clinical expertise, fostering critical thinking, lifelong learning, and professional excellence.
- To prepare physiotherapists as first-contact autonomous practitioners capable of functioning as integral members of interdisciplinary healthcare teams.
- To promote leadership, ethical practice, social responsibility, and cultural sensitivity among graduates for holistic patient care.
- To encourage innovation and research that advances the science and practice of physiotherapy and addresses national and global health challenges.

2. Preamble to the Program Regulations and Curriculum

This is the subset of Academic Regulations, and it is to be followed as a requirement for the award of Bachelor of Physiotherapy (BPT) degree.

The curriculum for the Physiotherapy program is designed in alignment with the Choice Based Credit System (CBCS), aims to develop competent ethical and skilled professionals through a competency-based education model focusing on clinical excellence evidence-based practice and interdisciplinary learning preparing graduates to contribute to rehabilitation health promotion and patient-centred care across diverse healthcare settings

In exercise of the powers conferred by and in discharge of duties assigned under the relevant provision(s) of the Act, Statutes and Academic Regulations, 2025 of the University, the Academic Council hereby makes the following Regulations.

3. Short Title and Applicability

a. These Regulations shall be called the Bachelor of Physiotherapy (BPT) Degree Program Regulations and Curriculum 2025-2030.
b. These Regulations are subject to, and pursuant to the Academic Regulations.
c. These Regulations shall be applicable to the ongoing Bachelor of Physiotherapy (BPT) Degree Programs of the 2025-2030 batch, and to all other Bachelor of Physiotherapy (BPT) Degree Programs which may be introduced in future.
d. These Regulations shall supersede all the earlier Bachelor of Physiotherapy (BPT) Degree Program Regulations and Curriculum, along with all the amendments thereto.

e. These Regulations shall come into force from the Academic Year 2025-2026.

4. Definitions

In these Regulations, unless the context otherwise requires:

a. *"Academic Calendar" means the schedule of academic and miscellaneous events as approved by the Vice Chancellor;*

b. *"Academic Council" means the Academic Council of the University;*

c. *"Academic Regulations" means the Academic Regulations, of the University;*

d. *"Academic Term" means an Year;*

e. *"Act" means the Presidency University Act, 2013;*

f. *"Basket" means a group of courses bundled together based on the nature/type of the course;*

g. *"BOE" means the Board of Examinations of the University;*

h. *"BOG" means the Board of Governors of the University;*

i. *"BOM" means the Board of Management of the University;*

j. *"BOS" means the Board of Studies of a particular Department/Program of Study of the University;*

k. *"CGPA" means Cumulative Grade Point Average as defined in the Academic Regulations;*

l. *"Clause" means the duly numbered Clause, with Sub-Clauses included, if any, of these Regulations;*

m. *"COE" means the Controller of Examinations of the University;*

n. *"Course In Charge" means the teacher/faculty member responsible for developing and organising the delivery of the Course;*

o. *"Course Instructor" means the teacher/faculty member responsible for teaching and evaluation of a Course;*

p. *"Course" means a specific subject usually identified by its Course-code and Course-title, with specified credits and syllabus/course-description, a set of references, taught by some teacher(s)/course-instructor(s) to a specific class (group of students) during a specific Academic Term;*

q. *"Curriculum Structure" means the Curriculum governing a specific Degree Program offered by the University, and, includes the set of Baskets of Courses along with minimum credit requirements to be earned under each basket for a degree/degree with specialization/minor/honours in addition to the relevant details of the Courses and Course catalogues (which describes the Course content and other important information about the Course). Any specific*

requirements for a particular program may be brought into the Curriculum structure of the specific program and relevant approvals should be taken from the BOS and Academic Council at that time.

r. *"DAC" means the Departmental Academic Committee of a concerned Department/Program of Study of the University;*

s. *"Dean" means the Dean / Director of the concerned School;*

t. *"Degree Program" includes all Degree Programs;*

u. *"Department" means the Department offering the degree Program(s) / Course(s) / School offering the concerned Degree Programs / other Administrative Offices;*

v. *"HOD" means the Head of the concerned Department;*

w. *"L-T-P-C" means Lecture-Tutorial-Practical-Credit – refers to the teaching – learning periods and the credit associated;*

x. *"MOOC" means Massive Open Online Courses;*

y. *"MOU" means the Memorandum of Understanding;*

z. *NCAHP: National Commission for Allied Health Professionals*

aa. *"NPTEL" means National Program on Technology Enhanced Learning;*

bb. *"Parent Department" means the department that offers the Degree Program that a student undergoes;*

cc. *"Program Head" means the administrative head of a particular Degree Program/s;*

dd. *"Program Regulations" means the Bachelor of Science Degree Program Regulations and Curriculum, 2025-2030;*

ee. *"Program" means the Bachelor of Physiotherapy (BPT) Degree Program;*

ff. *"Registrar" means the Registrar of the University;*

gg. *"School" means a constituent institution of the University established for monitoring, supervising and guiding, teaching, training and research activities in broadly related fields of studies;*

hh. *"Section" means the duly numbered Section, with Clauses included in that Section, of these Regulations;*

ii. *"Statutes" means the Statutes of Presidency University;*

jj. *"Sub-Clause" means the duly numbered Sub-Clause of these Program Regulations;*

kk. *"SWAYAM" means Study Webs of Active Learning for Young Aspiring Minds.*

ll. *"UGC" means University Grant Commission;*

mm. "University" means Presidency University, Bengaluru; and

nn. "Vice Chancellor" means the Vice Chancellor of the University.

5. Program Description

5.1 The Bachelor of Physiotherapy **(BPT)** Degree Program Regulations and Curriculum 2025-2030 are subject to, and, pursuant to the Academic Regulations.

5.2 These Program Regulations shall be applicable to other similar programs, which may be introduced in future.

5.3 These Regulations may evolve and get amended or modified or changed through appropriate approvals from the Academic Council, from time to time, and shall be binding on all concerned.

6. Minimum and Maximum Duration

6.1 Bachelor of Physiotherapy (BPT)

The Bachelor of Physiotherapy (BPT) degree Program is a Five-Year, Full-Time, Annual Program. The minimum duration of the program is five (05) years, consisting of four (4) years of academic training and 1-year full time rotatory internship.

The academic structure includes:

- Theory Classes: 3780 Hours
- Practical Classes: 2460 Hours
- Internship: Minimum 2016 Hours
- Total Hours: 8256 Hours

6.2 Maximum Period for Completion: The maximum permissible period to complete the BPT program is **ten (10) years**. If a candidate fails to complete the program within ten years, he/she will be discharged from the said course, his/her name will be taken off the rolls of the University and he/ she will not be permitted to attend classes or appear for any examination conducted by the University thereafter."

6.3 No extension of duration post maximum 10 years in any case.

6.4 The time taken by the student to improve Grades/CGPA, and in case of temporary withdrawal/re-joining (Refer to Clause 16.1 of Academic Regulations), shall be counted in the permissible maximum duration for completion of a Program.

6.5 The enrolment of the student who fails to complete the mandatory requirements for the award of the concerned Degree (refer Section 19.0 of Academic Regulations) in the prescribed maximum duration (Clauses 18.1 and 18.2 of Academic Regulations), shall stand terminated and no Degree shall be awarded.

7. Program Educational Objectives (PEO)

After five years of successful completion of the program, the graduates shall be able to:

PEO No.	Program Educational Objectives (PEO)
PEO1	**Professional Competence:** Demonstrate comprehensive knowledge and skills to perform patient assessment, planning, prescription, implementation, and evaluation of physiotherapy treatment while functioning independently and as part of a multidisciplinary team.
PEO2	**Research and Innovation:** Participate in research and healthcare management activities to enhance evidence-based physiotherapy practice and contribute to innovation in rehabilitation science.
PEO3	**Ethical and Responsible Practice:** Uphold professionalism, ethics, patient confidentiality, and safety standards while promoting health, preventing diseases, and contributing to community-based rehabilitation.
PEO4	**Teamwork and Leadership:** Work collaboratively with multidisciplinary healthcare teams while effectively communicating with patients, caregivers, and society, and demonstrate leadership through responsible documentation and reporting.
PEO5	**Lifelong Learning and Career Advancement:** Engage in teaching, learning, and continuous professional development to remain competent and responsive to evolving healthcare technologies and physiotherapy practices.

8. Program Outcomes (PO) and Program Specific Outcomes (PSO)

8.1 Program Outcomes (PO)

On successful completion of the Program, the students shall be able to:

PO No.	Program Outcome
PO1	**Knowledge Base:** Demonstrate strong knowledge of anatomy, physiology, pathology, biomechanics, and kinesiology and apply this knowledge effectively in physiotherapy assessment and treatment across clinical settings.
PO2	**Clinical Skills:** Assess, diagnose, plan, and implement physiotherapy interventions for all age groups and provide safe and effective treatments using appropriate physiotherapy techniques and approaches.
PO3	**Patient-Centered Care:** Provide ethical, compassionate, and culturally sensitive care respecting patient rights and involve patients and caregivers in care planning and decision-making for better outcomes.

PO4	**Critical Thinking and Problem Solving:** Apply critical thinking and problem-solving skills in analysing patient conditions and use evidence-based reasoning to make sound clinical decisions for effective care.
PO5	**Communication Skills:** Communicate clearly and respectfully with patients, families, and healthcare team and ensure accurate documentation of clinical assessments, treatments, and patient progress.
PO6	**Professionalism and Ethics:** Demonstrate professionalism, accountability, and ethical behavior in all situations and commit to continuous learning and professional development throughout their career.
PO7	**Research and Evidence-Based Practice:** Apply research principles and evidence-based methods to enhance patient care and engage in ongoing learning to integrate the latest research into clinical practice.
PO8	**Teamwork and Leadership:** Collaborate effectively within multidisciplinary healthcare teams for quality care and demonstrate leadership skills in managing patient care and guiding team members.
PO9	**Community Health Awareness:** Promote preventive healthcare and actively participate in community health programs and contribute to health education and wellness initiatives within the community.
PO10	**Scientific Interpretation:** Interpret diagnostic tests and clinical data to guide physiotherapy interventions and use scientific evidence to support clinical decision-making and treatment planning
PO11	**Information and Digital Literacy:** Use digital tools and health information systems for effective clinical practice and apply digital literacy skills to access and manage healthcare data efficiently.

8.2 Program Specific Outcomes (PSOs):

On successful completion of the Program, the students shall be able to:

PSO No.	Program Specific Outcome
PSO1	**Patient Assessment and Diagnosis:** Perform comprehensive physical neurological musculoskeletal and cardiorespiratory assessments to identify impairments and develop physiotherapy diagnoses and treatment plans.
PSO2	Therapeutic Intervention and Rehabilitation: Apply evidence-based physiotherapy techniques including electrotherapy exercise therapy manual therapy and functional training to improve recovery mobility and functional independence.

PSO3	**Clinical Reasoning and Problem Solving**: Demonstrate clinical reasoning, critical thinking and reflective practice to manage acute and chronic health conditions and adapt treatment plans as needed.
PSO4	**Multidisciplinary Collaboration and Communication:** Collaborate and communicate effectively with patients' families and healthcare teams to deliver integrated and patient centered physiotherapy care.

9. Admission Criteria (as per the concerned Statutory Body)

The University admissions shall be open to all persons irrespective of caste, class, creed, gender, or nationality. All admissions shall be made on the basis of merit in the qualifying examinations and an entrance examination conducted by the University. The admission criteria for the Bachelor of physiotherapy program are listed in the following sub-clauses:

9.1 An applicant must have passed the Higher Secondary (10+2) or equivalent examination by recognised any Indian board or a duly constituted Board or National Open School with pass marks with minimum 50% in aggregate of physics, chemistry and biology (botany and zoology).

9.2 Admission to Bachelor of Physiotherapy program shall be made on the basis of eligibility (minimum 50% with physics, chemistry and biology) and merit list based on 10+2 passing marks.

9.3 Candidates who have studied abroad and have passed the equivalent qualification as determined by the Association of Indian Universities and Equivalence Committee of the NCAHP, and must fulfil the criteria as per points 1 and 2 above.

9.4 He/she should have attained the age of 17 years as on - current year, as on the date of admission.

9.5 Reservation for the SC / ST and other backward classes shall be made in accordance with the directives issued by the Government of Karnataka from time to time.

9.6 Re-admission after break of study - Candidates having a break of study of five years and above from the date of admission and more than two spells of break will not be considered for readmission. The five years period of break of study shall be calculated from the date of first admission of the candidate to the course for the subsequent spells of break of study. Candidates having a break of study shall be considered for re admission provided that they are not subjected to any disciplinary action and no charges are pending or contemplated against them. All re admissions of candidates are subject to the approval of a duly empowered committee of university constituted by the Vice Chancellor. The candidates having a break of study of up to five years shall apply for readmission to the appropriate authority of the University. The candidates shall be granted exemption in the subjects they have

already passed.

9.7 Candidates must fulfil the medical standards required for admission as prescribed by the University.

9.8 If, at any time after admission, it is found that a candidate had not in fact fulfilled all the requirements stipulated in the offer of admission, in any form whatsoever, including possible misinformation and any other falsification, the Registrar shall report the matter to the Board of Management (BOM), recommending revoking the admission of the candidate.

9.9 The decision of the BOM regarding the admissions is final and binding.

10. Transfer Students requirements

10.1 Transfer of student(s) from another recognized University to the 2nd year of the BPT Program of the University

- Migration/transfers of candidates up to second year is allowed between government college to government college. For private colleges Migration/transfers shall be done as per the norms of the concerned University.

11. Specific Regulations regarding Assessment and Evaluation (including the Assessment Details of NTCC Courses, Weightages of Continuous Assessment and End Term Examination for various Course Categories)

11.1 The academic performance evaluation of a student in a Course shall be according to the University Letter Grading System based on the class performance distribution in the Course.

11.2 Academic performance evaluation of every registered student in every Course registered by the student is carried out through various components of Assessments spread across the year. The nature of components of Continuous Assessments and the weightage given to each component of Continuous Assessments (refer Clause 11.5 of Academic regulations) shall be clearly defined in the Course Plan for every Course, and approved by the DAC.

11.3 Format of the End-Term examination shall be specified in the Course Plan.

11.4 Grading is the process of rewarding the students for their overall performance in each Course. The University follows the system of Relative Grading with statistical approach to classify the students based on the relative performance of the students registered in the concerned Course except in the following cases:

- Non-Teaching Credit Courses (NTCC)
- Courses with a class strength less than 30

Absolute grading method may be adopted, where necessary with prior approval of the concerned DAC.

Grading shall be done at the end of the Academic Term by considering the aggregate performance of the student in all components of Assessments prescribed for the Course. Letter Grades shall be awarded to a student based on her/his overall performance relative to the class performance distribution in the concerned Course. These Letter Grades not only indicate a qualitative assessment of the student's performance but also carry a quantitative (numeric) equivalent called the Grade Point.

11.5 Assessment Components and Weightage

Table 1: Assessment Components and Weightage for different category of Courses

Nature of Course and Structure	Evaluation Component	Weightage	Minimum Performance Criteria
Lecture-based Course *L component in the L-T-P Structure is predominant (more than 1) (Examples: 3-0-0; 3-0-2; 2-1-0; 2-0-2, 2-0-4 etc.)*	**Continuous Internal Evaluation (CIE)** (a) 60% of CIE from two notified midterm exams (b) 40% of CIE from presentations, assignments/Project work/Attendance etc.	20% (CIE Total)	50% (CIE to be eligible for ESE)
	End Semester Examination (ESE) University-conducted Theory exam with specified pattern, type, and weightage as per curriculum	80%	50% (ESE)
Lab/Practice-based Course *P component in the L-T-P Structure is predominant (Examples: 0-0-4; 1-0-4; 1-0-2; etc.)*	**Continuous Internal Evaluation (CIE)** Laboratory work including records, performance, attendance, project reports, etc. along with two formative tests and internal assessments (seminars, case-based assessments)	20% (CIE Total)	50% (CIE to be eligible for ESE)
	End Semester Examination (ESE)	80%	50% (ESE)

	Practical exam: Spotters, equipment demonstration, case-based discussion, etc.		
Skill-based Courses *Industry Internship, Capstone Project, Dissertation, Summer/Short Internship, Field Projects, Portfolio, etc., with non-L-T-P pedagogy*	**Guidelines for the assessment components and recommended weightages** will be specified in the concerned Program Regulations and Course Plans	As specified	As per Program Regulations

The exact weightages of Evaluation Components shall be clearly specified in the respective Course Plan.

Normally, for Practice/Skill based Courses, without a defined credit structure (L–T–P) [NTCC], but with assigned Credits (as defined in Clause 5.2 of the Academic Regulations), the method of evaluation shall be based only on Continuous Assessments. The various components of Continuous Assessments, the distribution of weightage among such components, and the method of evaluation/assessment, shall be as decided and indicated in the Course Plan/PRC. The same shall be approved by the respective DAC.

11.6 Minimum Performance Criteria:

11.6.1 Theory only Course and Lab/Practice Embedded Theory Course student shall satisfy the following minimum performance criteria to be eligible to earn the credits towards the concerned Course:

a. The student shall be declared to have passed the examination if he/she obtained not less than 50% of the marks in theory and practical papers separately.
b. Students can be permitted to next year only if the number of failed subjects is two or less than two and students must clear all the subjects before appearing for the final examination of next year.

11.6.2 Lab/Practice only Course and Project Based Courses

The student must obtain a minimum of 50% of the AGGREGATE of the marks/weightage of all assessment components in the concerned Course.

11.6.3 A student who fails to meet the minimum performance criteria listed above in a Course shall be declared as "Fail" and given "F" Grade in the concerned Course. For theory Courses, the student shall have to re-

appear in the "Make-Up Examinations" as scheduled by the University in any subsequent semester, or, re-appear in the End Term Examinations of the same Course when it is scheduled at the end of the following Semester or Summer Term, if offered. The marks obtained in the Continuous Assessments (other than the End Term Examination) shall be carried forward and be included in computing the final grade, if the student secures the minimum requirements (as per Sub-Clause 11.6 and 11.6.2 of Academic regulations) in the "Make-Up Examinations" of the concerned Course. Further, the student has an option to re-register for the Course and clear the same in the summer term/ subsequent semester if he/she wishes to do so, provided the Course is offered.

12. Additional clarifications - Rules and Guidelines for Transfer of Credits from MOOC, etc. – Note: These are covered in Academic Regulations

The University allows students to acquire credits from other Indian or foreign institutions and/or Massive Open Online Course (MOOC) platforms, subject to prior approval. These credits may be transferred and counted toward fulfilling the minimum credit requirements for the award of a degree. The process of transfer of credits is governed by the following rules and guidelines:

12.1 The transfer of credits shall be examined and recommended by the Equivalence Committee (Refer ANNEXURE B of Academic regulations) and approved by the Dean - Academics.

12.2 Students may earn credits from other Indian or foreign Universities/Institutions with which the University has an MOU, and that MOU shall have specific provisions, rules and guidelines for transfer of credits. These transferred credits shall be counted towards the minimum credit requirements for the award of the degree.

12.3 Students may earn credits by registering for Online Courses offered by *Study Web of Active Learning by Young and Aspiring Minds* (SWAYAM) and *National Program on Technology Enhanced Learning* (NPTEL), or other such recognized Bodies/ Universities/Institutions as approved by the concerned BOS and Academic Council from time to time. The concerned School/Parent Department shall publish/include the approved list of Courses and the rules and guidelines governing such transfer of credits of the concerned Program from time to time. The Rules and Guidelines for the transfer of credits specifically from the Online Courses conducted by SWAYAM/ NPTEL/ other approved MOOCs are as stated in the following Sub-Clauses:

12.3.1 A student may complete SWAYAM/NPTEL/other approved MOOCs as mentioned in Clause12.3(as per Academic regulations) and transfer equivalent credits to partially or fully complete the mandatory credit requirements of Discipline Elective Courses and/or the mandatory credit requirements of Open Elective Courses as prescribed in the concerned Curriculum Structure. However, it is the sole responsibility of the student to complete the mandatory credit requirements of the Discipline Elective Courses and the Open Elective Courses as prescribed by the Curriculum Structure of the concerned Program.

12.3.2 SWAYAM/NPTEL/ other approved MOOCs as mentioned in Clause 12.3 (as per Academic regulations) shall be approved by the concerned Board of Studies and placed (as Annexures) in the concerned PRC.

12.3.3 Parent Departments may release a list of SWAYAM/NPTEL/other approved MOOCs for Pre-Registration as per schedule in the Academic Calendar or through University Notification to this effect.

12.3.4 Students may Pre-Register for the SWAYAM/NPTEL/other approved MOOCs in the respective Departments and register for the same Courses as per the schedule announced by respective Online Course Offering body/institute/ university.

12.3.5 A student shall request for transfer of credits only from such approved Courses as mentioned in Sub-Clause 12.3.1 above.

12.3.6 SWAYAM/NPTEL/other approved MOOCs Courses are considered for transfer of credits only if the concerned student has successfully completed the SWAYAM/NPTEL/other approved MOOCs and obtained a certificate of successful/satisfactory completion.

12.3.7 A student who has successfully completed the approved SWAYAM/NPTEL/ other approved MOOCs and wants to avail the provision of transfer of equivalent credits, must submit the original Certificate of Completion, or such similar authorized documents to the HOD concerned, with a written request for the transfer of the equivalent credits. On verification of the Certificates/Documents and approval by the HOD concerned, the Course(s) and equivalent Credits shall be forwarded to the COE for processing of results of the concerned Academic Term.

12.3.8 The credit equivalence of the SWAYAM/NPTEL/other approved MOOCs are based on Course durations and/or as recommended by the Course offering body/institute/university. The Credit Equivalence mapped to SWAYAM/ NPTEL approved Courses based on Course durations for

transfer of credits is summarised in Table shown below. The Grade will be calculated from the marks received by the Absolute Grading Table 8.11. in the Academic regulations.

Table 2: Durations and Credit Equivalence for Transfer of Credits from SWAYAM-NPTEL/ other approved MOOC Courses		
Sl. No.	**Course Duration**	**Credit Equivalence**
1	4 Weeks	1 Credit
2	8 Weeks	2 Credits
3	12 Weeks	3 Credits

12.3.9 The University shall not reimburse any fees/expense; a student may incur for the SWAYAM/NPTEL/other approved MOOCs.

13. Structure / Component with Credit Requirements Course Baskets and Minimum Basket wise Credit Requirements

Bachelor of Physiotherapy (BPT) Program Structure (2025-2030) totalling 402 credits. Table below summarizes the type of baskets, number of courses under each basket and the associated credits that are mandatorily required for the completion of the Degree.

Table 3: Bachelor of Physiotherapy: Summary of Minimum Credit Contribution from various Baskets		
Sl. No.	**Baskets/Category**	**Credit Contribution**
1	Core Courses	230
2	Ability Enhancement	4
3	Multi-Disciplinary Courses (MDC)	30
4	Skill Enhancement Courses (SEC)	21
5	Research Project (PWR)	49
6	Internship	68
	Total Credits	**402**

14. Minimum Total Credit Requirements of Award of Degree

The minimum total credit requirements for the Award of Degree shall be as per the guidelines of NCAHP.

Other Specific Requirements for Award of Degree, if any, as prescribed by the Statutory Bodies.

15.1 The award of the Degree shall be recommended by the Board of Examinations and approved by the Academic Council and Board of Management of the University**.**

15.2 A student shall be declared to be eligible for the award of the concerned Degree if she/he:

a. Fulfilled the Minimum Credit Requirements and the Minimum Credits requirements under various baskets;

b. Secure a minimum CGPA of 5.0 in the concerned Program at the end of the Academic Term in which she/he completes all the requirements for the award of the Degree as specified in Sub-Clause 19.2.1 of Academic Regulations**;**

c. No dues to the University, Departments, Hostels, Library, and any other such Centres/ Departments of the University; and

d. No disciplinary action is pending against her/him.

15. Curriculum Structure – Basket Wise Course List:

List here all the courses Basket/Category wise as per the Credit Distribution shown in the Table 3.

Table 3.1 Core Courses (CC)

S. No	Course code	Course Name	L	T	P	C
1	BPT2101	Human Anatomy	5	0	3	16
2	BPT2102	Human Physiology	5	0	3	16
3	BPT2103	Biochemistry	3	0	0	6
4	BPT2104	Fundamentals of Exercise Modalities	3	0	2	10
5	BPT2105	Fundamentals of Electro Physical Agents	3	0	2	10
6	BPT2201	Pathology and Microbiology	6	2	0	8
7	BPT2202	Pharmacology	4	2	0	6
8	BPT2205	Exercise Therapy	6	4	8	14
9	BPT2206	Electrotherapy	6	4	8	14

10	BPT2207	Biomechanics and Kinesiology	6	2	4	10
11	BPT3301	General Medicine and Paediatrics	4	2	2	7
12	BPT3302	General Surgery	4	2	2	7
13	BPT3303	Orthopaedics	4	2	2	7
14	BPT3304	Physiotherapy in Adult and Paediatric Medical and Surgical Conditions	8	4	8	16
15	BPT3305	Physiotherapy in Adult and Paediatric Orthopaedic Conditions	8	4	8	16
16	BPT3306	Physical and Functional Diagnosis and Prescription	6	2	4	10
17	BPT3401	Neurology, Psychiatry and Neurosurgery	4	2	2	7
18	BPT3402	Physiotherapy in Adult and Paediatric Neurological and Neurosurgical Conditions	8	2	4	12
19	BPT3403	Cardiothoracic Diseases and Surgeries	4	2	2	7
20	BPT3404	Physiotherapy in Adult and Paediatric Cardiothoracic Conditions and Surgical Conditions	8	2	4	12
21	BPT3405	Sports Physiotherapy and Exercise Prescription	8	2	4	12
22	BPT3407	Community Physiotherapy and Rehabilitation	4	2	2	7
Total No. of Credits						**230**

Table 3.2 Ability Enhancement Courses (AEC)

S. No	Course code	Course Name	L	T	P	C
1	ENG1103	English	2	0	0	4
Total No. of Credits						**4**

Table 3.3 Multi-Disciplinary Courses (MDC)

S. No	Course code	Course Name	L	T	P	C
1	BPT1101	Psychology and Sociology	3	0	0	8
2	BPT2106	Fundamentals of Healthcare Delivery System in India	3	0	0	8
3	BPT2203	Public Health and Health Promotion	6	2	0	8

4	BPT3406	Patient Ethics, Medico Legal Aspects, Management and Administration	4	2	0	6
Total No. of Credits						**30**

Table 3.4 Skill Enhancement Courses (SEC)						
S. No	**Course code**	**Course Name**	**L**	**T**	**P**	**C**
1	CSE1103	Information Technology	2	0	0	4
2	BPT2204	Emergency Care and Life Support Skills	4	2	2	7
3	DSA2201	Yoga and Systems of Medicine	6	2	4	10
Total No. of Credits						**21**

Table 3.5 Research Project (PWR)						
S. No	**Course code**	**Course Name**	**L**	**T**	**P**	**C**
1	BPT2107	Clinical Orientation	0	0	10	5
2	BPT2208	Clinical Observation	0	0	14	7
3	SOC2301	Research Methodology, Biostatistics and Evidence Based Practice	6	2	0	8
4	BPT3307	Clinical Education	0	0	20	10
5	BPT3408	Project Work Orientation	4	2	0	6
6	BPT3409	Clinical Rotation	0	0	26	13
Total No. of Credits						**49**

Table 3.6 Internship						
S. No	**Course code**	**Course Name**	**L**	**T**	**P**	**C**
1	BPT7501	Internship	0	0	136	68
Total No. of Credits						**68**

16. Practical / Skill based Courses – Internships / Thesis / Dissertation / Capstone Project Work / Portfolio / Mini project

Practical / Skill based Courses like internship, project work, capstone project, research project / dissertation, and such similar courses, where the pedagogy does not lend itself to a typical L-T-P-C Structure as defined in Clause 5.1 of the Academic Regulations, are simply assigned the number of Credits based on the quantum of work / effort required to full fill the learning objectives and outcomes prescribed for the concerned Courses. Such courses are referred to as Non-Teaching Credit Courses (NTCC). These Courses are designed to provide students with hands-on experience and skills essential for their professional development. These courses aim to equip students with abilities in problem identification, root cause analysis, problem-solving, innovation, and design thinking through industry exposure and project-based learning. The expected outcomes are first level proficiency in problem solving and design thinking skills to better equip graduates for their professional careers. The method of evaluation and grading for the Practical / Skill based Courses shall be prescribed and approved by the concerned Departmental Academic Committee (refer Annexure A of the Academic Regulations). The same shall be prescribed in the Course Handout.

17.1 Internship

The Bachelor of Physiotherapy program includes a **12-month compulsory rotatory internship** (totalling **2016 hours**) designed to provide hands-on clinical experience in various specialties of physiotherapy. The internship aims to enhance clinical skills, professional ethics, and patient management abilities through supervised training in hospitals, rehabilitation centres, and community health settings.

17.1.1 All students of Bachelor of Physiotherapy must undergo a compulsory rotatory internship for a period of one year approved by the college after passing all examinations in all subjects.

17.1.2 Teaching institutes shall be responsible for ensuring the internship of the students in the hospital of the institute or affiliated /approved hospitals. During the period of internships, stipend amount must be paid to the students by the institute as prescribed by the State Council.

17.2 Minor Project Work

A student may opt to do a Minor Project Work for a period of 4-6 weeks in a hospital or academic / research institution or the University Department(s) during the 2nd, 3rd and 4th year as applicable, subject to the following conditions:

17.2.1. The Minor Project Work shall be approved by the concerned HOD and be carried out under the guidance of a faculty member.

17.2.2. The student may do the Minor project work in an Industry / Company or academic / research institution of her / his choice subject to the above-mentioned condition . Provided further, that the Industry / Company or academic / research institution offering such project work confirms to the University that the project work will be conducted in accordance with the Program Regulations and requirements of the University

17.3 *Research Project / Dissertation*

The candidate shall submit a project under the supervision of a Physiotherapy faculty during internship The project may be a case study or of recent technique or literature reviews etc. to make the student have a research mind and to facilitate higher studies.

17.3.1. The Research Project / Dissertation shall be approved by the concerned HOD and be carried out under the guidance of a faculty member.

17.3.2. The Candidate shall maintain the record of work which is to be verified and certified by the Physiotherapy faculty under whom he/she works. Based on the record of work and project, The Internship completion shall be reported in the form of grades by the HOD/ principle while issuing "Certificate of Satisfactory Completion" of internship following which University shall award the BPT degree.

17. List of MOOC (NPTEL) Courses

NPTEL - Discipline Elective Courses for Bachelor of Physiotherapy.

Sl. No.	Course ID	Course Name	Duration
1	noc25-hs77	English Studies, Cultural Studies	12 Weeks
2	noc25-ce09	Environmental Science	12 Weeks
3	noc25-ge58	Neuroscience of Human Movements	12 Weeks
4	noc25-ge36	Medical Law	12 Weeks
5	noc25-ge27	Qualitative Research Methods and Research Writing	12 Weeks

18. Recommended Year Wise Course Structure / Flow including the Program / Discipline Elective Paths / Options.

Year I								
Sl. No.	**Course Code**	**Course Name**	**Hours**		**Credit**			**Basket**
			T	**P**	**T**	**P**	**TOTAL**	
1	BPT2101	Human Anatomy	180	120	12	4	16	CC
2	BPT2102	Human Physiology	180	120	12	4	16	CC
3	BPT2103	Biochemistry	90	0	6	0	6	CC
4	BPT2104	Fundamentals of Exercise Modalities	120	60	8	2	10	CC
5	BPT2105	Fundamentals of Electro Physical Agents	120	60	8	2	10	CC
6	BPT1101	Psychology and Sociology	120	0	8	0	8	MDC
7	BPT2106	Fundamentals of Healthcare Delivery System in India	120	0	8	0	8	MDC
8	ENG1103	English	60	0	4	0	4	AEC
9	CSE1103	Information Technology	60	0	4	0	4	SEC
10	BPT2107	Clinical Orientation	0	150	0	5	5	PWR
Total			**1050**	**510**	**70**	**17**	**87**	
CC- Core Courses, AEC- Ability Enhancement Courses, MDC- Multidisciplinary Courses, SEC- Skill Enhancement Courses, PWR- Research Project								

Year II								
Sl. No.	**Course Code**	**Course Name**	**Hours**		**Credit**			**Basket**
			T	**P**	**T**	**P**	**TOTAL**	
1	BPT2201	Pathology and Microbiology	120	0	8	0	8	CC
2	BPT2202	Pharmacology	90	0	6	0	6	CC
3	BPT2203	Public Health and Health Promotion	120	0	8	0	8	MDC
4	BPT2204	Emergency Care and Life Support Skills	90	30	6	1	7	SEC
5	BPT2205	Exercise Therapy	150	120	10	4	14	CC
6	BPT2206	Electrotherapy	150	120	10	4	14	CC
7	BPT2207	Biomechanics and Kinesiology	120	60	8	2	10	CC
8	DSA2201	Yoga and Systems of Medicine	120	60	8	2	10	SEC

9	BPT2208	Clinical Observation	0	210	0	7	7	PWR
Total			**960**	**600**	**64**	**20**	**84**	
CC- Core Courses, AEC- Ability Enhancement Courses, MDC- Multidisciplinary Courses, SEC- Skill Enhancement Courses, PWR- Research Project								

Year III								
Sl. No.	**Course Code**	**Course Name**	**Hours**		**Credit**			**Basket**
			T	**P**	**T**	**P**	**TOTAL**	
1	BPT3301	General Medicine and Paediatrics	90	30	6	1	7	CC
2	BPT3302	General Surgery	90	30	6	1	7	CC
3	BPT3303	Orthopaedics	90	30	6	1	7	CC
4	BPT3304	Physiotherapy In Adult and Paediatric Medical and Surgical Conditions	180	120	12	4	16	CC
5	BPT3305	Physiotherapy In Adult and Paediatric Orthopaedic Conditions	180	120	12	4	16	CC
6	BPT3306	Physical and Functional Diagnosis and Prescription	120	60	8	2	10	CC
7	SOC2301	Research Methodology, Biostatistics and Evidence Based Practice	120	0	8	0	8	PWR
8	BPT3307	Clinical Education	0	300	0	10	10	PWR
Total			**870**	**690**	**58**	**23**	**81**	
CC- Core Courses, AEC- Ability Enhancement Courses, MDC- Multidisciplinary Courses, SEC- Skill Enhancement Courses, PWR- Research Project								

Year IV								
Sl. No.	**Course Code**	**Course Name**	**Hours**		**Credit**			**Basket**
			T	**P**	**T**	**P**	**TOTAL**	
1	BPT3401	Neurology, Psychiatry and Neurosurgery	90	30	6	1	7	CC
2	BPT3402	Physiotherapy In Adult and Paediatric Neurological and Neurosurgical Conditions	150	60	10	2	12	CC
3	BPT3403	Cardiothoracic Diseases and Surgeries	90	30	6	1	7	CC
4	BPT3404	Physiotherapy In Adult and Paediatric Cardiothoracic Conditions and Surgical Conditions	150	60	10	2	12	CC
5	BPT3405	Sports Physiotherapy and Exercise Prescription	150	60	10	2	12	CC

6	BPT3406	Patient Ethics, Medico Legal Aspects, Management and Administration	90	0	6	0	6	MDC
7	BPT3407	Community Physiotherapy and Rehabilitation	90	30	6	1	7	CC
8	BPT3408	Project Work Orientation	90	0	6	0	6	PWR
9	BPT3409	Clinical Rotation	0	390	0	13	13	PWR
Total			**900**	**660**	**60**	**22**	**82**	
CC- Core Courses, AEC- Ability Enhancement Courses, MDC- Multidisciplinary Courses, SEC- Skill Enhancement Courses, PWR- Research Project								

YEAR V

INTERNSHIP

Sl. No.	**Course Code**	**Course Name**	**Hours**		**Credit**			**Basket**
			T	**P**	**T**	**P**	**TOTAL**	
1	BPT7501	Internship	0	2016	0	136	68	Internship
Total			**0**	**2016**	**0**	**136**	**68**	
CC- Core Courses, AEC- Ability Enhancement Courses, MDC- Multidisciplinary Courses, SEC- Skill Enhancement Courses, PWR- Research Project								

19. Course Catalogue

Course Code: **BPT2101**	**COURSE TITLE: HUMAN ANATOMY (HA)** **(Type of Course: Core Course)**	L-T-P-C	5	0	3	16
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course provides a foundational understanding of human anatomy, emphasizing its crucial role in medical science. Students will master anatomical terminology, gaining a comprehensive working knowledge of the human body's structure. A significant portion of the course is dedicated to a detailed study of the musculoskeletal system, including bones, joints, and muscles. Furthermore, students will acquire basic knowledge of key anatomical regions and learn to relate anatomical concepts directly to clinical practice.					
Course Objective	● Understand the role of anatomy in medical science. ● Develop proficiency in anatomical terminology. ● Acquire a working knowledge of human body structure. ● Study the musculoskeletal system in detail. ● Gain basic knowledge of key anatomical regions. ● Relate anatomy to clinical practice.					
Course Outcomes	After completion of this course the student shall be able to **CO1**: Describe common anatomical terms and explain the basic embryological development of structures, emphasizing their relevance to clinical anatomy. **CO2**: Discuss the classification, structure, and function of bones, and explain the mechanisms of displacement along with common fracture sites. **CO3:** Identify skeletal muscles with reference to their origin, insertion, nerve supply, actions, and anatomical relationships, and explain their functional roles in movement. **CO4:** Describe major muscle groups, including their actions and nerve supply, and explain the functional impact of nerve injuries affecting these groups. **CO5:** Discuss various joints of the human body, describe their range of movements, and explain the muscular control involved in joint motion. **CO6**: Identify the borders of key anatomical regions along with associated fascia, ligaments, tendons, or cartilages, and explain their structural and clinical importance.					
Course Content:						
MODULE 1	**GENERAL ANATOMY**	Assignment/ Quiz		Numerical solving Task		**15 HOURS**
● Understand anatomical terms, planes, and body positions. ● Learn bone classification, development, and blood supply. ● Describe cartilage types and joint classifications. ● Understand skeletal muscle types, motor units, and actions. ● Recognize connective tissues and ligament functions. ● Understand the formation of zygote from ovum and sperm, development of germ layers and their derivatives—skin, fascia, vessels, bones, muscles—and the embryological development of neural tube, spinal cord, brain, brainstem, and skeletal structures. ● Describe the skin and its appendages.						

MODULE 2	**UPPER EXTREMITY**	Assignment/ Quiz	Memory Recall based Quizzes	**25 HOURS**
● Identify bones and muscles of the upper limb. ● Understand joints of the shoulder, elbow, wrist, and hand. ● Describe nerves, arteries, and lymphatics of the upper limb. ● Learn anatomical features of the hand including arches and skin. ● Understand thoracic structures: mediastinum, pericardium, and heart. ● Study the heart's conduction system and vascular supply. ● Learn respiratory anatomy: lungs, pleura, diaphragm.				
MODULE 3	**THORAX**	Assignment/ Quiz	Memory Recall-based Quizzes	**25 HOURS**
● Deepen understanding of the heart's anatomy and function. ● Describe systemic and pulmonary circulation. ● Identify bronchopulmonary segments of the lungs. ● Understand pleural cavity and its clinical relevance. ● Learn structures passing through the diaphragm. ● Describe muscles involved in respiration.				
MODULE 4	**LOWER EXTREMITY**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**
● Identify bones, muscles, and compartments of the lower limb. ● Understand vascular and lymphatic anatomy of the lower limb. ● Describe joints including hip, knee, ankle, and foot. ● Learn about foot arches and their support mechanisms. ● Understand cutaneous innervation and skin anatomy of the lower limb.				
MODULE 5	**MUSCULO SKELETAL ANATOMY OF TRUNK & PELVIS**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**
● Identify vertebrae, ribs, and intervertebral discs. ● Describe the muscles of the back, thorax, and abdominal wall. ● Understand the pelvic girdle and its articulation. ● Learn about pelvic floor muscles and their functions.				
MODULE 6	**ABDOMEN**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**
● Understand the structure, types, folds, and functions of the peritoneum. ● Learn the anatomy and course of major abdominal blood vessels. ● Identify the anatomical details (location, size, shape, features, blood/nerve supply, and functions) of key abdominal organs: stomach, liver, spleen, pancreas, kidneys, urinary bladder, intestines, and gall bladder. ● Describe the pelvic cavity and reproductive systems, including organ position, structure, blood supply, and innervation.				
MODULE 7	**ENDOCRINE GLANDS**	Assignment/ Quiz	Memory Recall based Quizzes	**15 HOURS**
● Describe the anatomical features (position, size, shape, function, blood/nerve supply) of major endocrine glands: hypothalamus, pituitary, thyroid, parathyroid, adrenal glands, pancreatic islets, ovaries, testes, pineal gland, and thymus.				

MODULE 8	**MUSCULOSKELETAL ANATOMY OF HEAD AND NECK**	Assignment/ Quiz	Memory Recall-based Quizzes	**15 HOURS**

- Identify the mandible and skull bones through osteological features.
- Identify facial and neck muscles, including their nerve and blood supply; study extraocular muscles and neck triangles.

MODULE 9	**NEUROANATOMY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Identify muscles of the face and neck, their blood and nerve supply, and extraocular muscles.
- Understand the organization of the central and peripheral nervous systems, with emphasis on:
- Cranial and spinal nerves
- Autonomic nervous system (especially for cardiovascular, respiratory, and urogenital systems)
- Brain structures: brain stem, cerebellum, thalamus, hypothalamus, basal ganglia, corpus striatum, cerebral hemispheres
- Ventricular system and blood supply of the brain
- Pyramidal and extrapyramidal systems, neuromuscular junction, sensory pathways, and integration centers

Targeted Application & Tools that can be used:

- 3D Anatomy Software: Complete Anatomy, Visible Body, BioDigital Human – for interactive visualization and spatial understanding of human structures.
- Dissection Videos & Virtual Labs: Tools like Acland's Video Atlas and Kenhub for observing real-time dissections and

List of Laboratory Tasks::(120 HOURS)

1. Demonstration of Identification and Anatomical Features of Bones of the Upper Limb Using Models and Specimens.
2. Demonstration of Identification and Anatomical Features of Bones of the Lower Limb Using Models and Specimens.
3. Demonstration of Identification of Vertebrae and Bony Landmarks of the Spine Using Models and Specimens.
4. Demonstration of Surface Landmarks and Palpation Techniques for Upper Limb Bones on the Living Body.
5. Demonstration of Surface Landmarks and Palpation Techniques for Lower Limb Bones on the Living Body.
6. Demonstration of Surface Landmarks of the Vertebral Column and Pelvic Bones on the Living Body.
7. Demonstration of Identification of Major Muscles of the Upper Limb on Dissected Specimens and 3D Models.
8. Demonstration of Identification of Major Muscles of the Lower Limb on Dissected Specimens and 3D Models.
9. Demonstration of Identification of Muscles of the Trunk and Back Region on Dissected Specimens and 3D Models.
10. Demonstration of Identification of Muscles of the Face and Neck on Dissected Specimens and 3D Models.
11. Demonstration of Origin, Insertion, Action, and Nerve Supply of Key Muscles of the Upper Limb.
12. Demonstration of Origin, Insertion, Action, and Nerve Supply of Key Muscles of the Lower Limb.
13. Demonstration of Identification of Major Joints of the Upper Limb on Dissected Specimens and 3D Models.
14. Demonstration of Identification of Major Joints of the Lower Limb on Dissected Specimens and 3D Models.
15. Demonstration of Identification of Joints of the Trunk and Face Including Vertebral and Temporomandibular Joints.
16. Demonstration of Types of Synovial Joints and Movements at Shoulder, Hip, Knee, Ankle, and Wrist Joints.
17. Demonstration of Identification of the Course and Branches of Major Peripheral Nerves and Brachial Plexus in the Upper Limb.
18. Demonstration of Identification of the Course and Branches of Major Peripheral Nerves and Lumbosacral Plexus in the Lower Limb.
19. Demonstration of Surface Marking of Major Peripheral Nerves on the Living Body Using Palpation Techniques.
20. Demonstration of the Anatomical Basis and Clinical Significance of Common Peripheral Nerve Injuries and Entrapment Neuropathies.

Text Book(s):

1. Snell RS. Clinical anatomy: an illustrated review with questions and explanations. Lippincott Williams & Wilkins; 2004..
2. Inderbir Singh, Text book of Anatomy with color Atlas – Vol. 1, 2, 3. Jaypee Brothers
3. Chaurasia BD. Human anatomy Volume- I, II & III, CBS Publisher; 2004.
4. Singh I. Textbook of human neuroanatomy. Jaypee Brothers Publishers; 2006.

Reference Book (s):

1. Gray's Anatomy: Descriptive and Applied. Longman
2. Snell RS. Neuroanatomy.
3. Singh V. Textbook of clinical neuroanatomy.
4. Romanes GJ. Cunningham's manual of practical anatomy

Project Work/ Assignments:

- Prepare a labeled diagram chart showing the parts of bones of the upper limb, lower limb, and spine with key features.
- Create a surface landmark map of major bones on a peer (living model), with annotations and photographic evidence (where permitted).
- Document a detailed report identifying major muscles of the extremities, trunk, and face using 3D models or cadaveric images.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Landmark identification, osteological specimen analysis, and dissection of anatomical structures of upper limb, lower limb, thorax, abdomen, head, neck, and neuroanatomy for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: **BPT2102**	**COURSE TITLE: HUMAN PHYSIOLOGY(HP) (Type of Course: Core Course)**	L-T-P-C	5	0	3	16
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course introduces the functional organization of the human body, covering fundamental concepts in cellular physiology, tissues, skin, blood, lymph, muscles, and nerves. It explores the physiological functions of the cardiovascular, respiratory, gastrointestinal, renal, endocrine, and reproductive systems. Emphasis is placed on key mechanisms such as homeostasis, nerve conduction, muscle contraction, circulation, respiration, digestion, and hormonal regulation. Special focus is given to the physiological basis of human movement and its systemic effects, preparing students to understand body function in both health and physical activity contexts.					
Course Objective	• Understand the functional organization of the human body. • Describe the structure and function of cells, tissues, skin, blood, lymph, muscles, and nerves.					

<table>
<tr><td></td><td colspan="4">

Explain the physiology of key systems including the cardiovascular, respiratory, gastrointestinal, renal, endocrine, and reproductive systems.
Understand the mechanisms of nerve conduction and skeletal muscle contraction.
Describe the physiological processes involved in circulation, respiration, digestion, and hormonal regulation.
Recognize the physiological basis of human movement and its effects on various body systems.

</td></tr>
<tr><td>Course Outcomes</td><td colspan="4">After completion of this course the student shall be able to:

CO1:
Demonstrate an understanding of fundamental physiological concepts including cellular physiology, membrane transport, homeostasis, and fluid distribution in the human body.

CO2:
Identify and describe the composition, functions, and clinical aspects of blood and lymph, including blood cells, hemoglobin, immunity, coagulation, and transfusion principles.

CO3:
Explain the structural and functional organization of the cardiovascular system, including heart physiology, circulation dynamics, ECG interpretation, and cardiovascular adaptations to exercise.

CO4:
Describe the mechanics of breathing, lung functions, gas exchange, and respiratory regulation, along with respiratory adaptations during physical activity.

CO5:
Understand the physiological functions of the digestive and renal systems, including the processes of digestion, absorption, urine formation, fluid-electrolyte balance, and acid-base regulation.

CO6:
Integrate knowledge of major physiological systems to explain the physiological basis of human movement and physical activity, emphasizing nerve conduction, muscle contraction, and systemic interactions.</td></tr>
<tr><td>Course Content:</td><td colspan="4"></td></tr>
<tr><td>MODULE 1</td><td>GENERAL PHYSIOLOGY</td><td>Assignment/ Quiz</td><td>Numerical solving Task</td><td>15 HOURS</td></tr>
<tr><td colspan="5">

Understand the structure and functions of the cell and its organelles.
Learn the mechanisms of transport across the cell membrane, including active and passive processes.
Understand the distribution and composition of body fluids.

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<tr><td>MODULE 2</td><td>BLOOD</td><td>Assignment/ Quiz</td><td>Memory Recall based Quizzes</td><td>15 HOURS</td></tr>
<tr><td colspan="5">

Study the structure, function, and variations of hemoglobin, types of anemia, jaundice, blood indices, PCV, and ESR.
Learn the morphology, functions, and variations of WBC, and understand immunity.

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- Describe platelets and their role in hemostasis.
- Study blood coagulation, its factors, mechanisms, disorders, and anticoagulants.
- Understand blood groups and cross-matching, and the complications of blood transfusion.
- Describe the composition, formation, and function of lymph.

MODULE 3	**CARDIOVASCULAR SYSTEM**	Assignment/ Quiz	Memory Recall-based Quizzes	**20 HOURS**

- Study the physiological anatomy, nerve supply, and organization of the heart and blood vessels.
- Understand the structure and ionic basis of cardiac muscle action potentials and pacemaker potentials.
- Explain the conducting system of the heart and impulse conduction.
- Understand the phases of the cardiac cycle, pressure and volume curves, heart sounds, and ECG interpretation.
- Study determinants and regulation of stroke volume, cardiac output, and heart rate.
- Learn about arterial blood pressure, its regulation, and variations.
- Study causes and features of shock and regional circulations (e.g., coronary, cerebral).
- Understand the cardiovascular changes during exercise..

MODULE 4	**RESPIRATORY SYSTEM**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Study the functions of the pleura, tracheo-bronchial tree, alveolus, and respiratory membrane.
- Understand the mechanics of breathing, including pressure changes during respiration and chest expansion.
- Learn about spirometry, lung volumes, capacities, and their clinical significance.
- Study pulmonary circulation and ventilation-perfusion ratios.
- Understand the transport of respiratory gases and regulation of respiration.
- Study the effects and types of hypoxia, hypercapnia, asphyxia, and cyanosis.
- Understand respiratory changes during exercise.

MODULE 5	**DIGESTIVE SYSTEM**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Study the functions of the digestive system and transport of respiratory gases.
- Learn about salivary secretion, mastication, and the stages of swallowing.
- Understand gastric secretion, including composition, function, and regulation.
- Study pancreatic secretion and its regulation.
- Learn about the liver and gall bladder functions, and the composition and role of bile..

MODULE 6	**RENAL SYSTEM**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Understand the structure and functions of the renal system, including the nephron types and renal blood flow regulation.
- Study the mechanisms of urine formation, including glomerular filtration, GFR, and renal clearance.
- Learn about tubular reabsorption of substances like Na+, glucose, and water.
- Study the mechanisms of urine concentration and dilution through the counter-current mechanism.
- Understand the regulation of water excretion, diuresis, and the role of diuretics.

● Learn about the mechanisms of micturition and bladder disorders (e.g., atonic bladder). ● Study acid-base balance and its regulation in the body.				
MODULE 7	**REPRODUCTIVE SYSTEM**	Assignment/ Quiz	Memory Recall based Quizzes	**15 HOURS**
● Understand the functions of male and female reproductive organs in gamete production and hormone secretion. ● Grasp sex determination (genetic) and differentiation (hormonal). ● Know spermatogenesis and testosterone's role in males, and oogenesis, estrogen, and progesterone's role in females. ● Understand the menstrual cycle phases, hormonal control, menarche, and menopause. ● Learn about pregnancy, placental function, lactation, and basic contraception..				
MODULE 8	**ENDOCRINE GLANDS**	Assignment/ Quiz	Memory Recall-based Quizzes	**15 HOURS**
● Identify major endocrine glands and hormone classifications. ● Understand basic hormone mechanisms and functions. ● Know the origin, action, and regulation of pituitary, thyroid (including calcitonin and disorders), parathyroid (including calcium regulation and disorders), adrenal medulla (adrenaline/noradrenaline and disorders), and pancreatic hormones (insulin/glucagon, glucose regulation, and diabetes).				
MODULE 9	**NERVE MUSCLE PHYSIOLOGY**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**
● Understand resting and action potentials (ionic basis and properties). ● Know neuron structure, function, classification, nerve impulse transmission, and nerve injury. ● Learn about neuroglia types and functions. ● Understand skeletal muscle structure and neuromuscular transmission. ● Be aware of basic neuromuscular disorders.				
MODULE 10	**NERVOUS SYSTEM**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**
● Understand CNS and PNS organization and nervous system functions. ● Know synapse structure, function, classification, and synaptic transmission. ● Learn about sensory receptors, pathways (posterior column, spinothalamic, trigeminal), and sensory cortex. ● Understand somatic and kinesthetic sensations, and the mechanisms of pain. ● Know motor cortex, descending tracts (pyramidal and extrapyramidal), UMN/LMN concepts, and paralysis types. ● Understand muscle tone and its abnormalities in UMNL/LMNL. ● Learn about spinal cord lesions, cerebellum function (ataxia), posture/equilibrium reflexes, thalamus/hypothalamus functions, reticular formation/limbic system roles, basal ganglia (Parkinson's), cerebral cortex lobes/functions (including higher functions), CSF, blood-brain barrier, and autonomic nervous system actions				

MODULE 11	**PHYSIOLOGY OF EXERCISE**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Explain the effects of Acute and Chronic exercise on:
- Respiratory System
- Cardiovascular System
- Musculoskeletal System

Targeted Application and Tools that can be used:

- Physiological Simulation Software: *Lt by ADInstruments, PhysioEx* – for virtual lab experiments and simulation of body functions like nerve conduction and muscle contraction.
- Digital Microscopy Tools: Used for observing blood cells and tissues virtually in hematology labs.
- Biopac or PowerLab Systems: For demonstrations of ECG, blood pressure, respiration, and muscle activity (where available).
- Laboratory Instruments: Hemocytometer, sphygmomanometer, spirometer, stethoscope, and centrifuge for hands-on clinical and hematology tasks.

List of Laboratory Tasks::(120 HOURS)

1. Demonstrate the identification and differentiation of various blood cells under the microscope.
2. Demonstrate the procedure to determine red blood cell (RBC) count, white blood cell (WBC) count, and platelet count.
3. Demonstrate the method to determine the blood group using standard agglutination techniques.
4. Demonstrate the correct procedure to calculate bleeding time and clotting time.
5. Observe and describe the procedures involved in common blood investigations performed in the laboratory.
6. Demonstrate the correct technique to elicit superficial reflexes such as abdominal, plantar, and cremasteric reflexes.
7. Demonstrate the correct method to elicit deep tendon reflexes such as biceps, triceps, knee jerk, and ankle jerk reflexes.
8. Demonstrate the method to assess and determine muscle tone using passive movements.
9. Demonstrate the correct method to perform manual muscle testing for major muscle groups.
10. Demonstrate the proper technique to record and interpret a normal electrocardiogram (ECG) wave pattern.
11. Demonstrate the correct method to auscultate and identify normal breath sounds such as vesicular and bronchial sounds.
12. Demonstrate the differentiation between normal heart sounds and abnormal sounds such as murmurs during auscultation.
13. Demonstrate the measurement of vital signs including pulse rate, blood pressure, respiratory rate, and body temperature.
14. Demonstrate the procedure to assess lung function using spirometry, including measurement of tidal volume and vital capacity.
15. Demonstrate the measurement and interpretation of peak expiratory flow rate (PEFR) using a peak flow meter.
16. Demonstrate the testing of sensory functions, including pain, temperature, light touch, and proprioception.
17. Demonstrate the coordination tests such as finger-nose test, rapid alternating movements, and heel-shin test.
18. Demonstrate the assessment of cranial nerve functions using clinical examination techniques.
19. Demonstrate the measurement of body mass index (BMI) and waist-hip ratio for nutritional assessment.

20. Demonstrate the basic functional tests to assess endurance, such as step test or six-minute walk test.

Text Book(s):

1. Text book of Physiology –Anand and Manchanda, Tata McGraw Hill.
2. Human Physiology – Vol. 1 and 2, Chatterjee. CC, Calcutta. Medical Allied.
3. Concise Medical Physiology. Chaudhari, S.K, New Central Agency, Calcutta
4. Principles of Anatomy and Physiology. Tortora and Grabowski –Harper Collins.
5. Text book of Practical Physiology – Ghai – Jaypee

Reference Book (s):

1. Text book of Medical Physiology –Guyton Arthur (Mosby.)
2. Best and Taylor's Physiological Basis of Medical Practice
3. West's Respiratory Physiology.
4. Nunn and Lumb's Applied Respiratory Physiology

Project Work/ Assignments:

1. **Cell Physiology:** Label cell organelles and explain membrane transport types.
2. **Blood:** Chart hemoglobin types, blood cells, coagulation, and blood groups.
3. **Cardiovascular:** Illustrate heart conduction, cardiac cycle, ECG, and blood pressure regulation.
4. **Respiratory:** Describe lung volumes, breathing mechanics, gas transport, and types of hypoxia.
5. **Digestive:** Outline secretions (saliva, gastric, pancreatic) and liver/gallbladder functions.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Performing clinical experiments to assess cardiovascular, respiratory, neuromuscular, and endocrine functions, including blood pressure measurement, spirometry, reflex testing, and ECG interpretation for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2103	COURSE TITLE:BIOCHEMISTRY (Type of Course: Core Course)	L-T-P-C	3	0	0	6
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course introduces the fundamental concepts of biochemistry with a focus on the human body. It covers the structure and metabolism of key biomolecules—carbohydrates, lipids, proteins, and amino acids—as well as the roles of enzymes, nucleic acids, vitamins, minerals, and hormones in maintaining physiological balance. Students will also explore the biochemical basis of nutrition and the clinical relevance of biochemical changes, particularly in relation to exercise and health. Emphasis is placed on understanding how biochemical processes support life and contribute to the diagnosis and management of disease.					
Course Objective	By the end of this course, students will be able to: ● Understand the basic principles of biochemistry, focusing on the human body. ● Explain the metabolism of carbohydrates, lipids, and amino acids. ● Describe the roles and significance of enzymes and nucleic acids. ● Outline the functions of vitamins, minerals, and hormones in physiology. ● Comprehend the fundamentals of nutrition and nutrient contributions. ● Recognize the role of clinical biochemistry in diagnosing and managing disorders.					
Course Outcomes	After completion of this course the student shall be able to: **CO1:** Explain acid-base balance, buffers, and their physiological regulation. **CO2:** Describe the metabolism and functions of carbohydrates and lipids in health and disease. **CO3:** Discuss protein metabolism, amino acids, nutrition, and energy requirements. **CO4:** Understand the roles and clinical importance of enzymes, nucleotides, vitamins, and minerals. **CO5:** Interpret biochemical test reports and explain their diagnostic relevance. **CO6:** Solve basic numerical problems related to acid-base balance, metabolism, and nutrition.					
Course Content:						
MODULE 1	**FUNDAMENTALS OF BIOCHEMISTRY AND ACID-BASE BALANCE**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**		
● Acids, bases, buffers, pH, and buffer systems of the body ● Role of lungs and kidneys in acid-base regulation ● Acid-base imbalances and clinical implications ● Overview and importance of Biochemistry in physiotherapy						

MODULE 2	**CARBOHYDRATES, LIPIDS and ENERGY METABOLISM**	Assignment/ Quiz	Memory Recall based Quizzes	**20 HOURS**
● Classification, structure, functions, and dietary roles of carbohydrates ● Glycolysis (aerobic and anaerobic), Citric Acid Cycle, Glycogenesis, Glycogenolysis ● Gluconeogenesis, Cori Cycle, hormonal regulation, glycosuria, diabetes mellitus ● Lipid classification: fatty acids, triglycerides, phospholipids, cholesterol, lipoproteins ● Ketone bodies and essential fatty acids ● Role of carbohydrates and lipids in diet				
MODULE 3	**PROTEINS, AMINO ACIDS and NUTRITION**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
● Amino acid and protein classification, peptide bonds, biological peptides ● Protein function, quality (BV, NPU), essential vs non-essential amino acids ● Nitrogen balance and nutritional significance ● Nutrition: BMR, energy requirements, calorific values, respiratory quotient ● Balanced diet, RDA, nutritional disorders, energy expenditure in activity				
MODULE 4	**ENZYMES, NUCLEOTIDES, VITAMINS AND MINERALS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
● Enzymes: definition, types, cofactors, inhibition, diagnostic enzymology ● Nucleotides: structure, function; DNA vs RNA, functions of mRNA, tRNA, rRNA ● Vitamins: classification, sources, RDA, functions, deficiency/toxicity ● Minerals: calcium, phosphate, iron (in detail), and other essential minerals ● Metabolism, function, absorption, transport, excretion, disorders				
MODULE 5	**CLINICAL BIOCHEMISTRY and DIAGNOSTIC RELEVANCE**	Assignment/ Quiz	Memory Recall based Quizzes	**20 HOURS**
● Normal ranges of blood and urine constituents ● Relevance of glucose, urea, uric acid, creatinine, calcium, phosphate, pH, bicarbonate ● Liver function tests (LFTs) ● Renal function tests (RFTs) ● Clinical interpretation and importance in physiotherapy				
Targeted Application and Tools that can be used:				
● Biochemical analyzers and spectrophotometers for enzyme and metabolite analysis. ● Virtual labs and biochemical simulation software. ● Clinical diagnostic kits for glucose, liver, and kidney function tests.				
List of Laboratory Tasks: NIL				
Text Book(s): ● Textbook of Biochemistry- Chatterjee M.N.-Jaypee Brothers. ● Textbook of Biochemistry for Medical Students Vasudeval D.M. Jaypee Brothers. ● Clinical Biochemistry- metabolic and Clinical aspects- Marshall andBangert- Churchill Livingstone. Biochemistry Southerland-Churchill Livingstone				

Project Work/ Assignments:

1. **Biomolecules and Metabolism:**
- Study acid-base balance, carbohydrates, lipids, proteins, and nutrition basics.
2. **Enzymes and Genetics:**
- Understand enzymes, nucleic acids, and their functions.
3. **Vitamins and Minerals:**
- Learn types, sources, and roles of vitamins and minerals.
4. **Clinical Biochemistry:**
- Explore key biochemical tests and their clinical importance.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Performing qualitative and quantitative biochemical analyses such as tests for carbohydrates, proteins, lipids, liver and renal function markers, and enzyme activity using manual and semi-automated techniques for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2104	**COURSE TITLE: FUNDAMENTALS OF EXERCISE MODALITIES (FoEM)** **(Type of Course: Core Course)**	L-T-P-C	3	0	2	10
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course introduces students to the fundamental concepts of exercise therapy, with a focus on restoring, improving, and maintaining physical function through therapeutic exercises. It covers essential principles of biomechanics and kinesiology, the therapeutic effects of exercise in various health conditions, and practical application using standardized techniques. Through a structured DOAP (Demonstrate, Observe, Assist, Perform) approach, students gain hands-on experience in executing exercises and passive procedures tailored to individual patient needs. The course bridges theory with clinical application to develop core competencies in exercise-based rehabilitation.					
Course Objective	By the end of this course, students will be able to: ● Understand the basic principles and therapeutic benefits of exercise in both health and disease. ● Master techniques for restoring movement and physical function through therapeutic exercise. ● Differentiate between various types of exercises (active, passive, resistive, etc.) and apply them based on specific patient needs. ● Gain proficiency in conducting and supervising exercise therapy sessions. ● Develop hands-on skills in executing passive movements, active-assisted exercises, and other manual therapy procedures. ● Independently perform therapeutic exercises using the DOAP (Demonstrate, Observe, Assist, Perform) model.					
Course Outcomes	After completion of this course the student shall be able to: **CO1:** Demonstrate understanding of exercise therapy goals, techniques, and basic biomechanical principles applied in therapeutic practice. **CO2:** Measure and interpret vital signs and apply problem-solving skills in patient assessment and treatment planning. **CO3:** Accurately assess joint range of motion (ROM) using goniometric techniques with attention to reliability and validity. **CO4:** Perform standardized manual muscle testing (MMT) for various muscle groups with correct procedures and grading. **CO5:** Classify and demonstrate different types of therapeutic exercises, explaining their uses, effects, and precautions. **CO6:** Perform soft tissue manipulation techniques effectively and explain their therapeutic effects and contraindications.					

<table>
<tr><td colspan="5">Course Content:</td></tr>
<tr><td>Module 1</td><td>BASIC PRINCIPLES</td><td>Assignment/ Quiz</td><td>Numerical solving Task</td><td>20 HOURS</td></tr>
<tr><td colspan="5">● Understand the goals and various techniques employed in Exercise Therapy.
● Describe the systematic approach to analyzing patient problems and the importance of measuring vital parameters.
● Apply principles of force, composition, resolution, equilibrium, gravity (LOG-COG), levers, speed, velocity, work, energy, power, acceleration, momentum, friction, and inertia to Exercise Therapy.
● Discuss muscle group actions, angle of pull, and the mechanical efficiency of muscles in movement</td></tr>
<tr><td>Module 2</td><td>STARTING AND DERIVED POSITIONS</td><td>Assignment/ Quiz</td><td>Memory Recall based Quizzes</td><td>20 HOURS</td></tr>
<tr><td colspan="5">● Demonstrate fundamental and derived positions with muscle involvement, effects, and applications.
● Understand how to measure joint range of motion using various methods and understand normal and functional ROM.
● Discuss the reliability, validity, and techniques of goniometry.
● Understand how to perform ROM assessments of individual joints using a goniometer.</td></tr>
<tr><td>Module 3</td><td>MUSCLE TESTING</td><td>Assignment/ Quiz</td><td>Memory Recall-based Quizzes</td><td>30 HOURS</td></tr>
<tr><td colspan="5">● Demonstrate different techniques for measuring the Range of Motion (ROM) of joints.
● Discuss the reliability and validity of goniometry, understand functional and normal ROM values for various joints, and master the technique of goniometry.
● Perform accurate ROM measurements of individual joints using a goniometer.
● Discuss the principles, aims, indications, limitations, and techniques for MMT of both muscle groups and individual muscles.
● Demonstrate the standardized Manual Muscle Testing procedure.
● Perform MMT effectively for muscles of the upper limb, lower limb, spine, and face.</td></tr>
<tr><td>Module 4</td><td>CLASSIFICATION OF THERAPEUTIC EXERCISE</td><td>Assignment/ Quiz</td><td>Numerical solving Task</td><td>30 HOURS</td></tr>
<tr><td colspan="5">● Classify different types of therapeutic exercises.
● Demonstrate and discuss active, active-assisted, assisted-resisted, resisted, and passive movements.
● Understand concepts of strength, power, work, endurance, muscle actions, and causes of decreased performance.
● Explain physiological adaptations to training.
● Understand principles, techniques, indications, contraindications, effects, and uses of various exercise types (free, resisted - including different types, passive, and mobilization).</td></tr>
<tr><td>Module 5</td><td>SOFT TISSUE MANIPULATION TECHNIQUES</td><td>Assignment/ Quiz</td><td>Memory Recall based Quizzes</td><td>20 HOURS</td></tr>
<tr><td colspan="5">● Classify different soft tissue manipulation techniques.
● Discuss physiological and therapeutic effects, and contraindications.</td></tr>
</table>

- Describe and perform techniques like effleurage, kneading, petrissage, deep friction, vibration, and shaking.

Targeted Application and Tools that can be used:

- Goniometry: Manual and electronic goniometers to accurately measure joint range of motion (ROM) during assessment and therapy.
- Manual Muscle Testing (MMT): Standardized techniques to assess muscle strength and function.
- Biomechanics Software: Tools such as Dartfish, Kinovea, or similar motion analysis software to study and analyze human movement patterns.
- Exercise Prescription Apps: Digital platforms like PhysioTools, MedBridge, or Exercise Pro Live for designing and monitoring therapeutic exercise programs.
- Therapeutic Modalities: Use of resistance bands, weights, and manual therapy equipment for practical rehabilitation sessions.
- Patient Monitoring Devices: Tools like pulse oximeters, blood pressure monitors, and wearable activity trackers to monitor vital signs and patient progress during therapy.
- Balance and Coordination Tools: Balance boards, stability balls, and coordination devices to assess and improve patient postural control and motor skills.

List of Laboratory Tasks:: (60 HOURS)

1. Demonstration of the correct methods for measuring vital signs and performing a basic patient assessment.
2. Demonstration of the application of biomechanical principles such as force, equilibrium, and levers during therapeutic exercises.
3. Demonstration of fundamental and derived positions along with the identification of involved muscle groups and their clinical significance.
4. Demonstration of the proper technique for measuring joint range of motion (ROM) using a goniometer on different joints.
5. Demonstration of the procedures for assessing the reliability and validity of joint range of motion measurements through repeated trials.
6. Demonstration of the standardized techniques for performing manual muscle testing (MMT) on major muscle groups.
7. Demonstration of manual muscle testing procedures for specific regions including the upper limb, lower limb, spine, and face.
8. Demonstration of various types of therapeutic exercises including active, assisted, resisted, and passive movements with appropriate precautions.
9. Demonstration of designing and prescribing individualized therapeutic exercise programs based on physiological principles and patient needs.
10. Demonstration of soft tissue manipulation techniques such as effleurage, kneading, petrissage, deep friction, and vibration along with their therapeutic effects and contraindications.

Text Book(s):

- Principle of Exercise Therapy -Gardiner - C.B.S. Delhi
- Practical Exercise Therapy - Hollis - Blackwell Scientific Publications.
- Therapeutic Exercises Foundations and Techniques - Kisner and Colby -F.A. Davis.

- Principles and practices of therapeutic massage – Sinha 3rd edition. Jaypee brothers Delhi Margaret Hollis-Textbook of Massage.
- Muscle testing and functions - Kendall - Williams and Wilkins.
- Daniels and Worthingham's - Muscle testing - Hislop and Montgomery - W.B. Saunders. Measurement of Joint Motion: A Guide to Goniometry - Norkinsand White - F.A. Davis.

Project Work/ Assignments:

- Apply basic physics principles to human movement and exercise therapy.
- Demonstrate and explain key body positions used in therapy.
- Measure joint movements and perform muscle strength testing using standard tools.
- Practice passive and active joint mobilization techniques.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Performing therapeutic exercises including passive, active, resisted, and functional movements; muscle stretching, strengthening, and relaxation techniques; and application of range of motion exercises using appropriate tools and techniques for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2105	**COURSE TITLE: FUNDAMENTALS OF ELECTRO PHYSICAL AGENTS(FoEA) (Type of Course: Core Course)**	**L-T-P-C**	3	0	2	10
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course provides a foundational understanding of the physics and biophysical principles underlying the therapeutic use of electricity in physiotherapy. It focuses on various electrotherapeutic modalities used for pain relief, muscle stimulation, tissue healing, and functional restoration. Students will learn about the physiological effects, indications, contraindications, and clinical applications of different electrical stimulation agents. Emphasis is placed on the safe, effective, and evidence-based use of electrotherapy equipment through hands-on practice, including patient preparation and equipment handling. Safety protocols and maintenance procedures are also included to ensure professional and ethical clinical practice.					
Course Objective	Upon completion of this course, the student will be able to: ● Understand the basic principles of physics related to electricity production, transmission, and application. ● Describe the biophysical and physiological basis of various electrotherapeutic modalities. ● Explain the therapeutic effects, indications, and contraindications of electrical stimulation agents. ● Identify and determine appropriate dosage parameters for different electrotherapy techniques. ● Apply various electrotherapeutic modalities to human tissues based on clinical assessment. ● Demonstrate operational proficiency in setting up, applying, and monitoring electrotherapy equipment. ● Perform correct patient preparation and electrode placement techniques. ● Practice safety measures, care, and routine maintenance of electrotherapy equipment.					
Course Outcomes	After completion of this course the student shall be able to: **CO1:** Explain the physical principles related to physiotherapy equipment and therapeutic modalities. **CO2:** Apply knowledge of electrical currents, circuits, and safety precautions in physiotherapy practice. **CO3:** Demonstrate the operation and clinical applications of low-frequency currents in patient care. **CO4:** Perform electrodiagnostic tests to assess nerve and muscle conditions effectively.					

	CO5: Apply infrared radiation and superficial heating modalities safely and effectively for therapeutic purposes. **CO6:** Identify and implement safety measures to prevent and manage electrical hazards during therapy.			
Course Content:				
Module 1	**PHYSICAL PRINCIPLES IN PHYSIOTHERAPY**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**
● Structure and properties of matter: solids, liquids, gases, adhesion, surface tension, viscosity, density, elasticity. ● Structure of atoms, molecules, elements, and compounds. ● Electron theory, static and current electricity. ● Conduction, insulators, potential difference, resistance, intensity. ● Ohm's Law and its applications in AC and DC circuits. ● Rectifying devices: thermionic valves, semiconductors, transistors, amplifiers, transducers, oscillator circuits, capacitance, condensers in AC and DC circuits. ● Display devices and indicators: analogue and digital. .				
Module 2	**EFFECTS OF CURRENT ELECTRICITY and BASIC ELECTRICAL SAFETY**	Assignment/ Quiz	Memory Recall based Quizzes	**25 HOURS**
● Chemical effects: ions, electrolytes, ionization, EMF production by chemical actions. ● Magnetic effects: molecular theory of magnetism, magnetic fields, electromagnetic induction. ● Measurement devices: milliammeter, voltmeter, transformers, choke coil. ● Thermal effects: Joule's law, heat production. ● Physical principles of light and sound, their properties and biophysical applications. ● Electromagnetic spectrum: biophysical relevance. ● Electrical supply: sources of electric current, dangers such as short circuits and shocks. ● Safety precautions: earthing, fuses, protective devices, and emergency management of electric shock.				
Module 3	**LOW FREQUENCY CURRENTS IN THERAPY**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**
● Introduction to direct, alternating, and modified currents. ● Iontophoresis: biophysics, therapeutic uses, indications, contraindications, equipment operation, patient preparation. ● Faradic current: biophysics, therapeutic uses, operational procedures. ● Interrupted direct current: biophysics, therapeutic uses, operational procedures. ● Transcutaneous Electrical Nerve Stimulation (TENS): types, parameters, theories of pain relief, effects, clinical applications, operational skills, precautions.				
Module 4	**ELECTRODIAGNOSTIC TESTS AND ELECTRICAL REACTIONS**	Assignment/ Quiz	Memory Recall based Quizzes	**25 HOURS**

- Electrical stimulation of nerve and muscle tissues, normal responses, types of lesions, reaction of degeneration.
- Electrodiagnostic tests: Faradic and interrupted direct current testing, S.D. Curve, Chronaxie, Rheobase, pulse ratio, and clinical applications.

Module 5	**SUPERFICIAL HEATING MODALITIES AND INFRARED THERAPY**	Assignment/ Quiz	Memory Recall based Quizzes	**20 HOURS**

- Infrared Radiation (IRR): wavelength, frequency, sources, application techniques, physiological and therapeutic effects, indications, contraindications, equipment handling.
- Superficial heat therapies: paraffin wax bath, moist heat packs, electrical heating pads.
- Mechanism of heat production.
- Modes of heat transfer.
- Physiological and therapeutic effects.
- Indications, contraindications, equipment operation, patient preparation.

Targeted Application and Tools that can be used:

- Electrotherapy Devices: Hands-on use of TENS units, Faradic stimulators, Iontophoresis machines, Interrupted DC stimulators for therapeutic interventions.
- Safety and Monitoring Tools: Multimeters, circuit testers, and safety devices to ensure proper function and patient safety during electrotherapy.
- Electrode Placement Guides: Anatomical charts and digital apps to aid accurate electrode positioning for various body regions and conditions.
- Therapeutic Monitoring: Use of patient feedback systems and sensory testing devices to assess responses to electrical stimulation.

List of Laboratory Tasks:: (60 HOURS)

1. Identify and explain the safety components involved in the electric supply system of the electrotherapy department, including fuses, earthing, and circuit breakers.
2. Demonstrate and experience the sensory and motor stimulation effects of various types of low frequency currents on self, including direct and alternating currents.
3. Locate and stimulate specific motor points on a human model for the upper limb, lower limb, trunk, and face to observe muscle contractions.
4. Demonstrate the clinical application of special techniques using low frequency currents, including faradic foot bath and faradism under pressure.
5. Perform the correct procedure for iontophoresis, including electrode placement, dosage settings, and patient safety measures.
6. Demonstrate the procedure for plotting a strength duration curve and determine the chronaxie and rheobase for muscle testing.
7. Demonstrate the techniques for safe and effective application of infrared radiation therapy using different types of infrared lamps on various body regions.
8. Demonstrate the correct method for applying paraffin wax bath therapy, ensuring proper temperature, application layers, and patient safety.

9. Apply transcutaneous electrical nerve stimulation (TENS) on different body parts, adjusting parameters according to treatment goals.
10. Demonstrate the assessment of electrodiagnostic parameters and document clinical findings related to nerve and muscle function.

Text Book(s):

- Electro therapy Explained: Principles and Practice Lowand Reed, Butterworth Heinemann.
- Claytons Electro therapy, Forster and Palastange Baillier Tindal.

Reference Book (s):

- Principles and Practice of Electrotherapy, Kahn, Churchill Livingstone
- Clinical electrotherapy Currier and nelson
- Therapeutic Heat and Cold, Lehmann, Willians and Wilkins.

Project Work/ Assignments:

- Understand and apply basic physics of electricity, circuits, and electronic components relevant to electrotherapy.
- Explain physiological and therapeutic effects of electrical stimulation modalities.
- Demonstrate operational skills including patient preparation, electrode placement, and use of low-frequency currents (TENS, Faradic, Interrupted DC, Iontophoresis).
- Practice safety, care, and maintenance of electrotherapy equipment.
- Perform hands-on demonstrations of nerve and muscle stimulation on human models, including special techniques like Faradic foot bath and Iontophoresis.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Performing application techniques of thermal, mechanical, and electrical agents including infrared, ultraviolet, TENS, NMES, ultrasound, cryotherapy, and hydrotherapy modalities for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT1101	**COURSE TITLE: PSYCHOLOGY AND SOCIOLOGY (Type of Course: Multidisciplinary Course)**		**L-T-P-C**	3	0	0	8
Version No.	1.0						
Course Pre-requisites	NIL						
Anti-requisites	NIL						
Course Description	This course provides foundational knowledge of psychological principles relevant to physiotherapy. It covers human behavior, development across the lifespan, emotions, motivation, personality, and intelligence. Students will learn to apply psychological insights in clinical assessment, communication, and treatment planning, enabling more effective and empathetic patient care.						
Course Objective	Understand fundamental behavioral patterns in individuals.Learn key theories of human development across the lifespan.Identify typical and atypical aspects of motor, social, emotional, and language development.Develop effective communication and interaction skills for different age groups.Apply psychological principles to understand clients during assessment.Utilize psychological insights for planning appropriate physiotherapy treatment methods.						
Course Outcomes	After completion of this course the student shall be able to: **CO1:** Understand basic psychological principles and their relevance in healthcare. **CO2:** Explain key psychological theories and their application in health and well-being. **CO3:** Describe the physiological basis of emotions, motivation, and their impact on behavior and treatment compliance. **CO4:** Understand major personality theories, development, and assessment in patient care. **CO5:** Explain the concepts of intelligence, frustration, and their clinical implications. **CO6:** Apply psychological principles to improve clinical decision-making and patient-centered physiotherapy care.						
Course Content:							
MODULE 1	**INTRODUCTION TO PSYCHCOLOGY AND DEVELOPMENTAL PSYCHOLOGY**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**			

- Understand the main perspectives of structuralism, functionalism, behaviorism, and psychoanalysis.
- Describe different research methods used: introspection, observation, inventory, and experimentation.
- Differentiate between pure and applied psychology.
- Recognize the importance of psychological understanding in physiotherapy practice.
- Define and understand the nature and characteristics of growth and development, and the

developmental periods of infancy.
- Describe the key features of childhood, adolescence, adulthood, and old age, and factors influencing development.
- Understand the roles and relative importance of nature and nurture in physical, psychological, and social development.

MODULE 2	**EMOTION, PERCEPTION, MOTIVATION AND LEARNING**	Assignment/ Quiz	Memory Recall based Quizzes	**20 HOURS**

- Define emotions, understand different theories, recognize physiological changes, and learn about managing anger, fear, and anxiety.
- Define sensation, attention, and perception, and understand different types.
- Learn the principles of how we perceive the world and understand the concepts of illusion and hallucination, as well as factors affecting attention.
- Define needs, drives, and motives, differentiate between primary and secondary motives, and understand achievement motivation.
- Discuss various psychological theories explaining motivation.
- Describe different theoretical perspectives on how learning occurs.
- Understand characteristics, types, and laws of learning, including trial-and-error theory
- Describe classical and operant conditioning, insight learning, and factors influencing learning.
- Learn practical strategies for effective learning, such as spaced repetition and mnemonic methods.
- Discuss characteristics and types of intelligence, IQ, and mental age.
- Understand how intelligence is assessed using verbal and performance tests.

MODULE 3	**PSYCHOLOGY OF FRUSTRATION OF STRESS AND PERSONALITY**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Define frustration and stress, understand their causes and sources, explore different types of conflict, and learn about adjustment, maladjustment, and defense mechanisms.
- Describe different types of anxiety and tension, physiological symptoms, causes and reactions to stress, psychosomatic problems, and coping strategies.
- Discuss various techniques for managing stress effectively.
- Define personality and understand the factors that contribute to its development.
- Describe different tools used to measure personality, such as observation, questionnaires, and projective tests.
- Understand various defense mechanisms and their psychological functions.
- Recognize common psychological reactions of patients during admission and treatment, such as anxiety, denial, loneliness, and loss of hope.

MODULE 4	**SOCIAL AND CLINICAL PSYCHOLOGY**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Describe different types of leaders and various theoretical approaches to leadership.
- Understand how attitudes develop and how they can be changed.
- Describe models of training in clinical psychology, abnormal behavior assessment, clinical judgment, psychotherapy, self-management methods, physiotherapist-patient interaction, and aggression.
- Discuss self-imaging, stress management, assertive training, group therapy, body awareness, and considerations for pediatric, child, and geriatric clinical psychology.

MODULE 5	**INTRODUCTION TO SOCIOLOGY AND SOCIAL FACTORS IN HEALTH AND ILLNESS**	Assignment/ Quiz	Memory Recall based Quizzes	**20 HOURS**

- Introduction to sociology
- Meaning- Definition and scope of sociology
- Its relation to Anthropology, Psychology, Social Psychology.
- Methods of Sociological investigations- Case study, social survey, questionnaire, Interview and opinion poll methods.
- Importance of its study with special reference to Health Care Professionals.
- Understand how social factors influence health and illness.
- Learn about socialization (meaning, types and agencies).

MODULE 6	**SOCIAL STRUCTURES, HEALTH, COMMUNITY HEALTH AND ENVIRONMENTAL HAZARDS**	Assignment/ Quiz	Memory Recall based Quizzes	**20 HOURS**

- Understanding social groups and their impact on health in healthcare settings
- Analyzing family structures and their influence on health and illness
- Exploring the role of community and social relationships in health and wellness
- Understanding health hazards in rural and urban communities
- Recognizing the impact of social problems on health and disability
- Examining the environmental and infrastructural factors influencing public health

MODULE 7	**CULTURE, CHANGE, MENTAL HEALTH, VULNERABLE POPULATIONS AND SOCIAL SUPPORT SYSTEMS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Culture and Health:
    - Concept of Health
    - Concept of Culture
    - Culture and Health
    - Culture and Health Disorders
- Understanding social change and its links to stress, deviance, and health programs
- Exploring how shifting norms affect public health perceptions and behaviours
- Understanding social problems faced by the disabled, women in employment, the elderly, and the underprivileged
- Learning about social security and legislation for the disabled
- Evaluating support systems and policy interventions for marginalized groups
- Social Security: Social security and social legislation in relation to the disabled.

Targeted Application and Tools that can be used:

- Developmental Screening Instruments: Tools to assess milestones and development stages across lifespan including motor, social, emotional, and language domains.
- Communication Skill Training: Role-play scenarios, video simulations, and interactive workshops to enhance therapist-patient communication and counseling skills.
- Stress and Coping Assessment: Use of stress inventories and biofeedback devices to understand and manage patient stress and frustration levels.
- Personality Assessment Techniques: Application of projective tests (e.g., Rorschach, TAT) and self-report measures for clinical insight.
- Clinical Psychology Software: Digital platforms for case management, psychometric analysis, and therapy planning.

- Group Therapy and Counseling Models: Practical exposure through supervised group sessions and assertiveness training programs.

List of Laboratory Tasks: NIL

Text Book(s):

- Morgan C.T. and King R.A. Introduction to Psychology– recent edition [Tata McGraw-Hill publication]
- Munn N.L. Introduction to Psychology [Premium Oxford, I.B.P. publishing.]
  Clinical Psychology –Akolkar Hurlock EB. Development psychology. McGraw-Hill

Reference Books:

- Psychology Indian continent edition Raron RA mishra 2018
- Abnormal Psychology Sarason IG Sarason BR Prentice Hall India
- Introduction to psychology Atkinson RL Hilgard ER 2019

Project Work/ Assignments:

- **Introduction to Psychology:** Compare major psychological perspectives; observe and report on a behavior pattern.
- **Developmental Psychology:** Chart developmental milestones; interview and analyze growth across ages.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Applying psychological and sociological principles to assess patient behavior, communication patterns, coping mechanisms, and socio-cultural influences on health while engaging in role plays, patient interviews, and community interactions for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2106	**COURSE TITLE: FUNDAMENTALS OF HEALTHCARE DELIVERY SYSTEM IN INDIA (FoHS) (Type of Course: Multidisciplinary Course)**	**L-T-P-C**	3	0	0	8
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					

Course Description	This course provides foundational insights into the structure, functioning, and key components of the Indian health care delivery system. It explores the public and private sectors, health policies, and health programs in India. Emphasis is placed on understanding the strengths and challenges of the Indian system and comparing it with health care models from other countries, such as the Beveridge, Bismarck, National Health Insurance, and out-of-pocket models. The course encourages critical thinking on issues of accessibility, affordability, equity, and quality in health care, helping learners appreciate the role of health systems in achieving public health goals**.**			
Course Objective	● Understand the functional organization of the human body. ● Describe the structure and function of cells, tissues, skin, blood, lymph, muscles, and nerves. ● Explain the physiology of key systems including the cardiovascular, respiratory, gastrointestinal, renal, endocrine, and reproductive systems. ● Understand the mechanisms of nerve conduction and skeletal muscle contraction. ● Describe the physiological processes involved in circulation, respiration, digestion, and hormonal regulation. ● Recognize the physiological basis of human movement and its effects on various body systems.			
Course Outcomes	After completion of this course the student shall be able to: **CO1.** Describe the structure and components of the Indian health care delivery system, including primary, secondary, and tertiary care levels. **CO2.** Explain the role of various national health programs and policies in shaping public health outcomes in India. **CO3.** Identify key stakeholders in the Indian health system, including governmental bodies, private sector players, and NGOs. **CO4.** Compare the Indian health care system with major global health care models in terms of financing, service delivery, and outcomes. **CO5.** Analyze the strengths, weaknesses, and challenges of the Indian health care system, especially in terms of equity, accessibility, and quality of care. **CO6.** Evaluate the role of health system reforms and innovations (e.g., Ayushman Bharat, digital health missions) in improving health service delivery in India.			
Course Content:				
MODULE 1	**Overview of Healthcare Delivery Systems and Health Policy in India**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**
● Introduction to healthcare delivery system ● Healthcare delivery system in India at primary, secondary and tertiary care ● Community participation in healthcare delivery system ● Health system in developed countries. ● Private Sector ● National Health Mission ● National Health Policy Issues in Health Care Delivery System in India				

MODULE 2	**HEALTH SYSTEMS, NATIONAL PROGRAMS and ROLE OF PHYSIOTHERAPY**	Assignment/ Quiz	Numerical solving Task	**30 HOURS**

- National Health Program: Background, objectives, action plan, targets, operations, achievements, and constraints.
- Health Scenario of India: Past, present, and future.
- Physiotherapy and National Health: Role, expectations, and introduction to the profession.
- Health and Disease: Concepts, risk factors, health promotion, and disease prevention.
- Health Care Trends: Corporatization, globalization, and reforms.
- Health Workforce: Types of professionals, training, and practice settings.
- Health Systems and Financing: Primary vs specialty care, health care financing, and insurance basics.

MODULE 3	**Introduction to Health Care Systems and the Role of Physiotherapy**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**

- National Health Program- Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Program.
- Health scenario of India- past, present and future
- Introduction to the profession of physiotherapy role of physiotherapy in national health issues and the expectations of society from physiotherapists

MODULE 4	**Concepts of Health, Disease, and Health Care Systems**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Concepts of Health and Disease:Definitions and models,Risk factors and determinants,Health promotion and disease prevention

- Health Care Systems:Types of health professionals,Training and practice settings,Primary care vs. specialty care,Imbalance causes and implications

MODULE 5	**Economics and Global Perspectives in Health Care**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Health Care Financing:Impact on health care delivery,Basic concepts of health insurance,Insurance terminology
- Corporatization of Health Care:Impact on access, quality, and cost
- Globalization of Health Care:Trends and implications

- Prospects of New Health Care Reforms:Innovations and challenges,National and international reforms

Targeted Application and Tools that can be used:

- Health Management Information Systems (HMIS): For monitoring healthcare data at all levels.
- National Health Mission (NHM) Dashboards: Track performance of health programs.
- Electronic Health Records (EHR): Digitize patient information for better care.
- Telemedicine Platforms: Enable remote consultations, improving access.
- GIS Tools: Map healthcare facilities and plan services.

Project Work/ Assignments:

- Report on India's healthcare system levels and comparison with developed countries.
- Case study on community participation in healthcare.
- SWOT analysis of the private healthcare sector in India.
- Presentation on national health programs like Ayushman Bharat.
- Discussion on health policy challenges and solutions.
- Comparative analysis of global healthcare models.
- Project on digital health initiatives and their impact.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Analyzing the structure, functioning, and policies of India's healthcare system through field visits, role plays, case-based discussions, and health service mapping to understand referral mechanisms, public health programs, and levels of care for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: ENG1103	COURSE TITLE: ENGLISH (Type of Course: Ability Enhancement Course)	L-T-P-C	2	0	0	4
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course is designed to develop foundational communication skills crucial for healthcare professionals. It focuses on enhancing verbal and written communication, active listening, professional etiquette, and interpersonal dynamics within a healthcare setting. Emphasis is placed on effective patient interaction, accurate documentation, and collaboration within multidisciplinary teams. The course will also strengthen students' command of grammar, vocabulary, and fluency in English, enabling them to communicate confidently and clearly in diverse professional situations.					
Course Objective	• Develop communication skills – to interact effectively with patients in clinical and non-clinical settings. • Practice professional dialogue – to communicate clearly with healthcare colleagues and teams. • Apply communication strategies – to manage hospital and departmental interactions efficiently. • Use fundamental communication techniques – to support personal and professional conduct. • Enhance interpersonal communication – to build strong professional relationships and coordination. • Improve fluency in English – to ensure confidence and clarity in oral and written communication					
Course Outcomes	After completion of this course the student shall be able to **CO1:** Apply basic grammar rules and sentence structures in written communication. **CO2:** Develop clear and organized written content for various purposes. **CO3:** Communicate ideas clearly and confidently in spoken English. **CO4:** Use appropriate vocabulary and expressions in different contexts. **CO5:** Demonstrate fluency and correct pronunciation in everyday conversations. **CO6:** Integrate core language skills for effective communication in academic and professional settings.					
Course Content:						
MODULE 1	**Fundamentals of Communication Skills: Language, Writing, and Business Communication**	Assignment/ Quiz	Numerical solving Task	**30 HOURS**		
• Basic Language Skills: Grammar and Usage. • Business Communication Skills. With focus on speaking - Conversations, discussions, dialogues, short presentations, pronunciation.						

- Teaching the different methods of writing like letters, E-mails, report, case study, collecting the patient data etc. Basic compositions, journals, with a focus on paragraph form and organization.
- Basic concepts and principles of good communication

MODULE 2	**Health Communication: Types, Processes, and Therapeutic Techniques**	Assignment/ Quiz	Numerical solving Task	**30 HOURS**

- Special characteristics of health communication
- Types and process of communication – verbal, non-verbal and written communication.
- Upward, downward and lateral communication.
- Therapeutic communication: empathy versus sympathy.
- Communication methods for teaching and learning.
- Communication methods for patient education.
- Barriers of communication and how to overcome them.

Targeted Application and Tools that can be used:

- NPTEL Video Lectures: For language and communication enhancement
- Video Conferencing Tools: Zoom, Google Meet for virtual communication practice
- Language Learning Apps: Grammarly, Duolingo, or similar for grammar and vocabulary building
- Presentation Software: PowerPoint, Google Slides for enhancing presentation skills

Project Work/ Assignments:

- Grammar and usage exercises focused on healthcare contexts.
- Writing assignments: letters, emails, patient reports, case studies, and data collection.
- Oral presentations and dialogues on healthcare topics to build fluency.
- Role-play and simulations for therapeutic and professional communication.
- Analysis of communication barriers and strategies to overcome them.
- Seminar or video presentations on communication in healthcare.
- Use of online platforms and video lectures for skill enhancement.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Developing proficiency in medical communication through activities such as reading comprehension, technical writing, patient interview simulations, group discussions, and oral presentations for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: CSE1103	**Course Title: INFORMATION TECHNOLOGY**	**L-T-P-C**	2	0	0	4

	(Type of Course: Skill Enhancement)					
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course introduces students to fundamental computer concepts and technologies essential for modern applications, particularly in health sciences. Students will explore computer organization, operating system basics, and various software categories. Practical skills in using the Microsoft Windows environment, word processing, spreadsheets, and presentation tools will be developed. The course also emphasizes the role of digital technology in health sciences and equips students to use the internet effectively for personal and professional purposes.					
Course Objective	Upon completion of this course, students will be able to: ● Recognize the integral role of computer technology in modern applications. ● Gain a foundational understanding of computer organization and operating system principles. ● Develop familiarity with diverse software categories. ● Exhibit competence in utilizing the Microsoft Windows environment, MS Word, MS Excel, and MS PowerPoint.					
Course Outcomes	After completion of this course the student shall be able to: **CO1:** Identify and describe the key components and functions of a computer system. **CO2:** Operate a computer system and perform basic tasks using standard software. **CO3:** Use word processing, spreadsheet, and presentation tools for academic purposes. **CO4:** Navigate the internet and utilize online tools for communication and research. **CO5:** Apply digital skills for data entry, storage, and basic management tasks. **CO6:** Recognize the significance of digital technology in healthcare and allied sciences.					
Course Content:						
Module 1	**INTRODUCTION TO COMPUTER**	Assignment/ Quiz	Numerical solving Task	**5 HOURS**		
● Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages.						
Module 2	**INPUT OUTPUT DEVICES**	Assignment/ Quiz	Memory Recall based Quizzes	**7 HOURS**		
● Input devices (keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision-input devices), output devices(monitors,						

pointers, plotters, screen image projector, voice response systems).				
Module 3	**PROCESSOR AND MEMORY**	Assignment/ Quiz	Numerical solving Task	**6 HOURS**
• The Central Processing Unit (CPU), main memory. • Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices				
Module 4	**INTRODUCTION OF WINDOWS**	Assignment/ Quiz	Numerical solving Task	**7 HOURS**
• History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, moving, resizing, minimizing and maximizing, etc.).				
Module 5	**INTRODUCTION TO MS WORD**	Assignment/ Quiz	Numerical solving Task	**7 HOURS**
• Introduction, components of a word window, creating, opening and inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge.				
Module 6	**INTRODUCTION TO EXCEL**	Assignment/ Quiz	Numerical solving Task	**6 HOURS**
• Introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.				
Module 7	**INTRODUCTION TO POWERPOINT**	Assignment/ Quiz	Numerical solving Task	**7 HOURS**
• Introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs/ photos/ Videos.				
Module 8	**INTRODUCTION TO OPERATING SYSTEM**	Assignment/ Quiz	Numerical solving Task	**7 HOURS**
• Introduction, operating system concepts, types of operating system.				
Module 9	**COMPUTER NETWORKS**	Assignment/ Quiz	Numerical solving Task	**8 HOURS**
• Introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network. • Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices				
Targeted Application and Tools that can be used: • Operating System: Microsoft Windows (file management, desktop navigation) • Productivity Software: MS Word (documents), MS Excel (spreadsheets, charts), MS PowerPoint (presentations) • Hardware Devices: Keyboards, mouse, scanners, printers, monitors • Storage Devices: Hard drives, USB drives, optical disks • Networking and Internet: LAN/WAN basics, web browsers (Chrome, Firefox), email (Outlook, Gmail), internet applications • Health Sciences Tools: Introduction to Electronic Health Records (EHR) and health informatics systems				
List of Laboratory Tasks:				
• **NIL**.				

Text Book(s):

- Computer Fundamentals – P.K. Sinha and P. Sinha
- Introduction to Computers – Peter Norton
- Fundamentals of Information Technology – Alexis Leon and Mathews Leon

Reference Book (s):

- Computer Skills for the Information Age – Bernard J. Poole
- Digital Literacy: Tools and Methods – Rhea Paul
- Computers in the Health Sciences – Marvin J. Dainoff

Project Work/ Assignments:

- Create a presentation using PowerPoint on the evolution of computers and applications in healthcare.
- Prepare an MS Word document with proper formatting and use of tables (e.g., patient records or therapy schedules).
- Design an Excel spreadsheet for data entry and basic graph/chart creation (e.g., tracking patient progress).
- Assignment on Computer Networks and Internet Use in Healthcare (LAN/WAN, EHR, web applications).
- Quiz on Operating Systems and Storage Devices.
- Assignment on the Application of Computers in Clinical Settings, including EHR basics.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Operating basic computer applications including word processing, spreadsheets, presentations, internet browsing, electronic health records, and data management software for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2107	**COURSE TITLE: CLINICAL ORIENTATION (150 HOURS)**	**L-T-P-C**	0	0	10	5
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This foundational course introduces students to the clinical environment and the healthcare system. It is designed to help students understand the roles and					

	responsibilities of a physio=therapist in diverse healthcare settings. Through hospital visits, observation, and supervised interaction with patients and professionals, students will gain awareness of hospital protocols, interprofessional communication, and basic patient care. The course emphasizes professional behavior, ethical conduct, and patient safety, preparing students for future clinical training.
Course Objective	
Course Outcomes	• Familiarize students with the clinical and hospital setup. • Observe and understand the role of the physiotherapist within a multidisciplinary healthcare team. • Develop basic communication and professional behavior in clinical settings. • Understand basic patient care, hospital ethics, and patient safety protocols. • Learn documentation procedures and infection control principles.
Course Content:	**CO1:** Describe the structure of hospital departments and explain the role of physiotherapy in various clinical settings. **CO2:** Observe and interpret the roles of different healthcare professionals, promoting understanding of interprofessional collaboration. **CO3:** Demonstrate basic clinical communication skills, including patient interaction and professional etiquette. **CO4:** Identify key principles of patient safety, infection control, and the importance of maintaining hygiene standards in clinical settings. **CO5:** Understand the ethical and legal responsibilities of a physiotherapist during patient care and documentation. **CO6:** Reflect on clinical observations and experiences to begin developing a patient-centered approach in physiotherapy practice.
Topics relevant to "SKILL DEVELOPMENT": Observing and participating in basic clinical procedures, patient handling, infection control practices, interprofessional team dynamics, and documentation processes in hospital and outpatient settings for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.	

Course Code: BPT2201	**COURSE TITLE: PATHOLOGY and MICROBIOLOGY(PM)** **(Type of Course: Core Course)**		**L-T-P-C**	6	2	0	8
Version No.	1.0						
Course Pre-requisites	NIL						
Anti-requisites	NIL						
Course Description	This course offers students a foundational understanding of disease mechanisms (Pathology) and the microbial causes of infections (Microbiology), including hospital-acquired infections. It emphasizes key pathological processes such as cell injury, inflammation, thrombosis, and neoplasia, and connects these with the pathogenesis of major organ system diseases. The microbiology component focuses on clinically important pathogens and prevention strategies, bridging preclinical knowledge with clinical application essential for effective treatment and prevention.						
Course Objective	Upon completion of this course, students will be able to: ● Understand the causes and mechanisms of common diseases affecting various organ systems. ● Explain key pathological processes including cell injury, inflammation, thrombosis, and neoplasia. ● Recognize important microorganisms responsible for infections, including hospital-acquired infections. ● Apply basic pathological and microbiological knowledge to support clinical decision-making and preventive healthcare strategies.						
Course Outcomes	After completion of this course, the student shall be able to: **CO1:** Able to explain key pathological processes such as cell injury, inflammation, thrombosis, neoplasia, and their significance in disease mechanisms. **CO2:** Understand and describe the relationship between pathological changes and clinical conditions affecting musculoskeletal, cardiovascular, neurological, and oncological systems. **CO3:** Identify, classify, and describe characteristics and disease-causing potential of various microorganisms including bacteria, viruses, and fungi. **CO4:** Understand the mechanisms of infection, immune responses, and modes of disease transmission, with emphasis on preventive healthcare. **CO5:** Apply standard infection control practices and demonstrate sterile techniques relevant to physiotherapy clinical settings. **CO6:** Able to correlate clinical symptoms with underlying pathological and microbiological processes for better diagnosis, treatment, and patient care.						
Course Content:							
Module 1	**CELL INJURY AND CAUSES OF DISEASE**		Assignment/ Quiz		Numerical solving Task	**25 HOURS**	
● Understand the various causes of disease. ● Describe the mechanisms of cell injury, specifically focusing on hypoxia and free radical injury.							

- Differentiate between necrosis and gangrene.
- Explain the pathological processes involved in inflammation.
- Distinguish between acute and chronic inflammation.
- Explain the processes of primary and secondary wound healing.
- Discuss the factors that influence the healing and repair of soft tissues and skin.

Module 2	**SYSTEMIC PATHOLOGY**	Assignment/ Quiz	Memory Recall based Quizzes	**25 HOURS**

- Understand fluid and hemodynamic derangements (edema, hyperemia, hemorrhage, shock, embolism, thrombosis, infarction).
- Grasp basic immune mechanisms (natural and acquired), autoimmune and immunodeficiency diseases.
- Understand benign vs. malignant tumor characteristics, grading, staging, and general effects of malignancy.
- Outline carcinogenic agents and methods of malignancy diagnosis.
- Classify nutritional disorders and understand key deficiency disorders (protein, vitamins A, B, C, D, E, K, iodine).
- Understand the impact of nutritional deficiencies on muscles, bones, and neurological function.
- Describe hypersensitivity reactions

Module 3	**DISORDERS OF BLOOD AND CIRCULATORY SYSTEM**	Assignment/ Quiz	Numerical solving Task	**35 HOURS**

Discuss the etiology, pathology, clinical features, diagnostic methods, and management of common blood disorders, including:

- Anemias: nutritional, chronic disease-related
- Leukemias: classification, presentation, and treatment approaches

Describe and explain causative factors, pathology, clinical features, diagnosis and management of major vascular and cardiac conditions, including:

- Atherosclerosis, Thromboangiitis Obliterans, Varicose Veins, DVT, Thrombophlebitis
- Lymphedema, Rheumatic Heart Disease, Congestive Cardiac Failure
- Ischemic Heart Disease: angina, MI – risk factors, investigations, and treatment
- Congenital Heart Diseases: ASD, VSD, TOF – clinical signs, diagnosis, and correction

Identify and discuss the etiology, pathology, clinical course, diagnosis and management of respiratory diseases, such as:

- Pneumonia, Bronchiectasis, Emphysema, Chronic Bronchitis, Asthma
- Occupational Lung Diseases (e.g., silicosis, asbestosis), Lung Carcinoma

Explain the etiology, pathology, clinical representations, diagnosis and management of musculoskeletal disorders, including:

- Arthritis: rheumatoid, degenerative, infective, metabolic
- Bone diseases: osteoporosis, Paget's disease, osteomyelitis, osteogenesis imperfecta
- Muscle disorders: muscular dystrophy, myasthenia gravis, myositis

- Bone tumors: overview of benign and malignant types
- Muscular dystrophy
- Myasthenia Gravis
- Myositis

Outline the causative factors, pathological changes, and clinical manifestations of key nervous system disorders, such as:

- Meningitis, Encephalitis
- Cerebrovascular diseases: stroke, TIA
- Peripheral nerve lesions
- Degenerative disorders: Parkinson's disease, Alzheimer's disease

Describe major endocrine disorders, their causes, features, and treatment strategies, including:

- Diabetes Mellitus: Type 1 and 2
- Thyroid disorders: thyroiditis, thyrotoxicosis, myxedema

MODULE 4	**CLASSIFICATION OF MICROORGANISMS**	Assignment/ Quiz	Memory Recall based Quizzes	**35 HOURS**

Classify microorganisms based on structure, staining characteristics, and pathogenic potential, including:

- Bacteria
- Viruses
- Fungi
- Parasites
- Chlamydia and other atypical organisms

Discuss the types, sources, and mechanisms of infection, including:

- Modes of transmission: direct, indirect, airborne, droplet, vector-borne
- Portals of entry and exit of pathogens
- Host-pathogen interaction and immune response
- Carrier state and nosocomial (hospital-acquired) infections

Describe principles of prevention and control of infections:

- Standard precautions, sterilization, disinfection
- Immunization programs and chemoprophylaxis
- Public health measures and isolation techniques

Explain the causative factors and pathology of common infectious diseases, and

Outline the management strategies for these diseases, including general symptomatic care, antibiotics, antivirals, antifungals, antiparasitics, and vaccines.

List and explain the etiology, pathology, clinical features, diagnosis, and management of important bacterial diseases, including:

- Diphtheria, Whooping Cough (Pertussis), Tetanus
- Pyogenic infections and Gram-negative infections
- Bacillary Dysentery, Gastroenteritis, Food Poisoning
- Sexually Transmitted Diseases (STDs), Syphilis
- Tuberculosis and Leprosy – focus on chronicity, public health impact, and multi-drug resistance

Describe the causative agents, disease mechanisms, clinical manifestations, diagnosis, and treatment of viral infections, including:

- Poliomyelitis, Herpes Simplex, Rabies
- Measles, Mumps, Rubella, Chickenpox, Influenza
- Chlamydial infections and HIV/AIDS
- Recognize differences in transmission, latency, and vaccine-preventability

Describe the pathogenesis, clinical signs, and management of fungal and opportunistic infections, such as:

- Superficial and deep mycoses (e.g., candidiasis, aspergillosis)
- Opportunistic infections in immunocompromised patients (e.g., cryptococcosis, mucormycosis)

Explain the etiology, pathology, clinical features, diagnostic methods, and treatment of key parasitic infections, including:

- Malaria – life cycle, Plasmodium species, fever patterns, antimalarials
- Filaria – lymphatic damage, elephantiasis
- Amoebiasis – intestinal vs. extra-intestinal, stool microscopy
- Kala-azar (Leishmaniasis) – visceral symptoms, vector control
- Cysticercosis and Hydatid cyst – larval stages of tapeworms, imaging, surgical and medical options

Targeted Application and Tools that can be used:

- Microscopy (Light and Electron) – for examination of cell injury, tissue morphology, and microorganisms.
- Histopathology slide analysis – to identify features of inflammation, neoplasia, and degenerative changes.
- Gram staining and acid-fast staining – for classification and diagnosis of bacterial infections.
- Culture media and techniques – for isolation and identification of microbes.
- WHO/CDC modules – on hospital-acquired infection prevention and biosafety.

Text Book(s):

- Cotran, Kumar and Robbins Robbins Pathological Basis of Disease - - W.B. Saunders.
- Harsh Mohan Text book of Pathology - - Jaypee Brothers.
- Goodmann and Boissonnault Pathology: Implications for Physical Therapists - - W.B. Saunders.
- Bhatia and Lal Essential of Medical Microbiology - - Jaypee Brothers.

Reference Book (s):

- Walter and Israel, General Pathology - - Churchill Livingstone.
- Anderson Muirs Textbook of Pathology - - Edward Arnold Ltd.
- Ackerman and Richards - Microbiology: An Introduction for the Health Sciences – W.B. Saunder

Project Work/ Assignments:

- Case-based discussion: Pathophysiology of myocardial infarction or stroke.
- Describe mechanisms of cell injury (hypoxia, free radicals) and healing (primary vs. secondary).

- Worksheet: Identify and tabulate common hospital-acquired infections (HAIs) with prevention strategies.
- Short notes: Acute vs. chronic inflammation; benign vs. malignant tumors.
- Pathology chart/model: Create a visual flowchart of inflammation or wound healing.
- Group project: Design a poster on infection control in hospital settings.
- Microbiology field activity: Survey/report on hand hygiene practices among students/staff.
- 3D model: Demonstrate thrombus formation and embolism using art materials.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Performing basic laboratory procedures such asidentification of microorganisms, and interpretation of common pathological reports while understanding the pathological basis of diseases and infection control measures for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2202	**COURSE TITLE: PHARMACOLOGY** **(Type of Course: Core Course)**	**L-T-P-C**	4	2	0	6
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course introduces students to the fundamental principles of pharmacology, focusing on commonly used drugs and their role in treatment, including physiotherapy. It covers general concepts of drug action, pharmacokinetics, and pharmacodynamics without delving into detailed chemistry. The course highlights the therapeutic, adverse, and contraindicated effects of drugs, and emphasizes the integrated role of drugs and physiotherapy in patient care.					
Course Objective	Upon completion of this course, students will be able to: ● Understand the basic pharmacological principles, including how the body handles drugs and how drugs affect body functions. ● Recognize the role of commonly used drugs in managing various clinical conditions relevant to physiotherapy. ● Appreciate the combined effects of drug therapy and physiotherapy on treatment outcomes. ● Identify safety considerations including contraindications and precautions associated with drug use.					
Course Outcomes	After completion of this course, the student shall be able to: **CO1:** Describe the concepts of pharmacology, including pharmacokinetics and pharmacodynamics, of commonly used drugs. **CO2:** Discuss the effects of commonly used drugs on body functions. **CO3:** Explain the therapeutic and adverse effects, contraindications, and precautions for commonly used drugs. **CO4:** Discuss the pharmacological effects of drugs used in managing pain, inflammatory, cardiovascular, respiratory, neurological, and oncological disorders. **CO5:** Explain the effect of commonly prescribed exercise and movement on pharmacological responses. **CO6:** Identify the red and yellow flags for physiotherapy prescription based on the pharmacological effects of commonly prescribed drugs.					
Course Content:						
MODULE 1	**GENERAL PHARMACOLOGY and INFLAMMATORY/ IMMUNE DISEASES**	Assignment/ Quiz		Numerical solving Task		**20 HOURS**
● Drug definition/classification, sources, routes, distribution, metabolism, excretion (pharmacokinetics), drug action (pharmacodynamics), modifying factors, adverse effects						

● Non-narcotic analgesics/NSAIDs (types, uses, interactions), glucocorticoids (uses, adverse effects), drugs for arthritis (RA, OA, gout), drugs for neuromuscular immune/inflammatory diseases.				
MODULE 2	**AUTONOMIC NERVOUS SYSTEM and CARDIOVASCULAR PHARMACOLOGY**	Assignment/ Quiz	Memory Recall based Quizzes	**20 HOURS**
● Sympathetic/parasympathetic/somatic systems, receptors, cholinergic/anticholinergic drugs, adrenergic/blocking drugs, peripheral muscle relaxants. ● Drugs for heart failure (digitalis, diuretics, vasodilators, ACE inhibitors), antihypertensives (various classes), antiarrhythmics, drugs for vascular disease/ischemia (hemostasis, lipid-lowering, antithrombotics, anticoagulants, thrombolytics), drugs for ischemic heart disease (nitrates, beta-blockers, calcium channel blockers) and for cerebral/peripheral vascular disease.				
MODULE 3	**NEUROPHARMACOLOGY**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**
● Sedative-hypnotics (barbiturates, benzodiazepines), antianxiety drugs (benzodiazepines, others), drugs for mood disorders (MAOIs, TCAs, atypicals, lithium), antipsychotics.				
MODULE 4	**DISORDERS OF MOVEMENT and RESPIRATORY/ GASTROINTESTINAL PHARMACOLOGY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
● Drugs for Parkinson's, antiepileptics, spasticity/skeletal muscle relaxants. ● Drugs for obstructive airway diseases and allergic rhinitis. ● Drugs for peptic ulcer, constipation, diarrhea.				
MODULE 5	**GERIATRICS and CHEMOTHERAPEUTIC AGENTS**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**
● **Geriatrics:** Adverse drug effects in the elderly (dementia, postural hypotension). ● **Chemotherapeutic Agents:** Basic principles and types.				
Targeted Application and Tools that can be used: ● Drug information databases and apps (e.g., Medscape, Epocrates) – for up-to-date drug profiles and interactions. ● Pharmacokinetic modeling software – to understand drug absorption, distribution, metabolism, and excretion. ● Case-based learning modules – integrating pharmacology with physiotherapy treatment planning. ● Patient medication review checklists – for identifying red and yellow flags related to physiotherapy. ● Simulation labs – to practice dose calculations, drug administration techniques, and monitoring adverse effects.				
Text Book(s): ● Udaykumar P. Pharmacology for physiotherapy. Jaypee Bros. Medical Publishers;2011. ● Ramesh KV, Shenoy KA. Pharmacology for Physiotherapists. Jaypee Brothers Medical Publishers Pvt. Limited;2005. ● Tripathi KD. Essentials of medical pharmacology. JP Medical Ltd;				
Reference Book (s): ● The Pharmacological basis of Therapeutics - Goodman and Gilman - MacMillan. ● Satoskar RS, Rege N, Bhandarkar SD. Pharmacology and pharmacotherapeutics. Elsevier India; 2017 **Project Work/ Assignments:**				

- Explain the pharmacokinetics and pharmacodynamics of commonly used drugs with examples.
- Compare NSAIDs and glucocorticoids in terms of mechanisms, therapeutic uses, and side effects.
- Analyze a case study on arthritis management including drugs used and their pharmacological effects.
- Chart and classify drugs acting on the sympathetic, parasympathetic, and somatic nervous systems including receptor types and effects.
- Describe different classes of antihypertensives, their mechanisms, clinical uses, and side effects.
- Prepare multiple-choice questions on heart failure drugs, antiarrhythmics, and drugs for vascular diseases.
- Explain the pharmacology of mood disorder drugs such as MAO inhibitors, tricyclic antidepressants, and atypical antidepressants.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Identifying commonly prescribed drugs, understanding their therapeutic effects, side effects, and interactions, and interpreting medication charts and prescriptions relevant to physiotherapy practice for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2203	**COURSE TITLE: PUBLIC HEALTH and HEALTH PROMOTION (PH)** **(Type of Course: Multidisciplinary Course)**		**L-T-P-C**	6	2	0	8
Version No.	1.0						
Course Pre-requisites	NIL						
Anti-requisites	NIL						
Course Description	This course aims to equip students with an understanding of the health and disease patterns prevalent in the community. It emphasizes the role of health determinants, health education, disease prevention, and health administration in promoting population health. Through lectures and discussions, students will learn about national health policies, healthcare systems, and the application of epidemiological principles and preventive strategies to physiotherapy and community-based healthcare.						
Course Objective	Upon completion of this course, students will be able to: ● Understand the major health issues affecting communities. ● Learn the structure and function of the Indian healthcare delivery system. ● Appreciate the role of individuals, families, and communities in maintaining health. ● Understand national health policies and programs in the context of physiotherapy. ● Apply preventive and epidemiological principles in healthcare practice						
Course Outcomes	After completion of this course, the student shall be able to: **CO1:** Discuss the determinants of health in relation to the local context. **CO2:** Discuss national health policies and programs and their relevance to physiotherapy practice. **CO3:** Explain the structure and function of the healthcare delivery system in India. **CO4:** Describe the role of the individual, family, and community in maintaining health. **CO5:** Discuss the levels of prevention and their application in health care delivery. **CO6:** Explain the basic epidemiological principles of health.						
Course Content:							
MODULE 1	**HEALTH , DISEASE AND EPIDEMIOLOGY**	Assignment/ Quiz	Numerical solving Task	**30 HOURS**			
Define and explain key concepts related to health and disease, including: ● Definitions,Concepts and dimensions of health (physical, mental, social, spiritual) ● Indicators of health (mortality, morbidity, life expectancy, etc.) ● Concept of well-being and the spectrum of health from optimal health to death ● Determinants of health (biological, environmental, social, behavioral) ● Natural history of disease and levels of prevention (primordial, primary, secondary, tertiary)							

- Modes of disease control and intervention (prevention, eradication, rehabilitation)
- Introduction to population medicine and its role in public health practice

Define and discuss the scope and principles of epidemiology, including:

- Components and aims of epidemiology
- Basic epidemiological measurements: incidence, prevalence, risk, rates, ratios
- Types of epidemiological methods: descriptive, analytical, and experimental
- Uses of epidemiology in planning, diagnosis, evaluation, and research
- Infectious disease epidemiology: chain of infection, reservoir, vector, host
- Modes of disease transmission: direct and indirect
- Host defense mechanisms and the role of immunizing agents
- Types of immunization, potential hazards, and vaccine safety
- Concepts of disinfection and methods of disease control in the community
- Principles of disease screening: aims, uses, and types (mass, selective, multiphasic)

Describe the epidemiology, risk factors, and public health strategies for the prevention and control of communicable diseases, including:

- Respiratory infections (e.g., tuberculosis, influenza)
- Intestinal infections (e.g., cholera, typhoid, hepatitis A/E)
- Arthropod-borne infections (e.g., malaria, dengue, chikungunya)
- Zoonotic diseases (e.g., rabies, leptospirosis)
- Surface infections (e.g., tetanus, trachoma, skin infections)
- Hospital-acquired infections: causes, control measures, and surveillance strategies

Explain the epidemiology and prevention strategies for major non-communicable diseases (NCDs), including:

- Cardiovascular diseases: coronary heart disease, hypertension, stroke, rheumatic heart disease
- Metabolic disorders: diabetes mellitus, obesity
- Chronic conditions and others: cancer, blindness, injuries, and accidents
- Understand common risk factors (tobacco, diet, physical inactivity, alcohol, stress)
- Discuss early detection, screening, and public health interventions for NCDs

MODULE 2	**EPIDEMIOLOGY OF DISEASES, PUBLIC HEALTH ADMINISTRATION AND NATIONAL HEALTH PROGRAMS**		Memory Recall based Quizzes	**30 HOURS**

Explain the structure and functions of public health administration in India, including:

- Overview of the health administrative setup at the central and state levels
- Roles and responsibilities of national and state-level public health agencies
- Influence of social, economic, and cultural factors on the implementation of health Programs
- Identify health problems of vulnerable groups such as:
    - Pregnant and lactating women
    - Infants and preschool children
    - Occupational groups (e.g., industrial workers, agricultural laborers)

List and describe major national health Programs in India, including their objectives, target

populations, strategies, and key interventions:

- Vector Borne Disease Control Program
- National Leprosy Eradication Program (NLEP)
- Revised National Tuberculosis Control Program (RNTCP)
- National AIDS Control Program (NACP)
- National Program for Control of Blindness (NPCB)
- Iodine Deficiency Disorders Control Program
- Universal Immunisation Program (UIP)
- Reproductive and Child Health (RCH) Program
- National Cancer Control Program
- National Mental Health Program (NMHP)
- National Diabetes Control Program
- National Family Welfare Program
- National Sanitation and Water Supply Program
- Minimum Needs Program (MNP)

Define and explain key concepts in demography and family planning, including:

- Stages of the demographic cycle
- Indicators such as fertility, crude birth rate, and growth rate
- Objectives of the National Family Planning Program
- Overview of family planning methods
- Discuss advantages and disadvantages of various methods

Describe the application of preventive medicine in obstetrics, paediatrics, and geriatrics, including:

- Maternal and child health (MCH): antenatal, intranatal, postnatal care
- Common child health problems and their prevention (e.g., malnutrition, infections)
- Rights of the child and the National Policy for Children
- Indicators of MCH care and effectiveness of MCH services
- Social welfare Programs for women and children (e.g., ICDS, Janani Suraksha Yojana)
- Preventive geriatrics: health needs and strategies for elderly care

MODULE 3	**INTEGRATED PUBLIC HEALTH PERSPECTIVES**	Assignment/ Quiz	Numerical solving Task	**30 HOURS**

- Nutritional Health and Public Health:
    - Food classification and nutritional profiles.
    - Public health nutritional problems (malnutrition, deficiencies, diet-related diseases).
    - Community nutrition program principles.
- Environmental Health and Public Health:
    - Environmental components and their impact on health.
    - Water and air pollution: sources, health effects, control measures.
    - Waste disposal methods and public health implications.
    - Medical entomology: disease vectors and their control.
- Hospital Waste Management and Public Health:
    - Sources and categories of hospital waste.

- Health hazards associated with hospital waste.
- Principles of effective hospital waste management.

- Disaster Management and Public Health:
  - Types of natural and man-made disasters.
  - Disaster impact on health and infrastructure.
  - Relief phase interventions and public health priorities.
  - Epidemiologic surveillance and disease control in disasters.
  - Nutritional considerations in disaster relief.
  - Principles of post-disaster rehabilitation.
- Importance of disaster preparedness strategies.

MODULE 4	**INDIVIDUAL AND COMMUNITY HEALTH STRATEGIES**	Assignment/ Quiz	Memory Recall based Quizzes	**30 HOURS**

Occupational Health:

- Occupational environment and its various factors.
- Identification and assessment of occupational hazards.
- Common occupational diseases and their causes.
- Strategies for the prevention of occupational diseases.
- Social security and protective measures for workers.
- Understanding and application of compensation acts.

Mental Health:

- Characteristics of mental well-being.
- Common types of mental illnesses.
- Biological, psychological, and social causes of mental ill health.
- Levels of prevention in mental health.
- Types and accessibility of mental health services.
- Issues related to alcohol and drug dependence.
- Emphasis on community-based mental health approaches.
- Role of physiotherapy in mental health (e.g., mental retardation).

Health Education:

- Defining health education, its aims, and objectives.
- Different approaches to delivering health education.
- Theoretical models underpinning health education interventions.
- Key content areas of health education programs.
- Fundamental principles for effective health education.
- Practical application and methods of health education.

Exercise as Preventive Medicine:

- Benefits of exercise for older adults (mobility, falls, chronic disease).
- Role of physical activity for the working population (sedentary behavior, stress).
- Importance of exercise for adolescents and children (growth, bone health, obesity).
- Strategies for promoting societal fitness and physical activity.

Targeted Application and Tools that can be used:

- Epidemiological data analysis software (e.g., Epi Info, SPSS) – for interpreting public health data
- National Health Portal and Ministry of Health resources – for access to updated national policies and programs
- WHO and CDC online toolkits – for global disease surveillance and prevention strategies
- Public health case simulation modules – to apply epidemiological principles in real-world scenarios
- Health promotion campaign design tools (e.g., Canva, Adobe Express) – for creating health education materials
- Community survey templates and fieldwork tools – for needs assessment and evaluation
- GIS mapping tools (e.g., QGIS) – for spatial analysis of disease patterns
- Digital dashboards and HMIS platforms – to monitor healthcare delivery metrics
- Online training platforms (e.g., NPTEL, WHO Academy) – for continuous learning in public health
- Group assignments using local health data – to develop actionable community health improvement plans

Text Book(s):

- Park K: Park's textbook of preventive and social medicine. 24th Ed, M/s Banarasidas Bhanot, Jabalpur, 2017
- Rao SB: Principles of community medicine. 4th Ed, AITBS Publishers and distributors, New Delhi, 2005.
- Rahim A: Principles and practice of community medicine. 1st Ed, Jaypee brothers, New Delhi. 2008.
- Gupta MC and Mahajan BK: Textbook of preventive and social medicine. 3rd Ed, Jaypee Brothers, New Delhi, 2003

Reference Book (s):

- Matzen RN, Lang RS: Clinical preventive medicine. Mosby, Missouri,
- Abramson JH, Abramson ZH: Survey methods in community medicine, Churchill Livingstone, Edinburgh,
- Jekel JF, Katz DL, Elmore JG: Epidemiology, Biostatistics and Preventive Medicine, 2nd Ed, Saunders, Philadelphia, 2001.

Project Work/ Assignments:

1. Define health and list major health determinants.
2. Report on key health indicators using Indian data.
3. Compare communicable and non-communicable diseases.
4. Essay on physiotherapist's role in preventing lifestyle diseases.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Planning and delivering community-based health education, conducting health screening camps, assessing social determinants of health, and promoting wellness through lifestyle modification strategies for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2204	**COURSE TITLE: EMERGENCY CARE AND LIFE SUPPORT SKILLS** **(Type of Course: Skill Enhancement Course)**		**L-T-P-C**	4	2	2	7
Version No.	1.0						
Course Pre-requisites	NIL						
Anti-requisites	NIL						
Course Description	This course equips students with critical knowledge and hands-on skills required to act as effective first responders in emergency situations. Emphasis is placed on recognizing medical emergencies, administering basic life support (BLS) including CPR and AED use, and managing trauma and medical emergencies. Through simulation-based training, students gain confidence in performing life-saving procedures, ensuring patient safety during transport, and understanding their role and limitations as first responders.						
Course Objective	Upon completion of this course, students will be able to: ● Recognize and respond effectively to emergency medical situations. ● Perform essential BLS procedures including CPR, airway management, and patient ventilation. ● Administer first aid for trauma, burns, wounds, and medical emergencies like heart attacks and strokes. ● Demonstrate safe patient handling and transport techniques. ● Understand the ethical responsibilities, limitations, and scope of a first responder's role.						
Course Outcomes	After completion of this course, the student shall be able to: **CO1**: Perform airway assessment and apply maneuvers and adjuncts to maintain a patent airway and support effective breathing. **CO2**: Administer Basic Life Support (BLS), including CPR, mouth-to-mouth/mask ventilation, and use of an Automated External Defibrillator (AED). **CO3**: Provide first aid for trauma, including hemorrhage control, burn and wound management, and stabilization of injuries. **CO4**: Manage medical emergencies such as heart attacks, strokes, seizures, and animal bites through recognition, response, and safe transfer. **CO5**: Demonstrate safe patient handling and transport techniques, including spinal precautions, victim extrication, and helmet removal. **CO6**: Explain and apply the responsibilities, limitations, and communication skills required of a first responder during emergencies.						
Course Content:							
MODULE 1	**FIRST RESPONDER PRINCIPLES**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**			
● Understand emergency significance, golden hour, and first responder duties. ● Know ethical considerations and information gathering. ● Adapt to changing situations and organize work. ● Prioritize scene safety and manage emotional reactions. ● Emphasize responder well-being and personal protection against pathogens.							

- Identify appropriate PPE for various hazardous scenarios.

MODULE 2	**AIRWAY, VENTILATION AND CIRCULATION**	Assignment/ Quiz	Memory Recall based Quizzes	**25 HOURS**

- Airway: Recognize inadequate breathing; use appropriate maneuvers (head-tilt chin-lift, jaw thrust) considering injury; remove foreign bodies; maintain airway during seizures/vomiting.
- Ventilation: Provide ventilation with mask/barrier and mouth-to-mouth/stoma.
- Circulation: Evaluate cardiac status; ensure proper circulation; control bleeding with pressure/tourniquet.
- Obstruction: Learn techniques for clearing foreign body airway obstruction.

MODULE 3	**IMMEDIATE LIFE THREATENING CONDITIONS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Cardiac Arrest: Recognize, initiate CPR (Cardiopulmonary resuscitation), understand AED role (demonstration), know when to stop.
- Bleeding: Differentiate arterial/venous, stop external bleeding (pressure, elevation, pressure points, tourniquet), recognize internal bleeding.
- Soft Tissue and Burns: Basic wound care (dressings/bandages), initial burn first aid.
- Musculoskeletal Injuries: Suspect bone/spinal injury, understand splinting (materials, importance).

MODULE 4	**MEDICAL EMERGENCIES**	Assignment/ Quiz	Memory Recall based Quizzes	**20 HOURS**

- Medical Emergencies: Recognize and provide initial aid for seizures, chest pain, breathlessness, heat, allergy, diarrhea, fainting, low sugar, stroke.
- Drowning/Poisoning: Basic first aid principles.
- Transportation: Importance of timely/proper transport, spine protection.
- Disaster Preparedness: Risk reduction, incident command, resource management.

Targeted Application and Tools that can be used:

- CPR manikins and simulation dummies – for practicing airway management, chest compressions, and rescue breaths
- Automated External Defibrillator (AED) trainers – for hands-on training in cardiac arrest response
- First aid kits and trauma simulation materials – to simulate burns, bleeding, fractures, and wound care
- Spinal immobilization boards and cervical collars – for practicing safe extrication and transport techniques
- Simulation apps and AR/VR tools (e.g., *Resuscitation!*, *First Aid VR*) – for immersive scenario-based learning
- Pulse oximeters and basic monitoring devices – for vital sign assessment and triage decisions
- Protective personal equipment (PPE) – for teaching infection prevention and responder safety

List of Laboratory Tasks: (30 HOURS)

1. Demonstration of airway management and assisted ventilation using mannequins.
2. Demonstration of Basic Life Support (BLS), including CPR techniques and AED use.
3. Demonstration of initial management for thermal and electrical injuries.

4. Demonstration of wound care, bandaging techniques, and stabilization of injured extremities.
5. Demonstration of safe patient transport including extrication, helmet removal, spinal precautions, and stretcher use.

Text Book(s):

Indian red cross : INDIAN FIRST AID MANUAL 2016 (7th edition) available at https://www.indianredcross.org/publications/FA-manual.pdf

Project Work/ Assignments:

- Case Study Analysis – Describe a real-life emergency scenario and outline step-by-step first responder actions (Golden Hour focus).
- Demonstration Assignment – Record a video or perform a live demo of CPR and AED use on a mannequin or simulated patient.
- Poster/Infographic – Design a quick-reference chart on signs of stroke, heart attack, and corresponding first aid steps.
- Group Role-Play – Simulate a scene involving trauma victims and perform triage, hemorrhage control, and airway management.
- Quiz-Based Assessment – On ethical responsibilities, PPE usage, and basic patient interaction techniques.
- First Aid Kit Preparation Project – Assemble and label a personal or family first aid kit with justification for each item.
- Ventilation Techniques Practice – Practical assignment on mouth-to-mouth and barrier ventilation techniques.
- Flowchart Activity – Create a flowchart of BLS steps for an unresponsive victim (adult/child).
- Written Assignment – Essay on the importance of scene safety, personal protection, and responder stress management.
- Spinal Immobilization Demo – Practice proper helmet removal and spine protection during mock patient transport.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Performing basic life support (BLS), cardiopulmonary resuscitation (CPR), airway management, bleeding control, and initial emergency response techniques in simulated and supervised clinical environments for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2205	**COURSE TITLE: EXERCISE THERAPY** **(Type of Course:Core Course)**		**L-T-P-C**	6	4	8	14
Version No.	1.0						
Course Pre-requisites	Fundamentals of Exercise Modalities.						
Anti-requisites	NIL						
Course Description	This course provides students with in-depth theoretical knowledge and advanced practical skills in exercise therapy, progressing beyond foundational techniques. Students will gain proficiency in advanced therapeutic interventions including stretching, relaxation, suspension therapy, hydrotherapy, manual therapy, aerobic training, and functional re-education. Emphasis is placed on developing hands-on competency through the DOAP (Demonstrate–Observe–Assist–Perform) model, empowering students to independently plan and execute patient-specific exercise programs in varied clinical scenarios**.**						
Course Objective	Upon completion of this course, students will be able to: ● Understand the advanced physiological basis of various therapeutic exercises. ● Learn to select, adapt, and safely apply different types of exercises based on patient assessment. ● Develop practical competence in administering advanced exercise techniques. ● Integrate therapeutic exercise into patient care plans, promoting functional recovery and mobility.						
Course Outcomes	After completion of this course, the student shall be able to: **CO1:** Explain the physiological effects of endurance, strengthening, balance, and coordination exercises on various body systems. **CO2:** Differentiate between passive, active, assisted, endurance, strengthening, balance, and coordination exercises based on their therapeutic goals. **CO3:** Discuss the indications, contraindications, and precautions for various types of therapeutic exercises. **CO4:** Demonstrate the ability to prescribe and perform Passive, Active, and Assisted Range of Motion exercises. **CO5:** Demonstrate competency in prescribing and performing Endurance, Strengthening, Balance, and Coordination exercises. **CO6:** Design and customize therapeutic exercise programs based on patient assessments and individual clinical needs.						
Course Content:							
MODULE 1	**Therapeutic Techniques and Functional Rehabilitation**	Assignment/ Quiz		Numerical solving Task		**35 HOURS**	
● Relaxation: Understand principles and demonstrate techniques (general, local, etc.). ● Suspension: Understand principles and demonstrate upper/lower limb techniques. ● Functional Reed: Understand muscle transitions and demonstrate mat, sitting, gait, limb activities.							

- Posture: Understand principles and demonstrate correction/education.
- Breathing: Understand principles and perform chest expansion measurement.
- Group Exercise: Understand advantages/organization.

MODULE 2	**Stretching and Manual Therapy Principles and Practice**		Memory Recall based Quizzes	**45 HOURS**

- Stretching: Understand principles and perform upper/lower limb stretches.
- Manual Therapy (Peripheral): Understand principles (Maitland, Kaltenborn, Mulligan), biomechanics, effects, grades; identify red flags; perform mobilizations; demonstrate clinical reasoning and joint/tissue assessment.

MODULE 3	**MANUAL THERAPY , THERAPEUTIC GYMNASIUM AND AEROBIC EXERCIS**	Assignment/ Quiz	Numerical solving Task	**35 HOURS**

- Manual Therapy: Mobilization skills (UL, LL, Spine), clinical reasoning for techniques, joint/tissue exam, accessory movements, end feel, soft tissue assessment (myofascial, muscle hold/tightness, pain).
- Mobilization Schools: Principles, indications, contraindications, evidence (Maitland, Mulligan, McKenzie, MET, Myofascial, Cyriax, Neurodynamics).
- Traction: Principles, physiological/therapeutic effects, types, indications/contraindications, perform manual/mechanical traction.
- Therapeutic Gym: Equipment ID/usage/handling skills.
- Aerobic Exercise: Physiological response, testing methods, normal/abnormal acute response, training adaptations, apply conditioning principles.

MODULE 4	**COORDINATION, MOTOR LEARNING, PNF and WALKING AIDS**	Assignment/ Quiz	Memory Recall based Quizzes	**35 HOURS**

- Coordination: Physiology, incoordination causes/pathophysiology, coordination tests (equilibrium/non-equilibrium), exercise principles, Frenkel's (effects, mechanism, indications, evidence, prescription/progression/home).
- Motor Learning: Definition, skill classification, performance measurement, control theories/application, learning environment/skill/instruction/feedback/practice.
- PNF: Definition/goals, neurophysiologic principles, diagonal patterns (UL/LL), perform components (timing, resisted progression), demonstrate mobility/strengthening/stability techniques.
- Walking Aids: Identify types (crutches, canes, frames), prescription principles.

Targeted Application and Tools that can be used:

- Resistance bands, weights, and therabands – to facilitate progressive strengthening exercises
- Posture analysis tools and plumb lines – for posture evaluation and correction training
- Hydrotherapy pool and floatation aids – for low-impact joint mobilization and strength training
- Chest expansion measurement tools (e.g., inch tape, spirometer) – for assessing respiratory improvements
- Manual therapy tables and joint models – for practicing techniques like Maitland, Kaltenborn, and Mulligan mobilizations
- PNF mats and gait training equipment (e.g., parallel bars, walkers, crutches) – for practicing neuromuscular rehabilitation
- Stretching frames and positioning aids – to ensure correct technique and safety during flexibility training

- Instructional videos and virtual simulation tools – to reinforce advanced techniques and enhance clinical reasoning

List of Laboratory Tasks: (120 HOURS)

1. Demonstration of general and local relaxation techniques.
2. Demonstration of suspension therapy techniques for upper and lower limbs.
3. Demonstration of functional reeducation exercises on mat and in sitting position.
4. Demonstration of gait training activities for functional independence.
5. Demonstration of posture assessment and corrective postural exercises.
6. Measurement and evaluation of chest expansion in breathing exercises.
7. Planning and conducting a basic group exercise session.
8. Demonstration of upper limb stretching techniques.
9. Demonstration of lower limb stretching techniques.
10. Demonstration of Maitland mobilization techniques on peripheral joints.
11. Demonstration of Mulligan and Kaltenborn techniques with clinical indications.
12. Assessment of joint mobility and identification of red flags.
13. Demonstration of basic joint and soft tissue palpation skills.
14. Demonstration of mobilization techniques for spine, upper, and lower extremities.
15. Demonstration of mechanical and manual traction techniques.
16. Identification, handling, and use of therapeutic gymnasium equipment.
17. Assessment of physiological responses during aerobic exercise.
18. Application of aerobic conditioning principles through exercise planning.
19. Demonstration of Frenkel's coordination exercises for lower limbs.
20. Demonstration of diagonal PNF patterns and timing techniques (upper and lower limbs).

Text Book(s):

- Principles Of Exercise Therapy: Gardiner
- Practical Exercise Therapy: Hollis, Blackwell, Scientific Publications.
- Therapeutic Exercise: Foundations and Techniques, Kisner and Colby.

Reference Book (s):

- Proprioceptive Neuromuscular Facilitation: Voss et al, Williams and Wilkins
- Orthopedic Physical Therapy: Woods, Churchill Livingstone
- Manual Examination and Treatment of Spine and Extremities: Wadsworth, Lippincott.

Project Work/ Assignments:

- Explain physiological effects of endurance, strengthening, balance, and coordination exercises.
- Compare types of therapeutic exercises with indications and precautions.
- Create an exercise prescription plan based on a patient case.
- Demonstrate Passive, Active, and Assisted Range of Motion exercises.
- Demonstrate upper and lower limb suspension therapy techniques.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Performing therapeutic exercise techniques including range of motion (ROM), muscle strengthening, stretching, postural correction, balance training, and gait re-education using assistive devices for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2206	**Course Title: ELECTROTHERAPY(ET)** **(Type of Course: Core Course)**	**L-T-P-C**	6	4	8	14
Version No.	1.0					
Course Pre-requisites	Fundamentals of Electrophysical Agents(FoEA)					
Anti-requisites	NIL					
Course Description	This course provides comprehensive theoretical knowledge and practical skills related to advanced electrophysical agents used in physiotherapy. Students will learn the physiological and therapeutic effects of these modalities, gain insight into advanced electrodiagnostic techniques and biofeedback, and develop the ability to select and apply appropriate electrotherapy treatments. Emphasis is placed on clinical reasoning, dosage calculation, progression of therapy, and safe equipment handling through hands-on training.					
Course Objective	Upon completion of this course, students will be able to: ● Understand the production and physiological effects of various electrophysical agents. ● Identify indications, contraindications, and safety precautions for their application. ● Apply electrotherapy modalities appropriately in different stages of tissue healing. ● Develop hands-on competencies in selecting, dosing, and progressing electrotherapy treatments. ● Maintain equipment and adhere to safety standards during clinical practice.					
Course Outcomes	After completion of this course, the student shall be able to: **CO1**: Explain the basic concepts, terminology, and physical principles underlying various electrotherapy modalities. **CO2**: Describe the physiological responses of tissues to heat, cold, electrical, sound, and light energy, and relate them to therapeutic applications. **CO3**: Justify the selection of electrotherapy modalities based on stages of tissue healing and clinical indications. **CO4:** Demonstrate correct setup, dosage calculation, safety checks, and application of common electrotherapy equipment (e.g., TENS, US, LASER, SWD). **CO5**: Evaluate the contraindications, precautions, and safety measures associated with different electrotherapy interventions. **CO6**: Apply clinical reasoning to select and modify electrotherapy techniques to meet individual patient needs in evidence-based practice.					
Course Content:						
MODULE 1	**INTRODUCTION**	Assignment/ Quiz		Numerical solving Task		**20 HOURS**
● Foundations of Electrotherapy ● Basic concepts, terminology, ● Overview of modalities- TENS, SWD, Laser, IFT.						

MODULE 2	**PHYSIOLOGICAL RESPONSES and PHYSICAL PRINCIPLES**		Memory Recall based Quizzes	**20 HOURS**
• **Explain** how body tissues physiologically respond to heat gain and loss, and describe their therapeutic implications. • **Discuss** the physical principles of electromagnetic radiation relevant to clinical electrotherapy. • **Describe** the basic physics of sound and its propagation, particularly in relation to therapeutic ultrasound, their characteristics and propagation. • **Justify** the use of electro-physical agents based on different stages of tissue healing.				
MODULE 3	**THERAPEUTIC ULTRASOUND and LASER**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
• Rationalizing modality use based on healing stages, detailed ultrasound (production, effects, types, dosage, application, safety), detailed LASER (principles, classification, production, effects, dosage, application, safety, evidence).				
MODULE 4	**THERAPEUTIC COLD (CRYOTHERAPY)**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
• Explain the Production, Biophysical effects, types, therapeutic effects, techniques of application, indication, contraindications, and precautions of cryotherapy • Demonstrate the skills in application of cryotherapy • Demonstrate the skills in handling the equipment including preparation, maintenance and safety • Discuss the current evidence pertaining to cryotherapy.				
MODULE 5	**THERAPEUTIC MECHANICAL PRESSURE**	Assignment/ Quiz	Memory Recall based Quizzes	**20 HOURS**
• Discuss the Principles, biophysical effects, types, therapeutic effects, indications, and contraindications of intermittent compression therapy • Demonstrate the skills in handling the equipment including preparation, maintenance and safety. • Discuss the current evidence pertaining to intermittent compression therapy				
MODULE 6	**SHOCKWAVE THERAPY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
• Discuss the Principles, biophysical effects, types, therapeutic effects, indications, and contraindications of shockwave therapy • Demonstrate the skills in application of shockwave therapy • Demonstrate the skills in handling the equipment including preparation, maintenance and safety. • Discuss the current evidence pertaining to intermittent shockwave therapy				
MODULE 7	**ELECTROTHERAPY MODALITIES**	Assignment/ Quiz		**30 HOURS**
TENS (Transcutaneous Electrical Nerve Stimulation) • Define TENS and outline theories of pain modulation (including Pain Suppression System). • Classify types of TENS and describe electrode placement and application techniques. • Explain physiological effects, therapeutic uses, indications, and contraindications. Interferential and Related Currents • Define Interferential Current and describe its effects, applications, indications, and contraindications.				

- Explain and compare parameters, techniques, and uses of:
  - Russian currents
  - Rebox currents

Biofeedback Therapy

- Describe principles, types (EMG, positive/negative), and therapeutic effects.
- Demonstrate application techniques and list indications and contraindications.

Combination Therapy

- Explain principles and therapeutic uses of combined modalities (e.g., US with TENS).

Short Wave Diathermy (SWD)

- Describe effects, methods (capacitor/cable), application, indications, and precautions.

Pulsed Short Wave Diathermy (PSWD)

- Define PSWD, explain its mechanism, effects, applications, and contraindications.

Hydrotherapy

- Discuss principles (buoyancy), effects on movement, and uses of:
  - Hubbard tank
  - Contrast bath
  - Whirlpool bath

Recent Advances in Electrotherapy

Briefly explain purpose, mechanism, and clinical use of:

  - Class IV LASER, Shockwave, PEMF, Magnetotherapy
  - Spinal decompression, Pneumatic compression
  - FES, TECAR, Cold air cryotherapy
  - Virtual/Augmented Reality, Robotic therapy

Targeted Application and Tools that can be used:

- Electrotherapy devices (TENS, IFT, HVPC, microcurrent)
- Therapeutic ultrasound machines with gels and applicators
- Low-Level Laser Therapy (LLLT) devices and safety gear
- Thermotherapy tools (hot packs, paraffin baths)
- Biofeedback (EMG) devices
- Basic electrodiagnostic tools (introductory NCS/EMG)

List of Laboratory Tasks: (120 HOURS)

1. Demonstration of components, settings, and safety checks of TENS equipment.
2. Application of TENS for acute and chronic pain management using proper electrode placement.
3. Demonstration and application of Interferential Therapy (IFT) for low back pain.
4. Comparison and demonstration of Russian and Rebox currents.
5. Application of Short Wave Diathermy (SWD) using both capacitor and cable methods.
6. Demonstration of Pulsed Short Wave Diathermy (PSWD) for sub-acute injuries.
7. Setup and application of ultrasound therapy: dosage, contact methods, and safety.

8. Application of continuous vs pulsed ultrasound for different tissue healing stages.
9. Demonstration of LASER therapy with correct safety protocol and dosage setting.
10. Application of LASER for wound healing or musculoskeletal pain.
11. Demonstration and practice of cryotherapy techniques (ice massage, ice packs).
12. Handling and maintenance of cryotherapy equipment.
13. Application of contrast bath and whirlpool therapy for extremity injuries.
14. Demonstration of pneumatic/intermittent compression therapy setup and use.
15. Application of biofeedback for muscle re-education and relaxation.
16. Demonstration of combination therapy using US with TENS.
17. Setup and application of mechanical/manual traction techniques.
18. Demonstration of shockwave therapy equipment and patient preparation.
19. Simulation of hydrotherapy use: buoyancy-based exercises (discussion or lab-based).
20. Identification and operation of new-generation equipment (e.g., Class IV LASER, PEMF, TECAR, FES).

Textbook(s):

- Electrotherapy Explained: Principle and Practice, Low and Reed, Butterworth Heinemann.
- Claytons Electrotherapy -Kitchen and Basin.
- Principles and Practice of Electrotherapy -Kahn Church hill Livingstone.

Reference Book (s):

- Therapeutic Heat and Cold Lehman- Williams and Wilkins.
- Electrotherapy: Clinics in Physical therapy- Wolf Churchill Livingstone.

Project Work/ Assignments:

- Explain production and physiological effects of common electrotherapy modalities.
- Discuss indications, contraindications, and precautions for various electro physical agents.
- Write a rationale for selecting electrotherapy modalities based on healing stages in case scenarios.
- Demonstrate application techniques, including dosage calculation and progression, for ultrasound and laser therapy.
- Prepare a report on equipment maintenance, safety measures, and care protocols for electrotherapy devices.
- Analyze tissue responses to heat, cold, electromagnetic radiation, and sound energy.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Applying various electrotherapeutic modalities including TENS, IFT, ultrasound, electrical muscle stimulation, and laser therapy with appropriate patient assessment, safety measures, and parameter settings for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2207	**Course Title: BIOMECHANICS and KINESIOLOGY (BK)** **(Type of Course: Core Course)**	**L-T-P-C**	6	2	4	10
Version No.	1.0					
Course Pre-requisites	ANATOMY					
Anti-requisites	NIL					
Course Description	This course provides a foundational understanding of human movement by applying biomechanical principles. Students will explore the physical laws governing movement, analyze posture, gait, and functional activities, and learn both qualitative and quantitative methods for movement assessment. The course highlights the mechanical basis of therapeutic interventions, especially for musculoskeletal disorders, bridging theory with clinical applications**.**					
Course Objective	Upon completion of this course, students will be able to: ● Understand the basic physics and biomechanical laws related to human movement. ● Analyze functional movement using kinetic and kinematic principles. ● Relate anatomical structure and mechanical properties to the function of the movement system. ● Evaluate and interpret normal and pathological movement patterns.					
Course Outcomes	After completion of this course, the student shall be able to: **CO1**: Explain the principles of physics and biomechanics relevant to human movement. **CO2**: Demonstrate understanding of functional movement, including kinetics and kinematics. **CO3**: Analyze the relationship between anatomical structure, function, and mechanical properties of the movement system. **CO4**: Apply principles of movement analysis to assess gait and posture in normal and pathological conditions. **CO5**: Perform basic gait and postural assessments and identify deviations. **CO6**: Interpret findings from movement analysis to support physiotherapy planning and decision-making.					
Course Content:						
Module 1	**BASICS OF BIOMECHANICS AND INTRODUCTION TO BIOMECHANICAL ANALYSIS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**		
● Understand fundamental movement terms (kinematics/kinetics), biomechanical analysis techniques and importance, basic joint/connective tissue properties, and basic muscle structure/function. ○ Types of Motion ○ Location of Motion ○ Direction of Motion ○ Magnitude of Motion ○ Definition of Forces						

- Force of Gravity
- Reaction forces
- Equilibrium
- Objects in Motion
- Force of friction
- Concurrent force systems
- Parallel force system
- Work
- Moment arm of force
- Force components
- Equilibrium of levers

- Introduction to Biomechanical Analysis:
  - Discuss the techniques of biomechanical analysis
  - Explain the importance of biomechanical analysis
- Explain Joint structure and Function in terms of
  - Joint design
  - Materials used in human joints
  - General properties of connective tissues
  - Human joint design
  - Joint function
  - Joint motion
  - General effects of disease, injury and immobilization.
- Discuss Muscle structure and function -
  - Mobility and stability functions of muscles
  - Elements of muscle structure
  - Muscle function
  - Effects of immobilization, injury and aging

Module 2	**BIOMECHANICS OF SPINE**		Memory Recall based Quizzes	**15 HOURS**

- Describe the structure and function of the cervical spine, lumbar spine, and pelvic complex, including:
  - Vertebral alignment, joint types, and supporting soft tissues
  - Anatomy of the sacroiliac joint, symphysis pubis, sacrum, and lumbosacral joint
- Explain the factors contributing to spinal stability in the cervical and lumbar regions, such as:
  - Ligamentous and muscular support
  - Postural control and segmental alignment
  - Role of intervertebral discs and facet joints
- Identify and describe the movements possible at the cervical and lumbar spine, including:
  - Flexion, extension, lateral flexion, and rotation
  - Range and axis of motion
- Analyze the movement mechanics of the spine and pelvic complex during functional activities.
- Identify and interpret abnormal spinal movements or deviations, such as hypermobility, hypomobility, scoliosis, and segmental instability.

Module 3	**BIOMECHANICS OF THE THORAX AND CHEST WALL**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Describe the structure and function of the thorax and chest wall, including:
    - Rib cage anatomy and supporting musculature
    - Functional role in respiration and posture
- Explain the ventilatory movements of the rib cage and diaphragm, with emphasis on:
    - Coordination and integration during normal breathing
    - Muscular contributions and joint mechanics
- Discuss the developmental aspects of thoracic structure and function across the lifespan.
- Identify structural and functional changes in the thorax associated with:
    - Pregnancy
    - Scoliosis
    - Chronic Obstructive Pulmonary Disease (COPD)
- Identify and analyze abnormal movements of the thoracic cage and their mechanical implications.
- Describe the structure, function, and dysfunction of the Temporomandibular Joint (TMJ), including:
    - Articular surfaces, disc, ligaments, and associated muscles
    - Common disorders (e.g., TMJ dysfunction, dislocation, restricted mobility)
- Discuss the mechanics of abnormal TMJ movements and their clinical significance.

Module 4	**BIOMECHANICS OF THE UPPER EXTREMITY JOINTS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Explain the structure and components of the shoulder complex, and their integrated function in mobility and stability.
- Identify the normal and abnormal movements of the shoulder joint.
- Discuss the concepts of static and dynamic stability of the shoulder.
- Describe common abnormalities in shoulder movement, such as impingement and instability.
- Describe the elbow complex, including:
    - Structure and function of humeroulnar and humeroradial joints
    - Superior and inferior radioulnar articulations
    - Factors contributing to mobility and stability
    - Effects of immobilization and injury on elbow function
- Identify the normal and abnormal movements of the elbow joint.
- Describe the common abnormalities of elbow movement, such as stiffness, instability, or valgus stress injuries.
- Discuss the wrist and hand complex, focusing on:
    - Structural components and functions of the wrist
    - Functional anatomy of the hand
    - Functional position of the wrist and hand in grip and precision tasks
- Identify the normal and abnormal movements of the wrist complex.
- Describe the common abnormalities in wrist and hand function, including carpal instability, deformities, and joint dysfunctions.

Module 5	**BIOMECHANICS OF THE LOWER EXTREMITY JOINTS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Explain the structure and function of the hip joint, including key features that contribute to its mobility and load-bearing capacity.
- Discuss common hip pathologies, such as arthrosis, fractures, and bony abnormalities of the

femur.

- Identify normal and abnormal movements of the hip joint.
- Describe the factors contributing to hip joint stability and common movement abnormalities.
- Explain the structure and function of the knee joint, including the tibiofemoral and patellofemoral articulations.
- Discuss the effects of injury and disease on knee joint biomechanics.
- Identify normal and abnormal movements of the knee.
- Describe knee stability mechanisms and common functional abnormalities.
- Explain the structure and function of the ankle and foot complex, including:
    - Ankle joint, subtalar joint, talocalcaneonavicular joint
    - Transverse tarsal, tarsometatarsal, metatarsophalangeal, and interphalangeal joints
- Discuss the structure and function of the plantar arches, the role of ankle and foot muscles, and biomechanical deviations such as pes planus and pes cavus.

Module 6	**POSTURE**		Memory Recall based Quizzes	**15 HOURS**

- Define normal posture.
- Factors affecting posture.
- Causes/identification of abnormal posture.
- Biomechanics of posture (kinetics/kinematics).
- Define postural abnormalities.
- Posture's role in preventing musculoskeletal issues.
- Basics of ergonomics.
- Influence of age, pregnancy, occupation, recreation on posture.

Module 7	**GAIT**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Explain the normal gait cycle
- Discuss the kinetics and kinematics of gait
- Discuss the determinants of gait
- Identify gait abnormalities
- Discuss the energy recruitment of normal and abnormal gait
- Explain the kinetic and kinematic analysis of stair climbing
- Identify the effects of muscle weakness on gait

Targeted Application and Tools that can be used:

- Goniometers and inclinometers for joint angle measurement
- Force plates and pressure mats for gait and posture analysis
- Motion capture systems (video or sensor-based) for kinematic studies
- Electrogoniometers and wearable sensors for dynamic movement assessment
- Biomechanical modeling software (basic level)
- Anatomical models and skeletons for demonstration
- EMG equipment for muscle activity analysis (optional/basic)

List of Laboratory Tasks: (60 HOURS)

1. Demonstration and identification of types of motion (linear, angular, general), followed by student classification of movements using real-life examples.
2. Demonstration of force vectors and moment arms using simple tools (pulleys, elastic bands, weights), followed by calculations of torque and lever balance.
3. Demonstration of joint structure and movement using anatomical models, followed by students identifying axes of rotation and types of joints.

4. Measurement of joint range of motion (ROM) using a goniometer, with practice on major joints like shoulder, elbow, hip, and knee.
5. Palpation and identification of major muscle groups, followed by observation of their roles in movement and posture.
6. Posture analysis using plumb line and posture grid, including identification of normal and abnormal postural alignments in standing and sitting.
7. Gait observation and analysis, including identification of gait phases and abnormalities through slow-motion video or peer examination.
8. Biomechanical analysis of lifting and squatting techniques, focusing on joint alignment, muscle activation, and force distribution.
9. Assessment of balance and stability using single-leg stance, tandem walking, and perturbation exercises to explore neuromuscular control.
10. Analysis of stair climbing mechanics, with attention to hip, knee, and ankle joint function and how they differ from level walking.

Textbook(s):

- Cynthia C, Norkin D, Pamela K. Joint structure and function. A comprehensive analysis.
- Houglum PA, Bertoti DB. Brunnstrom's clinical kinesiology. FA Davis; 2011

Reference Book (s):

- Steindler A. Kinesiology of the human body under normal and pathological conditions. Spring field, IL. Charles C Thomas.Neumann DA. Kinesiology of the musculoskeletal system-e-book: foundations for rehabilitation. Elsevier Health Sciences
- Oatis CA. Kinesiology: the mechanics and pathomechanics of human movement. Lippincott Williams and Wilkins;2009.
- Hamill J, Knutzen KM. Biomechanical basis of human movement. Lippincott Williams and Wilkins; 2006 Oct.

Project Work/ Assignments:

- Discuss key physics principles and laws relevant to human movement.
- Describe and explain kinematics and kinetics in functional movements.
- Analyze the relationship between structure, function, and mechanical properties in the musculoskeletal system.
- Perform and document qualitative and quantitative movement analysis for selected ADL activities (e.g., sitting to standing, lifting).
- Analyze normal and pathological posture and gait with explanation of joint movements and muscle involvement.
- Explain biomechanics of spine regions including cervical, lumbar, and pelvis, with focus on stability and abnormal movements.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Analyzing human posture and movement patterns, measuring joint range of motion and muscle strength, and applying biomechanical principles to evaluate normal and abnormal gait for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT2208	**COURSE TITLE: CLINICAL OBSERVATION (210 HOURS)**	**L-T-P-C**	0	0	14	7
Version No.	1.0					
Course Pre-requisites	CLINICAL ORIENTATION					
Anti-requisites	NIL					
Course Description	As part of their early clinical exposure, students will be posted on a rotational basis in the Physiotherapy Outpatient Departments (OPDs) and various wards of affiliated hospitals. The aim of this posting is to familiarize students with real-world clinical environments, patient care workflows, and the practical aspects of physiotherapy service delivery.					
Course Objectives	Upon completion of this clinical posting, students will be able to: ● Observe and understand the routine clinical processes involved in physiotherapy management. ● Identify the roles and responsibilities of physiotherapists in different clinical settings. ● Assist clinical staff in non-clinical tasks, promoting teamwork and professionalism. ● Begin developing a professional attitude and understanding of patient-centered care.					
Course Outcomes	After completion of this clinical posting, the student shall be able to: **CO1**: Observe and describe physiotherapy assessment and treatment procedures in inpatient and outpatient settings. **CO2**: Identify the roles, responsibilities, and scope of practice of physiotherapists within a multidisciplinary healthcare team. **CO3**: Demonstrate appropriate professional behavior, including punctuality, responsibility, and teamwork in clinical environments. **CO4**: Assist clinical staff in non-clinical tasks, adhering to institutional protocols and demonstrating initiative. **CO5**: Maintain a structured clinical diary or portfolio with documented case observations, reflections, and learning points. **CO6**: Apply basic knowledge of ethics, patient communication, and infection control during clinical observation and interaction.					

<table>
<tr><td>Course Code: DSA2201</td><td colspan="4">COURSE TITLE: YOGA AND SYSTEMS OF MEDICINE

(Type of Course: Skill Enhancement Course)</td><td>L-T-P-C</td><td>6</td><td>2</td><td>4</td><td>10</td></tr>
<tr><td>Version No.</td><td colspan="9">1.0</td></tr>
<tr><td>Course Pre-requisites</td><td colspan="9">NIL</td></tr>
<tr><td>Anti-requisites</td><td colspan="9">NIL</td></tr>
<tr><td>Course Description</td><td colspan="9">This course introduces students to the foundational concepts of Yoga and the traditional AYUSH systems—Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy. It explores their relevance in promoting personal and community health and well-being. Emphasis is placed on experiential learning through the practice of basic yoga asanas, pranayama, and an introduction to kriyas, fostering holistic health and lifestyle integration.</td></tr>
<tr><td>Course Objective</td><td colspan="9">Upon completion of this course, students will be able to:

● Understand the philosophical and conceptual principles of Yoga and the AYUSH systems.
● Recognize the relevance of Yoga in preventive health and holistic well-being.
● Gain practical knowledge of basic yoga postures (asanas) and breathing techniques (pranayama).
● Learn the significance and basics of kriyas and their role in cleansing and wellness.</td></tr>
<tr><td>Course Outcomes</td><td colspan="9">After completion of this course the student shall be able to:

After completion of this course, the student shall be able to:

CO1: Understand the basic concepts and philosophical foundations of yoga and other traditional systems of medicine.
CO2: Appreciate the role of yoga in promoting individual well-being and contributing to public health.
CO3: Demonstrate the ability to perform basic yoga asanas with proper technique and awareness.
CO4: Practice and regulate breathing through fundamental pranayama techniques.
CO5: Develop an introductory understanding of yogic cleansing techniques (kriyas) and their relevance.
CO6: Recognize the complementary role of yoga in integrative healthcare and physiotherapy practice.</td></tr>
<tr><td>Course Content:</td><td colspan="9"></td></tr>
<tr><td>MODULE 1</td><td colspan="2">FOUNDATIONS OF YOGA</td><td colspan="2">Assignment/ Quiz</td><td colspan="2">Numerical solving Task</td><td colspan="2">30 HOURS</td></tr>
<tr><td colspan="10">● Introduction to Yoga and its philosophy
● Brief history and development of Yoga
● Streams and types of Yoga</td></tr>
</table>

MODULE 2	**YOGA AND HEALTH**	Assignment/ Quiz	Memory Recall based Quizzes	**30 HOURS**

- Concept of body in Yoga – Pancha Kosha theory
- Concept of health and disease in Yoga
- Stress management through Yoga
- Disease prevention and promotion of positive health through Yoga

MODULE 3	**PHYSIOLOGICAL EFFECTS OF YOGA PRACTICES**	Assignment/ Quiz	Memory Recall-based Quizzes	**30 HOURS**

- Physiological effects of Shat kriyas: Mechanism and physiological responses of cleansing practices like Neti, Dhauti, Basti, Nauli, Trataka, and Kapalabhati on various systems (respiratory, digestive, nervous, etc.).
- Physiological effects of Asanas: Understanding musculoskeletal, respiratory, circulatory, endocrine, and neurological responses to different postures. Benefits of static and dynamic practices.
- Physiological effects of Pranayamas: Respiratory regulation, autonomic balance, oxygenation, and calming effects of different types of breathing practices.
- Physiological effects of Relaxation techniques and Meditation: Parasympathetic dominance, reduction of stress markers, enhancement of mental clarity and emotional stability.

MODULE 4	**OTHER SYSTEMS OF MEDICINE AND THE NEED FOR INTEGRATION**	Assignment/ Quiz	Numerical solving Task	**30 HOURS**

- Introduction to AYUSH System of Medicine
  Overview of the AYUSH systems—Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homeopathy—and their role in holistic health care.
- Introduction to Ayurveda
  Philosophy and principles based on Tridosha theory; methods include diagnosis through Nadi Pariksha; brief treatment techniques include Panchakarma, herbal medicines, and lifestyle modification.
- Introduction to Naturopathy
  Principles based on healing through nature and non-drug methods; methods include diet, fasting, and hydrotherapy; treatment focuses on detox and natural lifestyle practices.
- Introduction to Unani
  Based on four humors and temperament theory; diagnosis includes pulse and urine analysis; treatment methods involve herbal drugs and regimental therapies.
- Introduction to Siddha
  Rooted in elemental theory and three humors; uses pulse diagnosis and traditional formulations; treatment includes herbal, mineral preparations, and detox procedures.
- Introduction to Homeopathy
- Based on the principle of "like cures like"; uses minimal doses; treatment involves symptom-based remedy selection from potentized medicines.

Targeted Application and Tools that can be used:

- AYUSH literature and textbooks covering philosophy, principles, and treatment methods

- Demonstration kits for Ayurveda (e.g., herbal samples, oils, massage tools)
- Naturopathy tools: hydrotherapy tubs, mud packs, sun therapy setups
- Unani medicinal herbs and compounds samples
- Siddha medicinal materials and diagnostic tools
- Homeopathy remedy kits and potentization equipment

List of Laboratory Tasks:: (60 HOURS)

1. Demonstration of Sukshma Vyayama and Surya Namaskar, followed by student performance of loosening exercises and the 12-step Surya Namaskar sequence.
2. Demonstration of Neti and Dhauti kriyas, including Jala Neti and Vamana Dhauti, with observation of procedure, preparation, and contraindications.
3. Demonstration of Trataka and Shankaprakshalana techniques, followed by guided discussion on cleansing effects and safety considerations.
4. Demonstration of standing yogasanas, such as Tadasana, Trikonasana, and Vrikshasana, with emphasis on alignment, breath, and posture correction.
5. Demonstration of prone position asanas, such as Bhujangasana and Dhanurasana, focusing on spinal extension and therapeutic applications.
6. Demonstration of supine position asanas, including Halasana, Sarvangasana, and Setu Bandhasana, highlighting benefits for circulation and relaxation.
7. Demonstration of meditative postures and sitting asanas, such as Padmasana, Vajrasana, and Paschimottanasana, with focus on stability and breath control.
8. Demonstration of Pranayama techniques, including Anuloma-Viloma, Kapalabhati, and Bhramari, followed by student practice with guided breathing.
9. Demonstration of Yoga Nidra and Shavasana, allowing students to experience guided relaxation and understand its physiological benefits.
10. Demonstration of temperament/dosha identification, using sample Ayurvedic/Unani case vignettes for students to observe, assess, and classify constitutions

Text Book(s):

- Lights on yoga by BKS Iyenngar
- Lights on pranayam by BKS Iyenngar

Reference Book (s):

- Anatomy and Physiology of Yogic Practices - M.M Ghore, Kaivalyadhama, Lonavala, Pune.
- A Systematic course in the ancient tantric techniques of yoga and kriya - Bihar School of Yoga, Munger

Project Work/ Assignments:

- Assignment / Quiz: Introduction to AYUSH Systems.
  Explain the scope and importance of AYUSH systems in healthcare.
- Numerical Solving Task: Ayurveda Principles and Treatment
  Describe the philosophy, principles, methods, and basic treatment techniques of Ayurveda.
- Assignment: Naturopathy Overview
  Discuss the philosophy, principles, methods, and basic treatment techniques of Naturopathy.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Practicing basic yogic postures, breathing techniques (pranayama), and understanding principles of Ayurveda, Siddha, Unani, and other traditional systems to integrate complementary therapies into physiotherapy care for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT 301	**COURSE TITLE: GENERAL MEDICINE AND PEDIATRICS (GMP) (Type of Course: Core Course)**	**L-T-P-C**	4	2	2	7
Version No.	1.0					
Course Pre-requisites	ANATOMY					
Anti-requisites	NIL					
Course Description	This course provides physiotherapy students with foundational knowledge of common medical conditions including their etiology, pathology, clinical features, and treatment. It emphasizes understanding the role of physiotherapy within the overall patient management and multidisciplinary healthcare framework.					
Course Objective	The objective of this course is to provide students with foundational knowledge and clinical understanding of common medical and pediatric conditions. It aims to enable students to identify the causes, signs, and symptoms of diseases affecting various body systems, interpret diagnostic tests, and understand medical management. The course also focuses on developing skills in history taking, clinical examination, and understanding the role of medications in patient care. Additionally, it emphasizes the importance of multidisciplinary collaboration in the diagnosis and management of systemic disorders, preparing students for their role in physiotherapy practice.					
Course Outcomes	**After completion of this clinical posting, the student shall be able to:** **CO1**: Describe the causes, symptoms, diagnosis, and treatment of major disorders affecting body systems. **CO2**: Perform history taking and clinical examination of the respiratory and cardiovascular systems. **CO3**: Interpret chest X-rays, blood tests, and lung function tests in clinical cases.					

	CO4: Differentiate between infectious and non-infectious diseases using clinical signs and test results. **CO5**: Explain how common medicines work and their effects on physiotherapy treatment. **CO6**: Identify the roles of different specialists involved in disease management through presentations or charts.			
Course Content:				
MODULE 1	**INFECTIONS**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**
Communicable Diseases: Classification and importance of prevention. **Physiological Changes in Infection:** Understanding systemic responses to infection. **Infection Spread:** Mechanisms of transmission of infectious agents. **Vaccination:** Different types and importance in preventing infections. **Clinical Management:** Etiology, clinical features, diagnosis, complications, and medical management of: ● Food poisoning and gastroenteritis ● Sexually transmitted diseases ● Tuberculosis and Leprosy ● Rheumatic fever ● Tetanus, Typhoid, and Diphtheria ● Pneumonia ● Influenza ● Herpes (simplex, zoster), Varicella, Measles, Mumps ● Hepatitis B and C ● HIV infections and AIDS				
MODULE 2	**METABOLIC AND DEFICIENCY DISEASES**	Assignment/ Quiz	Memory Recall based Quizzes	**10 HOURS**
● Diabetes ● Anemia ● Vitamin and Mineral Deficiency diseases ● Diseases of the endocrine glands				
MODULE 3	**DISEASES OF RESPIRATORY SYSTEM**	Assignment/ Quiz	Memory Recall based Quizzes	**10 HOURS**
Etiology, Clinical Features, Diagnosis, Complications, and Treatment of: ● Asthma ● Bronchitis				

- Tuberculosis (revisited from Unit 1)
- Massive collapse of lungs
- Bronchiectasis
- Bronchial Pneumonia
- Lung abscess
- Emphysema
- Pleural effusion
- Pneumothorax and vocal cord issues
- Chronic infection of larynx and trachea
- Abnormalities of trachea
- Infarct of lungs
- Chronic obstructive pulmonary disease (COPD)
- Chest wall deformities

MODULE 4	**DISEASES OF CIRCULATORY SYSTEM**	Assignment/ Quiz	Memory Recall based Quizze	**10 HOURS**

Etiology, Clinical Features, Diagnosis, Complications, and Treatment of:

- Atherosclerosis, Thrombosis, Embolism, Hemorrhage, various diseases of arteries, Vascular diseases
- Ischemic heart disease
- Rheumatic heart disease (revisited from Unit 1)
- Congenital heart disease
- Cardiac arrest
- Hypertension

MODULE 5	**NUTRITIONAL DISORDERS**	Assignment/ Quiz	Memory Recall based Quizze	**10 HOURS**

- **Nutritional Requirements:** Understanding detailed nutritional and energy needs.
- **Deficiency Diseases:** Detailed clinical features and treatment of protein and vitamin deficiencies.
- **Obesity Management:** Diet, exercise, and medication approaches.

MODULE 6	**DISEASES OF DIGESTIVE AND RENAL SYSTEMS**	Assignment/ Quiz	Memory Recall based Quizze	**10 HOURS**

- **Digestive System:** Etiology, clinical features, diagnosis, complications, and treatment of: Reflux Esophagitis, Achalasia Cardia, Esophageal Carcinoma, GI bleeding, Peptic Ulcer disease, Stomach Carcinoma, Pancreatitis, Malabsorption Syndrome, Ulcerative Colitis, Peritonitis, Alimentary Tract Infections, Viral Hepatitis, Wilson's disease, Alpha1-antitrypsin deficiency, Liver Tumors, Gallstones, Cholecystitis.
- **Renal System:** Etiology, clinical features, diagnosis, complications, and treatment of: Renal Failure, Nephrotic Syndrome, Nephritis, Urinary tract infections, Urinary calculi.

MODULE 7	**DISEASES OF SKIN**	Assignment/ Quiz	Memory Recall based Quizze	**10 HOURS**

Skin Conditions: Causes, clinical features, and management of: Acne, Boil, Carbuncles, Impetigo, Herpes, Urticaria, Psoriasis, Warts, Corn, Fungal infections, Leprosy, Dermatitis, Eczema, Venereal diseases

MODULE 8	**PEDIATRICS**	Assignment/ Quiz	Memory Recall based Quizze	**10 HOURS**

- **Low Birth Weight Babies:** Problems and management.
- **Congenital Abnormalities:** Common types, causes, and management.
- **Cerebral Palsy:** Causes, types, complications, clinical manifestations, and medical management.
- **Spinal Malformations:** Causes, types, complications, clinical manifestations, and medical management.
- **Epilepsies:** Causes, types, complications, clinical manifestations, and medical management.
- **Autism Spectrum Disorders:** Causes, clinical manifestations, investigation procedures, and medical management.
- **Hydrocephalus:** Causes, clinical manifestations, investigation procedures, and management (including surgical)

MODULE 9	**GERIATRICS**	Assignment/ Quiz	Memory Recall based Quizze	**10 HOURS**

- Epidemiology, pathogenesis, and clinical course of diseases in older adults
- Degenerative neurological disorders: Alzheimer's, Parkinson's, stroke
- Musculoskeletal disorders: Osteoarthritis, osteoporosis, sarcopenia
- Age-related physiological changes and their effects
- Signs, symptoms, and role of physiotherapy in management

Targeted Application and Tools that can be used:

- Infection control and vaccine apps, PCR/rapid tests, EMR systems, simulation tools.
- Glucose monitors, diabetes and diet apps, hormone assays.
- Spirometers, pulse oximeters, nebulizers, respiratory apps, imaging software.
- ECG and BP monitors, cardiology apps, echocardiography devices.
- Diet trackers, nutrition assessment apps, body composition analyzers, obesity apps.
- Endoscopy and lab analyzers, clinical management apps.
- Dermatology diagnostic and telemedicine apps, phototherapy devices.
- Growth and development screening apps, neuro assessment tools, pediatric simulators, drug guides.
- Mobility and cognitive screening apps, telehealth platforms, rehab VR tools.

List of Laboratory Tasks: (30 HOURS)

1. Demonstration of personal protective measures (masking, hand hygiene, PPE), followed by students practicing infection prevention techniques.
2. Demonstration of tuberculosis chest examination techniques, then students perform observation, palpation, percussion, and auscultation on peers or models.

3. Demonstration of asthma inhaler use and peak flow meter testing, followed by students measuring and recording peak flow values.
4. Demonstration of blood glucose testing using glucometer, then students practice recording and interpreting results in diabetes cases.
5. Demonstration of nutritional assessment using BMI and dietary recall, followed by students calculating BMI and planning a sample diet chart.
6. Demonstration of blood pressure measurement and pulse examination, then students assess cardiovascular status of a partner.
7. Demonstration of chest expansion and breath sound assessment in COPD, followed by students practicing clinical examination techniques.
8. Demonstration of basic abdominal palpation techniques for liver/gallbladder disorders, followed by students identifying landmarks on models or peers.
9. Demonstration of skin examination techniques for common infections (e.g. fungal, leprosy), followed by students describing and recording findings.
10. Demonstration of developmental screening for cerebral palsy and autism, followed by students practicing observation and simple screening tools.

Text Book(s):

- Davidson's Principles and Practices of Medicine – Edward – Churchill Livingstone.
- Hutchinson's Clinical Methods – Swash – Bailliere Tindall.
- A Short Text book of Medicine – Krishna Rao – Jaypee Brothers.

Reference Book (s):

- A Short Text book of Psychiatry – Ahuja Niraj – Jaypee Brothers.
- Shah SN: API text book of Medicine. Vol I and II, 8th Ed, The Association of Physicians of India, Mumbai, 2008.

Project Work/ Assignments:

- Create a poster or infographic illustrating modes of infection transmission and vaccination importance.
- Develop a case study on tuberculosis or leprosy, including physiotherapy assessment and rehabilitation plan.
- Submit an assignment on physiotherapy considerations in managing diabetes and preventing complications.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Observing clinical signs, interpreting medical investigations, understanding common systemic and pediatric conditions, and correlating them with physiotherapy needs to support patient-centered care for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3302	**COURSE TITLE: GENERAL SURGERY (Type of Course: Core Course)**		**L-T-P-C**	4	2	2	7
Version No.	1.0						
Course Pre-requisites	ANATOMY						
Anti-requisites	NIL						
Course Description	This course provides physiotherapy students with foundational knowledge of common surgical conditions, including their indications, etiology, clinical features, and surgical methods. It aims to enable students to understand the implications of surgical interventions and the integral role of physiotherapy in the comprehensive management of patients.						
Course Objective	Upon completion of this clinical posting, students will be able to: ● To equip students with a foundational understanding of general surgical principles and their relevance to physiotherapy. ● To explain the pathophysiology and phases of wound healing along with factors that affect it. ● To understand the systemic effects of general anesthesia and common postoperative complications. ● To describe the indications, procedures, and possible complications of common surgeries. ● To apply surgical knowledge to physiotherapy clinical decision-making for optimal patient care.						
Course Outcomes	After completion of this clinical posting, the student shall be able to: ● **CO1**: Discuss the principles of general surgery and their implications in physiotherapy practice. ● **CO2**: Explain the pathophysiology of wound healing and the factors that influence healing outcomes. ● **CO3**: Describe the effects of general anesthesia on body systems and identify common postoperative complications. ● **CO4**: Describe surgical indications, procedures, and complications, and integrate this understanding into physiotherapy clinical decision-making. ● **CO5**: Apply surgical knowledge effectively in physiotherapy assessment and treatment planning for post-surgical.						
Course Content:							
MODULE 1	**INTRODUCTION TO GENERAL SURGERY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**			
● Surgery Principles: Basic aims of surgical interventions. ● Wound Healing: Stages and influencing factors. ● Anesthesia Types: General, regional, local mechanisms. ● Non-Healing Wounds (Surgical): Management approaches. ● Incision and Suturing: Basic principles. ● General Anesthesia Complications: Effects on body systems. ● Post-operative Care: Fundamental management.							

MODULE 2	**ABDOMINAL SURGERIES**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**

- Abdominal Incisions: Common types.
- Abdominal/Pelvic Procedures and Physio Implications: Understanding surgery and physiotherapy relevance for:
- Hernia repair
- Colostomy/Ileostomy
- Hysterectomy
- Prostatectomy
- Cystectomy
- Appendectomy

MODULE 3	**THORACIC SURGERY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Common Thoracic Incisions: Identifying and describing the different incisions used for accessing thoracic organs.
- Common Thoracic Surgical Procedures and Physiotherapy Implications: Understanding the surgical procedures, their indications, and the specific implications for physiotherapy management in:
- CABG (Coronary Artery Bypass Graft): Surgical revascularization of the heart.
- Cardiac Transplantation: Surgical replacement of a diseased heart.
- Valve Surgeries: Repair or replacement of heart valves.
- Thoracotomy: Surgical incision into the chest wall.
- Pleural Surgeries: Procedures involving the pleura (e.g., drainage, pleurectomy).
- Lobectomy: Surgical removal of a lung lobe.
- Lung Volume Reduction Surgeries: Surgical removal of damaged lung tissue in emphysema.
- Lung Transplantation: Surgical replacement of a diseased lung.

MODULE 4	**SOFT TISSUE SURGERIES**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**

- Principles of Tendon Transfer Surgeries: Understanding the fundamental concepts and goals of tendon transfer procedures.
- Common Tendon Transfer Surgery Procedures: Discussing specific tendon transfer procedures in terms of their indications, prognosis

MODULE 5	**BURNS AND PLASTIC SURGERY**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Types of Burns: Understanding the classification of burns based on depth and extent.
- Burn Assessment: Explaining the procedures used to assess burn severity in a standard burn care unit.
- Medical and Surgical Management of Burns: Discussing the overall management strategies for burn patients.
- Common Plastic Surgery Procedures and Skin Grafting: Understanding the basic procedures used in plastic surgery and the process of skin grafting.
- Role of Physiotherapy Following Skin Grafts: Discussing the specific physiotherapy interventions for patients who have undergone skin grafting.

MODULE 6	**OBSTETRICS AND GYNAECOLOGY**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Anatomy and physiology of the female reproductive organs.
- Puberty and its physiological changes.,
- Physiology of the menstrual cycle: ovulation, uterine and cervical cycles, duration, and hormonal regulation
- Diagnosis of pregnancy
- Types, causes, and management of abortion
- Physiological changes during pregnancy
- Antenatal care and maternal health monitoring
- High-risk pregnancy: prenatal complications, investigations, and management
- Musculoskeletal disorders associated with pregnancy
- Normal labour and multiple childbirth
- Complications during childbirth with appropriate investigations and management
- Normal puerperium, lactation, and postnatal care
- Family planning methods and medical termination of pregnancy (MTP)
- Infections of the female genital tract including sexually transmitted diseases (STDs) and low backache
- Prolapse of the uterus and vagina
- Common gynaecological operations: hysterectomy, dilation and curettage (DandC), dilation and evacuation (DandE), Pap smear.
- Menopause and its physiological effects
- Sterility: pathophysiology, investigations, and management
- Urogenital dysfunctions in pre- and postnatal conditions
- Carcinoma of female reproductive organs and brief surgical management

List of Laboratory Tasks: (30 HOURS)

1. Demonstration of sterile dressing and wound care.
2. Demonstration of incision and suture site care.
3. Demonstration of post-op breathing and coughing exercises.
4. Demonstration of positioning and early mobilization post-abdominal surgery.
5. Demonstration of physiotherapy after thoracotomy/CABG.
6. Demonstration of stoma care and binder application.
7. Demonstration of splinting and positioning in burns.
8. Demonstration of tendon transfer rehab exercises.
9. Demonstration of functional mobility and gait training post-surgery.
10. Demonstration of pain management techniques (e.g., TENS, cryotherapy).

Targeted Application and Tools that can be used:

- Surgical simulation apps, EMR systems, and wound/burn assessment tools
- Anesthesia monitors, spirometers, and post-op complication tracking tools
- Cardiac rehab apps, ECG monitors, and inspiratory muscle trainers

Text Book(s):

- S.Das: A concise textbook of surgery. 3rd Ed, Dr. S.Das, Calcutta, 2001.
- S. Das: A manual on clinical surgery. 6th Ed, Dr. S. Das, Calcutta, 2004.
- Dutta DC: Text book of obstetrics / Textbook of gynecology. 5th / 6th Ed, New central book agency (P) ltd, Kolkata, 2003/2004.
- Basak KS: Essentials of ophthalmology. 3rd Ed, Current books international, Kolkata, 2004.

Reference Book (s):

- Russell RCG, Williams NS, Bulstrode CJK: Bailey and Love's short practice of surgery. 24th Ed, Arnold, London, 2004.
- Mowschenson PM: Aids to undergraduate surgery. 3rd Ed, Churchill Livingstone, Edinburgh, Farquharson M and Moran B: Farquharson

Project Work/ Assignments:

- Overview of surgical principles and their relevance in physiotherapy practice.
- Report on wound healing stages and factors affecting healing.
- Case study on general anesthesia effects and post-operative complications.
- Create a chart of surgical incisions and suturing techniques with healing timelines.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Observing surgical procedures, understanding post-operative protocols, identifying complications, and learning physiotherapy precautions and rehabilitation principles in pre- and post-operative surgical cases for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3303	**COURSE TITLE: ORTHOPEDICS (Type of Course: Core Course)**	**L-T-P-C**	4	2	2	7
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course builds on foundational anatomy and pathology to enable understanding of orthopedic conditions commonly encountered in physiotherapy practice. It emphasizes etiology, clinical manifestations, diagnostic procedures, and both conservative and surgical management strategies for bone, joint, muscle, and soft tissue disorders**.**					
Course Objective	• To introduce the basic concepts, terminology, and clinical methods in orthopedics. • To understand common fractures, dislocations, and soft tissue injuries including their management. • To recognize and evaluate congenital and acquired musculoskeletal deformities. • To interpret radiological investigations and identify musculoskeletal pathologies. • To appreciate the role of orthopedic surgical interventions and multidisciplinary collaboration					
Course Outcomes	After completion of this course, the student shall be able to: **CO1:** Describe the etiology, pathophysiology, clinical features, diagnostic methods, and both conservative and surgical management of disorders affecting bones, joints, muscles, and soft tissues, including trauma. **CO2:** Identify and interpret common clinical signs and symptoms associated with various musculoskeletal conditions. **CO3:** Perform relevant special tests to aid in the differential diagnosis of soft tissue and joint-related injuries. **CO4:** Interpret basic radiological and imaging findings related to musculoskeletal conditions in physiotherapy practice. **CO5:** Plan appropriate physiotherapy interventions based on clinical assessment and diagnosis of musculoskeletal disorders. **CO6:** Recognize the multidisciplinary approach and role of different healthcare specialists in the management of musculoskeletal disorders.					

Course Content:				
MODULE 1	**INTRODUCTION TO ORTHOPEDICS AND GENERAL PRINCIPLES**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Introduction to orthopedics.
- Clinical examination in an orthopedic patient.
- Common investigative procedures.
- Radiological and Imaging techniques in Orthopedics.
- Inflammation and repair, Soft tissue healing.
- Fracture: definition, types, signs and symptoms.
- Fracture healing.
- Complications of fractures.
- Conservative and surgical approaches.
- Principles of management – reduction (open/closed, immobilization etc.).
- Subluxation/dislocations – definition, signs and symptoms, management (conservative and operative).

MODULE 2	**FRACTURES AND DISLOCATIONS OF UPPER LIMB AND SPINE**	Assignment/ Quiz	Memory Recall based Quizzes	**15 HOURS**

- Fractures of Upper Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of fractures of clavicle, scapula, greater tuberosity, neck of humerus, shaft humerus, supracondylar humerus, capitulum, radial head, olecranon, coronoid, epicondyles, side swipe injury of elbow, both bone forearm fractures, monteggia, galaezzi, chauffer's, Colle's, Smith's, scaphoid, metacarpals, Bennett's, phalanges.
- Dislocations of Upper Limb: anterior/posterior/recurrent shoulder, posterior elbow.
- Hand injuries: crush injuries, flexor/extensor injuries, burn injuries.
- Fracture of spine: cervical spine, Clay shoveller's, Hangman's, odontoid, atlas, thoracic/lumbar regions, coccyx, rib cage.

MODULE 3	**FRACTURES AND DISLOCATIONS OF LOWER LIMB**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**

- Fracture of pelvis and lower limb: pelvis, neck femur, trochanters, shaft femur, supracondylar femur, condyles femur, patella, tibial condyles, tibia/fibula, Dupuytren's, Maisonneuve's, Pott's, bimalleolar, trimalleolar, calcaneum, talus, metatarsals, phalanges.

- Dislocations of lower limb: anterior, posterior, central hip; patella, recurrent patella.

MODULE 4	**SOFT TISSUE INJURIES AND AMPUTATIONS**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**

- Soft tissue injuries: sprains, strains, contusion, tendinitis, rupture, tenosynovitis, tendinosis, bursitis.
- Meniscal injuries, cruciate injuries, collateral injuries, lateral ankle ligament, wrist sprains, muscle strains, contusions, tendon ruptures.
- Amputations: definition, levels, indications, complications.
- Traumatic spinal cord injuries: paraplegia, quadriplegia.

MODULE 5	**DEFORMITIES AND BONE/JOINT DISEASES**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Congenital deformities: CTEV, CDH, torticollis, scoliosis, flat foot, vertical talus, hand anomalies, arthrogryposis, limb deficiencies, Klippel Feil, osteogenesis imperfecta, cervical rib.
- Acquired deformities: torticollis, scoliosis, kyphosis, lordosis, genu varum, genu valgum, genu recurvatum, coxa vara, pes cavus, hallux rigidus, hallux valgus, hammer toe, metatarsalgia.
- Disease of bones and joints: osteomyelitis, Brodie's abscess, TB spine/joints, pyogenic/septic arthritis, syphilitic joints, bone tumors (osteoma, osteosarcoma, osteochondroma, enchondroma, Ewing's, GCT, myeloma, metastasis), Perthes, SCFE, AVN, rickets, osteomalacia, osteoporosis, osteopenia.

MODULE 6	**INFLAMMATORY, DEGENERATIVE, CONNECTIVE TISSUE DISORDERS**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**

- Osteoarthritis, rheumatoid arthritis, ankylosing spondylitis, gouty arthritis, psoriatic arthritis, hemophilic arthritis, Still's disease, Charcot's joints.
- Connective tissue disorders: SLE, scleroderma, dermatomyositis, poliomyelitis, MCTD.
- Syndromes: cervico-brachial, thoracic outlet, vertebro-basilar, scalene, costo-clavicular, levator scapulae, piriformis
- Neuromuscular: CP, poliomyelitis, spinal dysraphism, leprosy.
- Cervical/lumbar pathology: PID, canal stenosis, spondylosis, spondylolysis, spondylolisthesis, lumbago, sacralisation, lumbarisation, coccydynia, hemivertebra.

MODULE 7	**ORTHOPEDIC SURGERY AND REGIONAL CONDITIONS**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**

- Orthopedic surgeries: arthrodesis, arthroplasty, osteotomy, external fixators, spinal stabilization, limb re-attachments.
- Regional conditions: periarthritic shoulder, rotator cuff/bicipital tendinitis, subacromial bursitis, tennis/golfer's elbow, olecranon bursitis, triceps tendinitis, De Quervain's, ganglion, trigger finger, mallet finger, CTS, Dupuytren's, IT band syndrome, trochanteric bursitis, chondromalacia patella, fat pad syndrome, ankle sprains, plantar fasciitis, tarsal tunnel, Achilles tendinitis, Morton's neuroma, etc.

Targeted Application and Tools that can be used:

- Clinical Tools: Goniometer, reflex hammer, tape measure
- Imaging Aids: X-ray view box, standard radiographs
- Bracing/Support Devices: Splints, slings, orthoses

List of Laboratory Tasks: (30 HOURS)

1. Demonstration of clinical examination of an orthopedic patient including history, observation, palpation, movement tests.
2. Demonstration of fracture site immobilization and splinting techniques for common upper and lower limb fractures.
3. Demonstration of radiograph reading and interpretation for common fractures and dislocations.
4. Demonstration of assessment and management planning for soft tissue injuries.
5. Demonstration of goniometry and muscle strength testing in musculoskeletal conditions.
6. Demonstration of common orthopedic special tests (e.g., drawer test, McMurray's test, Lachman's test).
7. Demonstration of identification of common deformities (e.g., CTEV, scoliosis) and their clinical assessment.
8. Demonstration of basic taping or bandaging techniques for joint support.
9. Demonstration of spinal examination and assessment for conditions like PID, scoliosis.
10. Demonstration of functional assessment in a case of amputation or post-orthopedic surgery.

Text Book(s):

- Outline of Orthopaedics – Adams
- Orthopaedics and Traumatology – Natrajan
- Apley's Orthopaedics
- Textbook of Orthopaedics – Maheshwari

Reference Book (s):

- **Turek's Orthopaedics**
- **Campbell's Operative Orthopaedics**

Project Work/ Assignments:

- Prepare a comparative chart of management for common pediatric vs adult fractures
- Case report submission with orthopedic diagnosis and radiograph interpretation

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Assessing and interpreting musculoskeletal injuries, deformities, fractures, and post-surgical conditions, and understanding orthopedic investigations, splinting, bracing, and physiotherapy rehabilitation protocols for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3304	**COURSE TITLE: PHYSIOTHERAPY IN ADULT AND PEDIATRIC GENERAL MEDICAL AND SURGICAL CONDITIONS (PTMS)** **(Type of Course:Core Course)**	**L-T-P-C**	8	4	8	16
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course is designed to provide physiotherapy students with the knowledge and practical skills needed to assess, plan, implement, and re-evaluate physiotherapy interventions for patients with common medical and surgical conditions. Emphasis is placed on monitoring vital signs, understanding basic emergency pharmacology, and integrating modern training methods, including virtual reality, into clinical practice.					
Course Objective	Upon completion of this clinical posting, students will be able to: ● To assess impairments associated with infections, skin conditions, and gastrointestinal (GI) disorders. ● To plan physiotherapy interventions for patients with infections, skin, and GI conditions. ● To assess impairments in patients following abdominal and reconstructive surgeries. ● To develop physiotherapy treatment plans post abdominal and reconstructive surgeries. ● To accurately document physiotherapy assessment findings and management strategies. ● To monitor vital signs and understand the relevance of basic emergency pharmacology in clinical practice.					
Course Outcomes	After completion of this clinical posting, the student shall be able to: ● **CO1:** Describe the causes, clinical features, and physiotherapy management of oedema, wounds, skin conditions, and post-surgical complications. ● **CO2:** Demonstrate appropriate physiotherapy techniques for managing obstetric, gynaecological, oncological, and palliative care conditions. ● **CO3:** Apply physiotherapeutic principles in the rehabilitation of patients with burns, reconstructive surgeries, and vestibular dysfunctions using evidence-based practices. ● **CO4:** Interpret and perform physiotherapy interventions for patients undergoing abdominal and GIT surgeries, considering pre- and post-operative care. ● **CO5:** Assess and manage age-related functional limitations and metabolic disorders through tailored physiotherapy approaches in geriatric care.					

	• **CO6:** Explain and demonstrate physiotherapy interventions in ENT, dental conditions, community-based rehabilitation, and fitness promotion across populations.			
Course Content:				
MODULE 1	**OEDEMA AND WOUND MANAGEMENT**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
• Oedema-Traumatic, Obstructive, Paralytic, oedema due to poor muscle and laxity of fascia Lymphedema • Role of Physiotherapy in wounds and local infections • Care of ulcers and wounds • Care of surgical scars-U.V.R and other electro therapeutics for healing of wounds, prevention of Hyper-granulated Scars Keloids • Electrotherapeutics measures for relief of pain during mobilization of scars tissues				
MODULE 2	**SKIN CONDITIONS AND PHYSIOTHERAPY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
• Physiotherapy in skin conditions • Documentation of assessment, treatment and follow up skin conditions • U.V.R therapy in various skin conditions; Vitiligo; Hair loss; Pigmentation; Infected wounds ulcers • Faradic foot bath for Hyperhydrosis • Massage maneuvers for cosmetic purpose of skin; use of specific oil as medium • Care of anesthetic hand and foot				
MODULE 3	**ABDOMINAL AND G.I.T. SURGERIES**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
• Principles of Pre and post operative Physiotherapy in abdominal surgeries common Complication • Abdominal incisions assessment • Physiotherapy in pre and post-operative stages of Operations on upper G.I.T.- oesophagus, stomach, duodenum • Operations on large and small intestine – Appendicectomy, cholecystectomy, partial colectomy, ileostomy • Hernia and herniotomy, herniorrhaphy, hernioplasty				
MODULE 4	**BURNS, RECONSTRUCTIVE SURGERY, AND VESTIBULAR REHABILITATION**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**
• Physiotherapy in burns, skin grafts, and reconstructive surgeries. • Vestibular Rehabilitation: Role of vestibular system in postural control. • Assessment of Balance and vestibular ocular reflex. • Benign Paroxysmal Positional Vertigo. • Unilateral Vestibular Loss.				

- Bilateral Vestibular Disorder– Assessment and management of Posterior Canal, Anterior Canal, Horizontal Canal.
- Treatment theory, goals of management and progression.
- Exercise Prescription in Vertigo.

MODULE 5	**OBSTETRICS AND GYNECOLOGY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Physiotherapy in obstetrics and gynecology :Physiotherapy in mother and child care – ante and post-natal management, early intervention and stimulation therapy in child care (movement therapy Physiotherapy in mother and child care – ante and post-natal management, early intervention and stimulation therapy in child care (movement therapy).
- Complication of pregnancy
- Labour training
- Antenatal and post-natal training
- Abdominal and pelvic floor muscles exercise
- Prolapse Uterus
- Pelvic Inflammatory Conditions
- Stress Incontinence
- Yoga in Obstetric and Gynecological conditions

MODULE 6	**ONCOLOGY AND PALLIATIVE CARE**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**

- Physiotherapy in Oncology and palliative care Introduction and common symptoms of cancer
- Breast Cancer
- Head and neck cancer
- Lung Cancer
- Oral Cavity
- Bone Cancer
- Pre and post-surgical evaluation
- Lymphedema managements
- Palliative care
- Common Physiotherapy approaches

MODULE 7	**GERIATRIC AND METABOLIC DISORDERS**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**

- Geriatric Physiotherapy I: Normal Ageing – Definition, the anatomical, physiological and cognitive changes related to aging.
- Epidemiology and socio-economic impact of aging
- The examination and assessment of a geriatric patient
- Diet and nutritional requirement of the elderly
- Falls in the elderly
- Dementia – types and principles of management
- Physiotherapy in metabolic disorders: Role of Physiotherapy in Hypertension
- Role of Physiotherapy in Diabetes

MODULE 8	ENT, DENTISTRY, FITNESS AND CBR	Assignment/ Quiz	Numerical solving Task	25 HOURS

- Ear, Nose and Throat conditions: Otitis Media, Sinusitis mastoidectomy, chronic rhinitis, laryngectomy, pharyngeolaryngectomy, facial palsy
- Physiotherapy in dentistry – TMJ rehabilitation
- Abdominal Surgeries
- Cleft lip and Cleft Palate
- Health Fitness and Promotion: Fitness Evaluation, Analysis of Body composition, Evaluation and prescription of Exercise, Factors affecting exercise Performance, Exercise Prescription for Children
- CBR in paediatrics
- Evidence based practice

Targeted Application and Tools that can be used:

- Edema and wound management tools (compression devices, scar assessment apps, UVR/electrotherapy units)
- Electrotherapeutic devices for pain relief, scar mobilization, and skin conditions (UVR, faradic bath)
- Virtual reality rehab systems and simulation tools for surgical recovery.
- Pre/post-op physio planning apps and documentation software.

List of Laboratory Tasks: (120 HOURS)

1. Demonstration of identifying impairments, activity limitations, and participation restrictions in a clinical case
2. Demonstration of planning a physiotherapy protocol based on medical or surgical condition assessment.
3. Demonstration of active exercise regimens for post-surgical rehabilitation.
4. Demonstration of diaphragmatic and segmental breathing techniques for respiratory care.
5. Demonstration of pursed-lip and incentive spirometry breathing exercises.
6. Demonstration of passive mobilization techniques for stiff joints.
7. Demonstration of static and dynamic stretching procedures for major muscle groups.
8. Demonstration of selection and application of TENS for pain relief.
9. Demonstration of selection and usage of IFT or Ultrasound for inflammation and healing.
10. Demonstration of electrotherapy for scar mobilization and pain management.
11. Demonstration of educating patients and caregivers about home exercise and mobility aids.
12. Demonstration of functional training for transfers, bed mobility, and stair climbing.
13. Demonstration of bladder training techniques in patients with neurogenic bladder.
14. Demonstration of bowel training routines for patients with impaired bowel control.

15. Demonstration of wound care and integumentary management techniques.
16. Demonstration of pressure sore prevention using positioning and cushioning.
17. Demonstration of prescribing and fitting walking aids and orthotic devices.
18. Demonstration of donning and doffing of orthoses with patient training.
19. Demonstration of ergonomic postural advice for patients in home and work environments.
20. Demonstration of setting up an ergonomic workstation and giving lifestyle modification advice.

Text Book(s):

- Physiotherapy in Gynecological and Obstetrical conditions–Mantle
- Text of Physiotherapy for obstetrics and Gynecology – G.B. MadhuriandPruthvish
- Physical Rehabilitation-Susan B O'Sullivan, Thomas. J. Schmitz
- Multani and Verma – Principles of Geriatric Physiotherapy

Reference Book (s):

- Women's Health – Sapsford
- Geriatric Physical therapy- Andrew A. Guccione

Project Work/ Assignments:

- Chart the types of oedema with physiotherapy interventions for each.
- Create a wound care protocol integrating UVR and electrotherapy modalities.
- Demonstrate a case report on physiotherapy for hypergranulated scars or keloids.
- Poster or infographic on physiotherapy role in skin conditions (e.g., vitiligo, ulcers).
- Simulate UVR therapy applications for skin healing using a virtual demo or presentation.
- Prepare a guide for massage techniques in cosmetic and sensory loss-related skin care.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Planning and performing physiotherapy assessments and interventions for adult and pediatric patients with medical and surgical conditions including respiratory care, post-operative rehabilitation, pain management, and early mobilization for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT 305	**COURSE TITLE: PHYSIOTHERAPY IN ADULT AND PEDIATRIC ORTHOPEDIC CONDITIONS (PTO)** **(Type of Course: Core Course)**		**L-T-P-C**	8	4	8	16
Version No.	1.0						
Course Pre-requisites	**ORTHOPEDICS(OR)**						
Anti-requisites	NIL						
Course Description	This course equips physiotherapy students with the knowledge and skills to assess, plan, implement, and reassess physiotherapy interventions for common musculoskeletal (MSK) medical and surgical conditions. It includes monitoring vital signs, understanding basic emergency pharmacology, and applying exercise therapy and electrotherapy techniques to restore function. Modern training methods, such as virtual reality, are also integrated to enhance clinical practice.						
Course Objective							
Course Outcomes	After completion of this clinical posting, the student shall be able to: **CO1**: Assess musculoskeletal problems including trauma, infections, rheumatic disorders, and post-surgical conditions. **CO2**: Differentiate between various musculoskeletal disorders through clinical evaluation. **CO3**: Develop and implement physiotherapy protocols for musculoskeletal conditions, including post-operative care. **CO4**: Select and apply appropriate musculoskeletal outcome measures for patient assessment and progress tracking. **CO5**: Accurately document clinical assessments, treatment plans, and prognosis. **CO6**: Utilize virtual reality and other modern training methods to enhance rehabilitation outcomes.						
Course Content:							
MODULE 1	**ORTHOPEDIC ASSESSMENT AND DOCUMENTATION**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**			

- PT assessment for Orthopedic conditions - SOAP format.
- Subjective: history taking, informed consent, personal, past, medical and socioeconomic history, chief complaints, history of present illness.
- Pain assessment: intensity, character, aggravating and relieving factors, site and location.
- Objective: on observation - body built, swelling, muscle atrophy, deformities, posture and gait.
- On palpation: tenderness-grades, muscle spasm, swelling- methods of swelling assessment, bony prominences, soft tissue texture and integrity, warmth and vasomotor disturbances.
- On examination: ROM – active and passive, resisted isometric tests, limb length-apparent, true and segmental, girth measurement, muscle length testing-tightness, contracture and flexibility, manual muscle testing, peripheral neurological examination-dermatomes, myotomes and reflexes, special tests and functional tests.
- Prescription of home program. Documentation of case records, and follow up.

MODULE 2	**FRACTURE AND TRACTION MANAGEMENT**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**
• Fractures - types, classification, signs and symptoms, complications. • Fracture healing - factors affecting fracture healing. • Principles of fracture management - reduction - open and closed, immobilization - sling, cast, brace, slab, traction - manual, mechanical, skin, skeletal, lumbar and cervical traction, external fixation, functional cast bracing. • PT management in complications - early and late - shock, compartment syndrome, VIC, fat embolism, delayed and mal union, RSD, myositis ossificans, AVN, pressure sores etc. • Physiotherapy assessment in fracture cases. • Aims of PT management in fracture cases - short and long term goals. • Principles of PT management in fractures - guidelines during immobilization and post-immobilization period.				
MODULE 3	**ORTHOPEDIC SURGERIES AND MANUAL THERAPY**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**
• Arthrodesis, Osteotomy, Arthroplasty-partial and total, Excision arthroplasty, excision arthroplasty with implant, interpositional arthroplasty and total replacement • Tendon transplant • Soft tissue release- tenotomy, myotomy, lengthening • Arthroscopy, Spinal stabilization, Re-attachment of limbs • External fixators, Synovectomy. • Principles of various schools of thought in manual therapy. (Briefly Maitland and McKenzie) • Principles of Pre and post-operative PT assessment, goals, precautions and PT management of Orthopedic surgeries.				
MODULE 4	**DEGENERATIVE AND INFLAMMATORY CONDITIONS**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**
• Ankylosing spondylitis • Degenerative and inflammatory conditions: Definition, signs and symptoms, clinical features, pathophysiology, radiological features, deformities, medical, surgical management. • PT assessment and management and home program for: • Osteoarthritis (emphasis on knee, hip, hand). • Rheumatoid arthritis				
MODULE 5	**PEDIATRIC ORTHOPEDIC CONDITIONS (CONGENITAL AND ACQUIRED)**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
• Congenital anomalies: CTEV, CDH, congenital pseudoarthrosis tibia, torticollis. • Developmental disorders: DDH, Perthes disease, SCFE. • Acquired deformities: torticollis, scoliosis, kyphosis, lordosis, genu varum, genu valgum, genu recurvatum, coxa vara, pes cavus.				
MODULE 6	**DISEASES OF BONE AND JOINTS / SOFT TISSUE INJURIES**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Diseases of bones and joints: Osteomyelitis, TB spine and joints, Perthes, SCFE, AVN, Rickets, Osteomalacia.
- Soft tissue injuries in paediatrics: Overview, investigations and management.

MODULE 7	**FRACTURES, DISLOCATIONS, BACK AND NECK PAIN IN PAEDIATRICS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Fractures and dislocations: Upper extremity, lower extremity, spine - investigations, orthopedic management.
- Low back pain and neck pain: Introduction, causes, types, investigations, management.

MODULE 8	**SPORTS INJURIES, AMPUTATION, CP SURGERY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Paediatric sports injuries: Types, investigations, management.
- Amputations, Ilizarov.
- Surgeries for CP: Rhizotomy, tendon lengthening, osteotomies, arthrodesis.

Targeted Application and Tools that can be used:

- Orthopedic assessment apps, SOAP note software, ROM and MMT measurement tools
- Fracture management aids: traction devices, immobilization splints, fixation monitoring tools
- Manual therapy training simulators, virtual reality rehab systems
- Pre/post-op physio planning apps, outcome measure tools
- Electrotherapy units, exercise therapy apps, home program design tools
- Upper limb rehab devices, prosthetic fitting and training software
- Vital signs monitors, emergency drug reference apps for MSK emergencies

List of Laboratory Tasks: (120 HOURS)

1. Demonstration of orthopedic assessment using SOAP format
2. Demonstration of pain assessment and documentation
3. Demonstration of swelling assessment techniques
4. Demonstration of ROM measurement (active, passive, resisted)
5. Demonstration of manual muscle testing and girth measurement
6. Demonstration of limb length measurement and flexibility testing
7. Demonstration of fracture assessment and PT planning
8. Demonstration of PT techniques during fracture immobilization
9. Demonstration of PT techniques post-fracture immobilization
10. Demonstration of pre and post-operative physiotherapy plan in joint surgeries.
11. Demonstration of PT assessment and management in CTEV / CDH
12. Demonstration of scoliosis and kyphosis postural assessment
13. Demonstration of PT in osteomyelitis / TB joint rehabilitation
14. Demonstration of pediatric fracture/dislocation evaluation
15. Demonstration of ergonomic and functional training in pediatric spine cases
16. Demonstration of PT approach for sports injury prevention in paediatrics
17. Demonstration of Ilizarov case PT management
18. Demonstration of gait and functional training post-amputation
19. Demonstration of PT plan following CP tendon release surgeries
20. Demonstration of home program prescription for pediatric orthopedic conditions.

Textbook(s):

- Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.

- Tidy's Physiotherapy, Ann Thomasons, Varghese publishing House.
- Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Jaypee brothers
- Textbook of Orthopaedics, John Ebnezar, Jaypee Brothers.

Reference Book (s):

- Apley's system of Orthopaedics and fractures -Louis Solomon, David J. Warwick Arnold Publishers, London
- Turek's Orthopaedics: Principles and their Application, Weinstein SL and Buckwalter JA, Lippincott
- Clinical Orthopaedic Rehabilitation, Brent Brotzman.
- Peripheral Mobilisation – GD Maitlant, Butterworth

Project Work/ Assignments:

- Orthopedic assessment case study using SOAP format with home program design.
- Create a fracture classification chart with healing stages and PT interventions.
- Project on management protocols for common post-fracture complications.
- Compare Maitland vs McKenzie manual therapy approaches – brief report.
- Design pre/post-op physiotherapy protocols for arthroplasty and tendon transfer surgeries.
- Assignment on degenerative diseases: PT assessment and management of osteoarthritis and rheumatoid arthritis.
- Case study on infective MSK conditions: osteomyelitis or septic arthritis physiotherapy approach.
- Upper limb trauma management: physiotherapy for fractures, dislocations, and compartment syndrome.
- Report on non-traumatic upper limb conditions: TOS, RSD, impingement syndrome treatment plans.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

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Topics relevant to "SKILL DEVELOPMENT": Assessing and managing musculoskeletal disorders, fractures, post-operative orthopedic cases, congenital deformities, and growth-related conditions through therapeutic exercises, manual therapy, and assistive devices for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3306	**COURSE TITLE:PHYSICAL and FUNCTIONAL DIAGNOSIS and PRESCRIPTION (Type of Course: Core Course)**	**L-T-P-C**	6	2	4	10
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course introduces the foundational principles of physiotherapeutic evaluation, emphasizing accurate diagnosis and functional assessment. It prepares students to use structured approaches to assess musculoskeletal, neuromuscular, cardiovascular-pulmonary, and integumentary systems. Utilizing tools like the ICF model and DOAP approach, the course ensures students gain both conceptual clarity and hands-on competence in clinical settings.					
Course Objective	By the end of this course, students will be able to: 1. Understand the role of physiotherapy in diagnosing functional impairments across various body systems. 2. Apply the ICF model for structured and holistic patient assessment. 3. Perform relevant physical assessment tests for musculoskeletal, neurological, and cardiopulmonary systems. 4. Interpret findings and correlate them with functional limitations and diagnostic outcomes. 5. Develop clinical reasoning skills through practical demonstrations and supervised evaluation.					
Course Outcomes	After completion of this course, the student shall be able to: • **CO1:** Describe and apply the ICF framework to identify impairments, activity limitations, and participation restrictions for functional diagnosis. • **CO2:** Assess musculoskeletal dysfunctions using joint mobility tests, flexibility measures, special tests, and gait/postural analysis. • **CO3:** Evaluate neuromuscular and cardiopulmonary dysfunctions through clinical examination of reflexes, tone, coordination, vital signs, and respiratory function. • **CO4:** Interpret diagnostic reports including ABG, PFT, ECG, PEFR, radiographs, and biochemical findings relevant to physiotherapy practice. • **CO5:** Perform electrodiagnostic assessments such as EMG, NCV, EEG, and ECG to support clinical decision-making.					

	• **CO6:** Apply anthropometric measurements and functional performance testing tools to assess patient physical status and functional capacity.			
Course Content:				
MODULE 1	**FUNCTIONAL DIAGNOSIS AND MUSCULOSKELETAL ASSESSMENT**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
• Introduction to International Classification of Functioning, Disability and Health (ICF) • Functional diagnosis of impairment, activity limitation, and participation restriction • Assessment of musculoskeletal dysfunctions: • Joint mobility, soft tissue flexibility, muscle strength and endurance • Trick movements, limb length discrepancy, sensory deficits, gait and posture deviations • Special tests for: • Cervical spine, shoulder, elbow, wrist and hanD • Lumbar spine, sacroiliac joint, hip, knee, ankle and foot • Pain assessment: subjective and objective methods (VAS, NRS, McGill Questionnaire				
MODULE 2	**NEUROLOGICAL ASSESSMENT AND ELECTRODIAGNOSIS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
• Higher mental functions, cranial nerves, tone, reflexes • Sensory testing, voluntary/involuntary movement, trick movements • Coordination, balance, endurance, limb length, posture and gait deviations • Functional diagnosis using ICF in neurological dysfunction Electrodiagnosis. • Faradic and galvanic tests, strength-duration curve • Sensory and pain threshold testing • EMG – instrumentation, normal/abnormal patterns • Nerve conduction studies, evoked potentials (EEG, H-reflex, F-wave)				
MODULE 3	**CARDIOPULMONARY ASSESSMENT AND FUNCTIONAL CAPACITY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
Cardiovascular and pulmonary dysfunction assessment: • Vital parameters, breath sounds, chest expansion, breath holding test. • Auscultation, RPE, postural drainage, breathing exercises, thoracic expansion. • Rib mobilization, respiratory PNF. • Functional capacity testing:6-minute walk test.				

- Submaximal and maximal testing (Bruce, Modified Bruce, Balke protocols)
- Interpretation of ABG, PFT, PEFR, ECG, and X-ray chest.

MODULE 4	**DIAGNOSTIC IMAGING**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Radiological studies in musculoskeletal, neurological, cardiovascular and respiratory conditions.
- X-ray: principles, instrumentation, observations.
- Ultrasonography: principles, instrumentation, observations in vascular disorders, gynecological conditions, musculoskeletal ultrasound advances.
- CT, MRI: principles, instrumentation, observations.
- Interventional radiology.

MODULE 5	**CLINICAL SCALES AND ASSESSMENT TOOLS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

Use and interpretation of clinical scales:

- Berg Balance, Modified Ashworth, FIM, Barthel Index, GCS
- DGI, MMS, STREAM, ASIA
- Functional diagnosis using standard outcome measures.
- Selection of tools based on patient profile and dysfunction type
- Documentation and interpretation of scale findings for treatment planning

.

MODULE 6	**HUMAN DEVELOPMENT AND FUNCTIONAL EVALUATION**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Maturation patterns: cephalo-caudal, proximo-distal, mass to specific
- Oromotor, sensory, and neurodevelopmental aspects of hand function
- Anthropometry and body composition:BMI, waist–hip ratio, skinfold, girth
- Performance and capacity measurements
- Principles of human development:Physical, motor, sensory, cognitive, emotional, and social domains

.

Targeted Application and Tools that can be used:

- ICF and WHO Documentation Tools

- Special Test Kits: Reflex hammers, goniometers, tuning forks
- Manual Therapy Props: Joint models, belts, balance board.

List of Laboratory Tasks: (60 HOURS)

1. Demonstration of functional diagnosis using the ICF framework to classify impairments, activity limitations, and participation restrictions.
2. Demonstration of musculoskeletal assessment including joint mobility, soft tissue flexibility, and muscle endurance.
3. Demonstration of pain assessment using VAS, NRS, and the McGill Pain Questionnaire.
4. Demonstration of cervical spine special tests such as foraminal compression, distraction, and vertebral artery test.
5. Demonstration of shoulder special tests including Yergason's, Speed's, and Supraspinatus tests.
6. Demonstration of lower limb special tests such as Thomas test, Trendelenburg sign, and McMurray's test.
7. Demonstration of neurological examination including tone, superficial and deep reflexes, and sensory testing.
8. Demonstration of balance and coordination assessment using clinical observations and standard tools.
9. Demonstration of gait analysis in patients with musculoskeletal and neurological dysfunctions.
10. Demonstration of electrodiagnostic testing: Faradic and galvanic testing, and strength-duration curve interpretation.
11. Demonstration of EMG testing procedure and interpretation of normal and abnormal EMG patterns.
12. Demonstration of nerve conduction studies including F-wave and H-reflex testing.
13. Demonstration of 6-minute walk test to assess functional capacity and endurance.
14. Demonstration of cardiopulmonary assessment including vital signs, chest expansion, and auscultation.
15. Demonstration of respiratory physiotherapy techniques: postural drainage, breathing exercises, and rib mobilization.
16. Demonstration of anthropometric measurements: BMI, waist-hip ratio, skinfold thickness, and girth.
17. Demonstration of diagnostic imaging interpretation using X-ray and musculoskeletal ultrasound.
18. Demonstration of CT and MRI report interpretation in neurological and orthopedic cases.
19. Demonstration of standardized scales: Berg Balance Scale, FIM, Modified Ashworth Scale, and Barthel Index.
20. Demonstration of oromotor and sensory developmental assessment in pediatric cases.

Text Book(s):

- Orthopaedic Physical Examination – David J. Magee
- Clinical Electrotherapy – Nelson and Currier
- Clinical Electromyography – MishraPhysical Rehabilitation – Susan B. O'Sullivan
  Learning Radiology – William Herring
  Ruppel's Manual of Pulmonary Function Testing – Carl Mottram

Reference Book (s):

- Mobilisation of Extremities – Kaltenborn
- Clinical Electromyography – Kimura
- Maitland's Manual Therapy

Project Work/ Assignments:

Assignment 1: Document a full MSK assessment using special tests and ICF framework
Assignment 2: Create an illustrated handbook of neurological reflexes and their interpretations.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Performing detailed physical and functional assessments including postural analysis, muscle strength testing, joint mobility measurement, gait evaluation, and formulating individualized physiotherapy treatment prescriptions for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

<table>
<tr><td>Course Code: SOC2301</td><td colspan="3">COURSE TITLE:RESEARCH METHODOLOGY, BIOSTATISTICS AND EVIDENCE BASED PRACTICE
(Type of Course: Research Project)</td><td>L-T-P-C</td><td>6</td><td>2</td><td>0</td><td>8</td></tr>
<tr><td>Version No.</td><td colspan="8">1.0</td></tr>
<tr><td>Course Pre-requisites</td><td colspan="8">NIL</td></tr>
<tr><td>Anti-requisites</td><td colspan="8">NIL</td></tr>
<tr><td>Course Description</td><td colspan="8">This course introduces students to the fundamental concepts and methods of research, biostatistics, and evidence-based practice in the context of health sciences. It equips students to read, interpret, and apply research findings in physiotherapy. Emphasis is placed on research design, data analysis, critical appraisal of evidence, and the application of evidence-based strategies in clinical practice. Students will also be guided on scientific writing, communication of research findings, and the use of statistical software for analysis.</td></tr>
<tr><td>Course Objective</td><td colspan="8">● To enable students to understand the principles of research methodology, types of research, and study designs in health sciences.
● To provide knowledge of biostatistical concepts essential for analyzing and interpreting data in physiotherapy research.
● To train students in the process of critical appraisal of literature and evidence-based clinical decision-making.
● To develop skills in designing research protocols, data collection, data analysis, and scientific writing.
● To encourage integration of evidence-based guidelines and pathways in physiotherapy practice.</td></tr>
<tr><td>Course Outcomes</td><td colspan="8">CO1: Discuss the need for research and evidence-based practice in physiotherapy.
CO2: Explain the process of research, including formulating research questions, hypothesis, and defining problems.
CO3: Identify and describe different research designs and sampling methods relevant to physiotherapy research.
CO4: Apply basic biostatistical methods to analyze data and interpret results for physiotherapy studies.
CO5: Demonstrate ability to perform literature search using primary and secondary databases and critically appraise the evidence.
CO6: Prepare scientific documents, including research papers, abstracts, and reports, following standard formats and citation styles.</td></tr>
<tr><td>Course Content:</td><td colspan="8"></td></tr>
<tr><td>MODULE 1</td><td colspan="2">INTRODUCTION TO BIOSTATISTICS and EVIDENCE-BASED PRACTICE</td><td>Assignment/ Quiz</td><td>Numerical solving Task</td><td colspan="4">20 HOURS</td></tr>
<tr><td colspan="9">● Understand the definition, scope, and characteristics of biostatistics and its significance in health sciences, especially physiotherapy.</td></tr>
</table>

- Distinguish between parameters and estimates; identify types of variables and measurement scales.
- Explain descriptive and inferential statistics and their application in data interpretation.
- Apply principles of data tabulation and graphical representation using appropriate charts and diagrams.
- Calculate and interpret measures of central tendency (mean, median, mode) for grouped and ungrouped data.
- Understand basic probability concepts and standard distributions including binomial and normal distribution, skewness, and kurtosis.
- Learn various sampling techniques, sample size estimation, and concepts of sampling error, significance testing, and statistical power.
- Describe hypothesis testing, its procedures, and apply parametric and non-parametric tests for analyzing differences, correlation, and association.
- Understand the concepts of ANOVA and ANCOVA and their role in statistical analysis.
- Define Evidence-Based Practice (EBP), its relevance in physiotherapy, and formulate clinical questions using PICO, PICOT, SPIDER, and SPICE models.
- Conduct literature searches using primary and secondary databases; assess internal and external validity of studies.
- Understand the process of systematic review and meta-analysis; use critical appraisal tools to evaluate research studies.
- Identify and evaluate clinical outcome measures, including sensitivity, specificity, and minimal clinically significant differences.
- Explore Clinical Practice Guidelines (CPGs), their use in physiotherapy, and challenges in implementing EBP.

MODULE 2	**FUNDAMENTALS OF RESEARCH METHODOLOGY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Define research and explain its objectives, motivation, types, and approaches.
- Differentiate between research methods and methodology; understand the criteria for good research and ethical considerations.
- Formulate research problems with clear statements of purpose, objectives, hypothesis, limitations, and significance.
- Describe research design, its purpose, key features, and various types suitable for health sciences.
- Explain sampling fundamentals, distributions, sample design steps, types, and criteria for selection.

MODULE 3	**RESEARCH TOOLS and SCIENTIFIC COMMUNICATION**			**20 HOURS**

- Describe measurement and scaling techniques including reliability, validity, sensitivity, specificity, and scaling types.
- Discuss data collection methods: primary data, questionnaires, schedules, and their differences.
- Understand the format and structure of scientific documents including protocols, journal articles, and reviews.
- Introduce computer applications in research, especially in data collection and analysis using common software tools.

MODULE 4	**APPLIED BIOSTATISTICS FOR PHYSIOTHERAPY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Explain the fundamentals of biostatistics: definition, characteristics, importance in health sciences, parameters and estimates, types of variables, descriptive and inferential statistics, and measurement scales.
- Discuss the principles of tabulation and graphical representation; interpret statistical diagrams such as histograms, frequency polygons, pie charts, and normal curves.
- Describe and calculate measures of central tendency (mean, median, mode) for grouped and ungrouped data, and compare their relevance.
- Understand basic probability and standard distributions (binomial and normal); recognize deviations from normality including skewness and kurtosis.
- Explain sampling techniques, calculate appropriate sample sizes, and understand sampling variation, power, and types of errors in significance testing.
- Describe the process of hypothesis testing including concepts, procedures, power measurement, and application of parametric and non-parametric tests.
- Understand and apply Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA) for comparing group means and controlling variables.

MODULE 5	**EVIDENCE-BASED PRACTICE IN PHYSIOTHERAPY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Define evidence-based practice (EBP), describe its background, importance, and the EBP model in physiotherapy.
- Explain the role of an evidence-based practitioner in clinical decision-making.
- Formulate clinical questions and identify sources of evidence including electronic bibliographic databases and web resources; perform a step-by-step literature search.
- Understand key research terminologies: validity, reliability, randomized controlled trials (RCTs), systematic reviews, meta-analyses, case studies, and types of research (diagnostic, prognostic, intervention).
- Assess the quality of evidence using levels of evidence and classification systems in quantitative research.
- Apply evidence to clinical practice using Critically Appraised Topics (CATs), understand their format, usage, and limitations in practice.

MODULE 6	**CRITICAL APPRAISAL AND CLINICAL APPLICATION**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Appraise the quality of diagnostic studies; summarize and communicate evidence related to diagnostic processes in physiotherapy.
- Understand the concept of prognosis, relevant research designs, and the method to assess study quality in prognostic evidence.
- Evaluate outcome measures in terms of validity, reliability, and interpret findings from existing studies.
- Critically analyze intervention studies in physiotherapy, identifying research designs used and assessing the strengths and limitations.
- Review and appraise systematic reviews and meta-analyses; understand Cochrane Collaboration procedures; extract clinically relevant conclusions. Gain a brief overview of qualitative research and case studies.

- Explore practice guidelines, clinical algorithms, and pathways; understand their roles, comparisons, implementation, and legal considerations in physiotherapy care.

Targeted Application and Tools that can be used:

- Software: SPSS, MS Excel, RevMan, Google Forms
- Databases: PubMed, Cochrane Library, PEDro, Scopus
- Frameworks: PICO, PRISMA, CONSOR**T**

List of Laboratory Tasks:: NIL

Text Book(s):

- Research for Physiotherapists – C. Hicks
- Practical Evidence-Based Physiotherapy – Robert Herbert et al.
- Methods in Biostatistics – B.K. Mahajan

Reference Book (s):

- Evidence-Based Physical Therapy – Linda Fetters and Julie Tilson
- Guide to Evidence-Based Physical Therapy Practice – Dianne V. Jewell
- Statistical Methods in Biology – N.T.J. Bailey

Project Work/ Assignments:

- Assignment 1: Frame 3 clinical research questions using PICO
- Assignment 2: Perform and interpret basic descriptive stats on dummy data

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Designing research proposals, collecting and analyzing data using statistical tools, interpreting research findings, and applying evidence-based guidelines to physiotherapy practice for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3307	**COURSE TITLE:CLINICAL EDUCATION (300 HOURS)**	**L-T-P-C**	0	0	20	10
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	Students will be posted in rotation in the various wards, hospitals and physiotherapy OPDs attached with the college. The students will be clinically trained to provide physiotherapy care for the patients under supervision. They will be trained on bed side approach, patient assessment, performing special tests, identifying indications for treatment, ruling out contraindications, decision on treatment parameters, dosage and use relevant outcome measures under supervision. Evidence based practice will be part of training. Critique Enquiry, Case Presentation, and Case Discussion shall be essential part of posting. Each student shall maintain a case portfolio / diary to record the various activities performed during clinical posting. This diary should be presented before the final exam and the grade should be awarded by the college						
Course Objectives	Upon completion of this clinical posting, students will be able to: ● Observe and understand the routine clinical processes involved in physiotherapy management. ● Identify the roles and responsibilities of physiotherapists in different clinical settings. ● Assist clinical staff in non-clinical tasks, promoting teamwork and professionalism. ● Begin developing a professional attitude and understanding of patient-centered care.					
Course Outcomes	After completion of this clinical posting, the student shall be able to: **CO1**: Observe and describe physiotherapy assessment and treatment procedures in inpatient and outpatient settings. **CO2**: Identify the roles, responsibilities, and scope of practice of physiotherapists within a multidisciplinary healthcare team. **CO3**: Demonstrate appropriate professional behavior, including punctuality, responsibility, and teamwork in clinical environments. **CO4**: Assist clinical staff in non-clinical tasks, adhering to institutional protocols					

	and demonstrating initiative. **CO5**: Maintain a structured clinical diary or portfolio with documented case observations, reflections, and learning points. **CO6**: Apply basic knowledge of ethics, patient communication, and infection control during clinical observation and interaction.

Course Code: BPT3401	**COURSE TITLE:NEUROLOGY, PSYCHIATRY AND NEUROSURGERY (NPNS) (Type of Course:Core Course)**	**L-T-P-C**	4	2	2	7
Version No.	1.0					
Course Pre-requisites	NEUROANATOMY					
Anti-requisites	NIL					
Course Description	This course provides foundational knowledge of neurological, psychiatric, and neurosurgical conditions. It enables students to understand the etiology, pathology, clinical manifestations, and management of central, peripheral, and neuromuscular disorders and appreciate the interdisciplinary approach, particularly the role of physiotherapy in comprehensive care.					
Course Objective	• Understand the basic structure, function, and pathology of the nervous system. • Identify and interpret common neurological and psychiatric disorders. • Explain diagnostic tools used in neurological conditions. • Appreciate the multidisciplinary approach in managing neurological and psychiatric cases. • Understand principles and indications of neurosurgical interventions.					
Course Outcomes	After completion of this course, the student shall be able to: **CO1:** Describe the etiology, pathophysiology, and clinical features of disorders affecting the central nervous system (CNS), peripheral nervous system (PNS), and neuromuscular junction. **CO2:** Identify and interpret key signs and symptoms associated with various neurological disorders through clinical observation and assessment. **CO3:** Explain the principles and clinical applications of diagnostic procedures including EEG, NCV, EMG, CT scan, MRI, and cerebrospinal fluid (CSF) analysis.					

	CO4: Recognize the roles and interdisciplinary contributions of neurologists, psychiatrists, neurosurgeons, and rehabilitation professionals in managing neurological conditions. **CO5:** Correlate clinical findings with diagnostic test results to understand disease progression and prognosis in neurological disorders. **CO6:** Demonstrate foundational knowledge to support physiotherapy management strategies in patients with neurological dysfunctions			
Course Content:				
MODULE 1	**NEUROLOGICAL FUNCTION, TONE, TRAUMA AND ASSESSMENT**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
• Disorders of function in the context of Pathophysiology, Anatomy in Neurology and Cortical Mapping. • Classification of neurological involvement depending on level of lesion. • Reviews in brief the neurophysiologic basis of tone and Disorders of tone and Posture, Bladder control, Muscle conduction, Movement and Pain, Management of Pain, Electrical Stimulation of Brain and Spinal cord. • Trauma - Broad localization, first aid and management. • Neurological assessment: Principles of clinical diagnosis, higher mental function, assessment of brain and spinal cord function, evaluation of cranial nerves and evaluation of autonomic nervous system. • Basic history taking, higher mental function, cranial nerve, motor system, sensory system, tone, cerebral function, higher cortical function (apraxia), gait abnormalities.				
MODULE 2	**INVESTIGATIONS, VESTIBULAR FUNCTION AND CEREBROVASCULAR DISEASE**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**
• Investigations: skull x-ray, CT, MRI, evoked potentials, lumbar puncture, CSF examination, EMG, NCV. • Deafness, vertigo, imbalance, tests of vestibular function, peripheral and central vestibular disorders. • Cerebrovascular diseases: stroke, TIA, RIA, multi infarct dementia, lacunar infarct, classification, risk factors, causes, investigations, management.				
MODULE 3	**SPINAL CORD, MOTOR NEURON, TUMORS, MOVEMENT DISORDERS**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**
• Spinal cord disorders: SCI, brain injury, infections, IVD prolapse, abscesses, myelitis, syringomyelia, spina bifida, hereditary spastic paraplegia, etc. • Motor neuron diseases: ALS, spinal muscular atrophy, hereditary bulbar palsy, neuromyotonia, post-irradiation polyradiculopathy.				

- Brain and spinal tumors: classification, features, investigations, management.
- Movement disorders: Parkinson's, dystonia, chorea, ballism, athetosis, tics, myoclonus, Wilson's disease.
- Multiple sclerosis.

MODULE 4	**CEREBELLAR, HIGHER CORTICAL, EPILEPSY, NEUROMUSCULAR AND MUSCLE DISORDERS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Cerebellar disorders: congenital ataxia, Friedreich's, metabolic ataxia, hereditary cerebellar ataxia, syphilis, tabes dorsalis.
- Higher cortical, neuropsychological, neurobehavioral disorders: epilepsy, dyssomnias, parasomnias, dementia, OCD, coma, brain death, perceptual and speech disorders, Alzheimer's disease.
- Neuromuscular junction disorders: myasthenia gravis, Eaton-Lambert, botulism.
- Muscle diseases: muscular dystrophy, myotonic dystrophy, myopathy, non-dystrophic myotonia.
- Polyneuropathies: hereditary, amyloid, GBS, chronic idiopathic.

MODULE 5	**PERIPHERAL NEUROPATHY, PAEDIATRIC NEUROLOGY, TOXIC AND HEAD INJURY**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Peripheral neuropathies: nerve injuries, plexus palsy, entrapments.
- Paediatric neurology: CP, hydrocephalus, malformations, autism, Down's syndrome.
- Toxic, metabolic, environmental disorders: encephalopathy, toxicity, poisoning.
- Head injury: etiology, features, management.

MODULE 6	**NEUROSURGERY AND PSYCHIATRY**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**

- Neurosurgery: craniotomy, cranioplasty, stereotactic surgery, DBS, burr-hole, shunting, laminectomy, rhizotomy, embolization, coiling, clipping, neural implantation.
- Psychiatry: anxiety, depression, OCD, psychosis, PTSD, personality disorders, drug dependence, child psychiatry (mental retardation, ADHD, behavioral disorders).

Targeted Application and Tools that can be used:

- Neurological Tests: Cranial nerve exam, sensory/motor testing, reflexes, tone assessment, coordination tests
- Diagnostics: EEG, EMG, NCV, CT, MRI, CSF analysis
- Scales and Tools: MMSE, GCS, ASIA, Rancho Scale, Barthel Index, FIM

List of Laboratory Tasks:: (30 HOURS)

1. Demonstration of neurological history taking and clinical reasoning.
2. Demonstration of higher mental function, cranial nerve, and motor system assessment.
3. Demonstration of sensory, tone, gait, and coordination testing.
4. Demonstration of vestibular and balance function tests.

5. Demonstration of interpretation of CT, MRI, EMG, NCV findings.
6. Demonstration of stroke and spinal cord injury bedside examination.
7. Demonstration of nerve injury, plexus lesion clinical tests.
8. Demonstration of cerebellar ataxia, Parkinson's, and dystonia evaluation.
9. Demonstration of psychiatric mental status examination.
10. Demonstration of post-operative neurosurgical patient physiotherapy assessment.

Text Book(s):

- **Davidson's Principles and Practice of Medicine** – Edward (Churchill Livingstone)
- **API Textbook of Medicine** – Association of Physicians of India
- **Medicine and Neurology** – Golewala

Reference Book (s):

1. Brain's Diseases of the Nervous System – Nalton (ELBS)

2. Guide to Clinical Neurology – Mohn and Gaectier (Churchill Livingstone)
3. Principles of Neurology – Victor (McGraw Hill)
4. Neurological Rehabilitation – Darcy Umphred

Project Work/ Assignments:

- Case study report on a neurological condition (e.g., stroke, Parkinson's disease) including symptoms, diagnostics, and MDT roles
- Interpretation project of diagnostic tools (EEG, MRI, CT) with clinical correlation
- Presentation on differential diagnosis of upper vs. lower motor neuron lesions
- Assignment on neurosurgical interventions: procedures, indications, physiotherapy relevance
- Research-based report on psychiatric disorders and their classification under DSM-5

- Comparative chart of brain tumors vs. spinal cord tumors: types, symptoms, treatment options

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Identifying clinical signs and symptoms of neurological and psychiatric disorders, interpreting neurological investigations, observing neurosurgical procedures, and understanding physiotherapy implications in conditions like stroke, Parkinson's disease, depression, and post-neurosurgical care for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3402	**COURSE TITLE:PHYSIOTHERAPY IN ADULT AND PEDIATRIC NEUROLOGICAL AND NEUROSURGICAL CONDITIONS (Type of Course: Core Course)**	**L-T-P-C**	8	2	4	12
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course equips students with essential knowledge and hands-on skills in the physiotherapeutic management of adult and pediatric neurological and neurosurgical conditions. It covers assessment methods, functional diagnoses, goal setting, and intervention planning. Emphasis is laid on clinical application, neurophysiological techniques, and interdisciplinary collaboration for effective neurological rehabilitation.					
Course Objective	• To develop an in-depth understanding of neurological dysfunction and related disorders. • To train students in advanced neurological assessment and treatment techniques. • To apply neurophysiological and clinical reasoning principles in rehabilitation. • To manage pediatric and adult neurological conditions using evidence-based practice. • To effectively document patient care using functional and neurological assessments.					
Course Outcomes	After completion of this course the student shall be able to: **CO1**: Describe the aetiology, pathophysiology, clinical manifestations, diagnostic measures, and management of disorders of the Central Nervous System, Peripheral Nervous System, and Neuro-Muscular System. **CO2**: Demonstrate competencies in identifying common clinical signs and patterns of various adult and paediatric neurological and neurosurgical conditions. **CO3**: Demonstrate knowledge of diagnostic procedures and interpret findings from investigations such as blood tests, radiological procedures, EMG, NCV, CT, MRI relevant to neurological and neurosurgical conditions. **CO4**: Assess and document neurological function including motor, sensory, reflex, higher mental function, coordination, balance, gait, and functional status using standardized tools and scales. **CO5**: Plan and implement physiotherapy management strategies using neurophysiological techniques such as NDT, PNF, Rood's approach, Sensory Integration, Motor Relearning, Task-Oriented Approach, and Constraint-Induced Movement Therapy.					

	CO6: Design physiotherapy interventions for brain and spinal cord disorders, peripheral nerve injuries, neuromuscular junction disorders, and neurometabolic/genetic disorders, including paediatric and adult cases.			
Course Content:				
MODULE 1	**NEUROLOGICAL ASSESSMENT and INTERVENTION IN PHYSIOTHERAPY**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**

- Perform comprehensive neurological assessment including:
  - Chief complaints and structured history taking (present, past, medical, family, personal).
  - Observation and palpation.
  - Evaluation of higher mental functions: consciousness, orientation, memory, speech, reading, writing, language, calculations, perception, reasoning, and judgment.
  - Detailed motor examination: muscle tone, power, spasticity, flaccidity, and reflexes (developmental, deep tendon, superficial).
  - Sensory testing: superficial, deep, and cortical sensations.
  - Conduct special neurological tests: Romberg's, Kernig's, Brudzinski's, Tinel's, Slump, Lhermitte's, Bell's phenomenon, Gower's sign, Sun set sign, Battle's sign, Glabellar tap, etc.
  - Analyze balance and coordination.
  - Perform gait analysis using both kinetic and kinematic perspectives (quantitative and qualitative).
  - Conduct functional assessments using standardized tools: Modified Ashworth Scale, Berg Balance Scale, FIM, Barthel Index, GCS, MMSE, Rancho Los Amigos Scale, APGAR Score, ASIA Scale, Reflex grading.
  - Formulate differential diagnoses based on comprehensive assessment findings.
- Understand and apply neurophysiological techniques in intervention:
  - Learn concepts, principles, techniques, and effects of major neurophysiological approaches:
  - Neurodevelopmental Treatment (NDT)
  - Proprioceptive Neuromuscular Facilitation (PNF)
  - Rood's Sensorimotor Approach
  - Sensory Integration Therapy
  - Brunnstrom Movement Therapy
  - Motor Relearning Program
  - Contemporary Task-Oriented Approach
  - Muscle Re-education Approach
  - Constraint-Induced Movement Therapy (CIMT)

MODULE 2	**EVALUATION and MANAGEMENT OF BRAIN, SPINAL CORD, and MUSCLE DISORDERS**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**

- Perform detailed evaluation for central and peripheral neurological conditions through:
  - Structured history taking, observation, palpation.
  - Higher mental function and cranial nerve assessment (where applicable).

- Motor and sensory examination, reflex testing, balance and coordination testing.
- Functional assessment, gait analysis, and differential diagnosis.
- Identification of complications, goal setting (short-term and long-term), and formulation of physiotherapy problem lists.

- Plan and implement physiotherapeutic management for:
  - **Brain and spinal cord disorders**: Cerebrovascular accident (CVA), meningitis, encephalitis, traumatic brain injury, brain tumors, perceptual disorders, amyotrophic lateral sclerosis (ALS), multiple sclerosis.
  - **Cerebellar, spinal cord, and muscular disorders**: Ataxia, sensory ataxia, Parkinson's disease, Duchenne muscular dystrophy, myasthenia gravis, Eaton-Lambert syndrome, spinal tumors, spinal cord injuries, transverse myelitis, bladder and bowel dysfunction, spinal muscular atrophy, poliomyelitis, post-polio syndrome.
- Integrate appropriate **neurophysiological approaches** (e.g., NDT, PNF, Rood, CIMT, etc.) and **modalities** into individualized patient care plans.
- Manage both **systemic** and **mechanical complications** associated with neurological conditions.

MODULE 3	**PAEDIATRIC NEUROLOGY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

Conduct comprehensive pediatric neurological assessments including:

- Developmental milestones and reflexes.
- Pediatric neurological examination: observation, palpation, cranial nerves, motor/sensory exam, balance, gait, and higher mental functions.
- Use of developmental screening tools and neurodevelopmental tests.

Plan and implement physiotherapy management for pediatric neurological conditions:

- Risk babies, minimum brain damage, developmental disorders, cerebral palsy, autism, Down syndrome, hydrocephalus, chorea, spina bifida, and syringomyelia.

Formulate physiotherapy goals and treatment strategies:

- Based on functional evaluation, list of problems, differential diagnosis.
- Integration of neurophysiological approaches and physical modalities.
- Manage systemic and mechanical complications effectively.

MODULE 4	**NEUROLOGICAL GAIT ASSESSMENT and MANAGEMENT**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

Assess and interpret abnormal gaits using

- Quantitative and qualitative gait analysis (kinematics and kinetics).
- Functional analysis and identification of deficits.

Develop physiotherapeutic plans and goals for:

- Hemiplegic gait, Parkinsonian gait, high step gait, hyperkinetic/hypokinetic gait, waddling gait, scissoring gait, spastic gait, choreiform gait, diplegic gait, and myopathic gait.

MODULE 5	**PERIPHERAL NERVE INJURIES AND DISORDERS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

Conduct detailed neurological evaluations including:

- History taking, motor-sensory and reflex testing, functional, gait, balance, and coordination assessments.
- Differential diagnosis and complication management.

Plan and implement physiotherapy management using neurophysiological approaches and modalities for:

- Hereditary motor sensory neuropathy, Guillain-Barré syndrome, brachial/lumbosacral plexus injuries, individual cranial and peripheral nerve palsies (e.g., median, ulnar, radial, sciatic, femoral, pudendal, etc.).

MODULE 6	**NEUROSURGICAL CONDITIONS(PRE AND POST-OPERATIVE)**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

Evaluate and treat patients pre- and post-surgery for:

- Spinal disc herniation, spinal stenosis, spinal cord trauma, brain tumors, cerebral aneurysms, epilepsy, Parkinson's disease, chorea, psychiatric and congenital disorders (e.g., spina bifida, AV malformations).
- Address complications, set treatment goals, and apply neurorehabilitation principles in neurosurgical cases.
- Integrate evidence-based yoga practices for rehabilitation in neurological conditions.
- Understand therapeutic benefits, precautions, and indications for yoga in neuro-recovery.

MODULE 7	**PEDIATRIC NEUROLOGICAL CONDITIONS AND PHYSIOTHERAPY MANAGEMENT**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Assessment of pediatric neurological conditions: History taking, observation, developmental milestones, reflexes, motor/sensory exam, balance, coordination, gait, and functional analysis.
- Evaluation and physiotherapy management of cerebral palsy, developmental delay, high-risk infants, hydrocephalus, traumatic brain injury, brachial plexus injury, and spina bifida.
- Management of pediatric respiratory, sensory, behavioral, and learning disorders including autism, ADHD, epilepsy, and vision/hearing impairments.
- Use of developmental assessment tools (e.g., AIMS, TIMP, MAI, NBA) and outcome measures.
- Physiotherapy approaches for pediatric neuromuscular disorders: Muscular dystrophies, spinal muscular atrophy, myopathies.
- Pre/post-surgical rehabilitation for neurological and peripheral nerve conditions.
- Introduction to metabolic and genetic disorders (e.g., Down's syndrome, West syndrome, Leigh's disease) and role of physiotherapy.
- Exercise testing and protocols for pediatric populations, including obesity and juvenile diabetes.
- Management of pediatric neuropsychiatric disorders and neural tube defects.

Targeted Application and Tools that can be used:

- Assessment: Ashworth Scale, Berg Balance, FIM, ASIA, GCS, Gait Analysis
- Therapies: NDT, PNF, Rood's, Brunnstrom, CIMT, Task-Oriented Training
- Modalities: FES, NMES, TENS, Biofeedback, Mirror Therapy
- Pediatric Tools: GMFM, PEDI, Bayley Scales
- Documentation: SOAP notes, Case Sheets

List of Laboratory Tasks: (60 HOURS)

1. Demonstration of neurological history taking and documentation.
2. Demonstration of higher mental function assessment techniques.
3. Demonstration of cranial nerve, motor, and sensory system examination.
4. Demonstration of reflex testing and interpretation.
5. Demonstration of special tests (e.g., Romberg's, Tinel's, Slump test).
6. Demonstration of balance and coordination testing.
7. Demonstration of gait analysis (kinetics, kinematics).
8. Demonstration of Modified Ashworth, Barthel, ASIA scale use.
9. Demonstration of neurophysiological techniques (e.g., NDT, PNF).
10. Demonstration of clinical evaluation and management plan for CVA patients.

Text Book(s):

- Patricia A D. Cash's Textbook for Physiotherapists in Neurological Disorders

- Adler B. PNF in Practice
- Hollis M. Practical Physical Therapy
- O'Sullivan S. Physical Rehabilitation
- Johnstone M. Therapy for Stroke
- Bromley I. Tetraplegia and Paraplegia
- Carr and Shepherd Neurological Rehabilitation

Reference Book (s):

- Bobath B. Adult Hemiplegia
- Patricia M D. Right in the Middle
- Umphred D. Neurological Rehabilitation

Project Work/ Assignments:

- Design and document a gait analysis report (kinetic and kinematic) for a patient with hemiplegic or Parkinsonian gait.
- Develop a functional assessment chart using scales like ASIA, Barthel Index, or Modified Ashworth Scale on a neurological patient and interpret the resul**ts.**
- Prepare a detailed case report on neurological history taking, including higher mental function, cranial nerve, motor, sensory, and reflex examination for a patient with CVA or head injury.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Assessing and managing neurological and neurosurgical conditions such as stroke, cerebral palsy, spinal cord injury, and Parkinson's disease using techniques like neurodevelopmental therapy, proprioceptive neuromuscular facilitation, and task-specific training for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3403	**COURSE TITLE:CARDIOTHORACIC DISEASES AND SURGERIES (Type of Course: Core Course)**	**L-T-P-C**	4	2	2	7
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course introduces students to the pathophysiology, diagnosis, and management of cardiothoracic diseases. It includes both medical and surgical conditions involving cardiovascular and respiratory systems, emphasizing the understanding of various diagnostic procedures and pre- and post-operative physiotherapy care. The aim is to build competence in clinical decision-making for cardiac, pulmonary, and vascular disorders, as well as thoracic surgeries.					
Course Objective	• .Explain the pathogenesis and diagnosis of cardiac and respiratory disorders. • Gain knowledge of thoracic surgical procedures and their physiotherapy implications. • Assess and interpret clinical symptoms, signs, and investigation reports. • Recognize post-surgical complications and plan physiotherapy interventions accordingly. • Collaborate effectively with surgical teams for cardiac and pulmonary rehabilitation. • Understand the anatomy and physiology of the cardiopulmonary systems					
Course Outcomes	After completion of this course the student shall be able to: **CO1:** Describe causes, clinical features, investigations, and management of cardiovascular disorders like heart failure, rheumatic fever, hypertension, DVT, and embolism. **CO2:** Explain the pathology, symptoms, investigations, and treatment of respiratory conditions including asthma, pneumonia, TB, bronchitis, and chest deformities. **CO3:** Understand cardio-respiratory anatomy and physiology relevant to diseases and surgeries. **CO4:** Explain indications, procedures, and complications of major cardio-thoracic and vascular surgeries such as valve replacement, bypass, angioplasty, and lobectomy. **CO5:** Describe physiotherapy care in surgical cases including suctioning, CPR, ventilator weaning, extubation, and post-op rehabilitation.					

	CO6: Discuss signs and management of thoracic trauma (rib fracture, flail chest, pneumothorax, lung injury) and lung cancer.			
Course Content:				
MODULE 1	**CARDIOVASCULAR SYSTEM DISORDERS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**
● Outline Aetiopathogenesis of Cardio-Vascular System disorders, Investigations, Diagnostic, Differential diagnosis and principles of management. ● Cardiac failure - Definition, Causes, Symptoms and Signs and Brief management of Cardiac failure. ● Rheumatic Fever - Definition, Brief description of Aetiology, Clinical features, Complication and Treatment. ● Congenital Heart Diseases: Classification and brief outline of diseases like ASD, VSD, PDA, Fallot's Tetralogy with complication. ● Ischemic Heart Disease - Aetiopathogenesis, Classification. Symptoms, Diagnosis and Medical and Surgical treatment. ● Hypertension - Definition, Classification, Symptomatology, Complications and Treatment. ● Infective Endocarditic - Brief aetiopathogenesis, clinical features, Diagnosis and Treatment. ● Brief description of Deep Vein Thrombosis and Pulmonary embolism. ● Vascular Disease: Atherosclerosis, Burger's disease, Phlebitis etc.				
MODULE 2	**RESPIRATORY SYSTEM DISEASES**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**
● Chronic Bronchitis and Emphysema, Definition. Clinical features, investigation, complication and treatment. ● Bronchial asthma - Definition, Aetiopathogenesis, clinical features, Diagnosis and Treatment. ● Pneumonia - Definition, Classification, clinical features, Complications and Treatment. ● Tuberculosis - Aetiopathogenesis, clinical test of pulmonary tuberculosis, Diagnosis Complication and Treatment. ● Lung abscess and Bronchiectasis - Definition, clinical features, Diagnosis and Treatment.				
MODULE 3	**CARDIORESPIRATORY ANATOMY, CHEST WALL and OCCUPATIONAL DISEASES**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**
● Brief idea of Anatomy and Physiology of Cardio-respiratory systems. ● Chest wall deformities- Describe various deformities of chest wall, its effect and Pulmonary diseases associated with it. ● Occupational Lung Diseases - Clinical features, Diagnosis and Treatment. ● Respiratory failure - Classification, Causes and Treatment.				
MODULE 4	**INTRODUCTION TO CARDIO-THORACIC SURGERY AND BASIC MANAGEMENT**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Introduction-types of incision, pre and post operative assessment, management and complications of cardio thoracic surgery and their management.
- Describe in detail the following procedure: management of endotracheal tubes, tracheal Suction, Weaning the patient from ventilator, Extubation and Post-extubation care.
- Describe the principles of cardio-pulmonary Resuscitation, cardiac Massage, Artificial respiration, defibrillators and their use.

MODULE 5	**CARDIAC SURGERY**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**

- Cardiac Surgery-Outline indication, contra indication, site of incision, pre and post Operative management and complications of the following:
- Valvotomy and Valve Replacement
- Open heart surgery/ cardiac bypass surgery, Surgery of pericardium Heart transplantation
- Pacemaker
- Coronary angioplasty and Balloon angioplast

MODULE 6	**VASCULAR AND THORACIC SURGERY**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**

- Vascular surgery (Outline surgery and artery and veins)

- Thoracic Surgery
- Outline clinical features and management of the following: fracture of ribs, Flail chest, stove in chest, Pneumothorax, Haemothorax, Lung contusion and Laceration and injury to vessels and bronchus.
- Outline indications, contradiction, site of incision, pre and post operative management and complication of following-Lobectomy, Pneumonectomy, segmentectomy, pleuro-pneumonectomy, Thoracoplasty, decortication, Tracheostomy
- Outline clinical features and management of carcinoma of lung.

Targeted Application and Tools that can be used:

- Investigations: ECG, X-ray, ABG, PFT
- Monitoring: Pulse oximetry, BP, HR, RR
- Post-op Tools: Chest tubes, suction devices, mechanical ventilators
- Intervention: CPR kits, incentive spirometer, nebulizers
- Documentation: Post-op charts, ICU observation, rehab protocol notes

List of Laboratory Tasks: (30 HOURS)

1. Demonstration of interpretation of ECG, chest X-ray, ABG, and pulmonary function test reports
2. Demonstration of cardiac and pulmonary assessment techniques

3. Demonstration of emergency procedures: CPR, defibrillator use, artificial respiration
4. Demonstration of pre- and post-operative physiotherapy planning
5. Demonstration of management of chest tubes, endotracheal tubes, suctioning
6. Demonstration of physiotherapy protocol for cardiac surgery patients
7. Demonstration of pulmonary rehab techniques after lung surgery
8. Demonstration of patient education and breathing exercises
9. Demonstration of thoracic mobility and posture correction exercises
10. Demonstration of exercises and care for vascular and DVT patients

Text Book(s):

- Cardiothoracic Surgery: Recent Advances and Techniques – Daniel Willson
- Braunwald's Heart Disease – Douglas P. Zipes, Peter Libby
- Textbook of Interventional Cardiology – Eric J. Topol, Paul S. Teirstein

Reference Book (s):

- Principles of Respiratory Medicine – Farokh Udwadia
- Davidson's Principles and Practice of Medicine
- Murray and Nadel's Textbook of Respiratory Medicine
- Bailey and Love's Short Practice of Surgery

Project Work/ Assignments:

- Case presentation on cardiac surgery rehab: CABG or valve replacement
- Comparative chart on congenital vs acquired heart diseases
- Assignment on respiratory failure types and physiotherapy management

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Understanding clinical features, diagnostic investigations, and surgical management of cardiothoracic conditions such as coronary artery disease, COPD, asthma, and post-thoracotomy cases to identify physiotherapy needs and precautions for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3404	**COURSE TITLE:PHYSIOTHERAPY IN ADULT AND PEDIATRIC CARDIOTHORACIC CONDITIONS AND SURGICAL CONDITIONS (Type of Course:Core Course)**	**L-T-P-C**	8	2	4	12
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course imparts knowledge and skills in assessing, diagnosing, and managing adult and paediatric cardio-respiratory and post-surgical conditions. It emphasizes clinical decision-making, ICU care, post-operative rehabilitation, and evidence-informed physiotherapy techniques using tools like auscultation, spirometry, and oxygen therapy. It encourages the integration of bedside teaching, simulation, and case-based learning.					
Course Objective	• Understand pathophysiology of cardio-thoracic and surgical conditions. • Conduct comprehensive cardio-respiratory assessment and documentation. • Apply evidence-based physiotherapy techniques for adults and children. • Provide pre- and post-operative rehabilitation and ICU physiotherapy. • Develop clinical decision-making through functional evaluation. • Integrate outcome measures into rehabilitation planning.					
Course Outcomes	**CO1:** Demonstrate competencies in assessing and identifying physiotherapy-related problems in respiratory, cardiac, surgical, and transplant conditions. **CO2:** Develop and implement evidence-based physiotherapy protocols for managing cardiorespiratory and post-surgical cases. **CO3:** Perform clinical exercise testing to support clinical decision-making. **CO4:** Select and apply appropriate outcome measures for clients with cardiorespiratory disorders. **CO5:** Document assessment findings, clinical decisions, physiotherapy plans, and prognosis accurately. **CO6:** Communicate effectively with healthcare stakeholders, including patients and providers.					
Course Content:						
MODULE 1	**BASICS OF RESPIRATORY SYSTEM**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**		

- Discuss the process of gaseous exchange.
- Explain the possible factors which affect gaseous exchange.
- Discuss the effect of impaired gaseous exchange on function.

MODULE 2	**CARDIO RESPIRATORY EVALUATION AND ASSESSMENT**	Assignment/ Quiz	Numerical solving Task	**25 HOURS**

- Demonstrate skills to interpret common investigations to identify problems that can be managed by physiotherapy.
- Discuss principles of cardio-respiratory assessment pertaining to physiotherapy clinical decision making.
- Demonstrate skills in reading medical records to formulate physiotherapy-related hypotheses.
- Demonstrate skills in conducting subjective assessment.
- Demonstrate skills in performing physical examination to identify the problems
    - Palpation
    - Chest expansion measurements
    - Percussion note
    - Tactile and vocal fremitus
    - Auscultation
    - 6 Minute Walk Test
    - ABG
    - Chest X ray
    - PFT
    - ECG
    - Exercise testing report
- Demonstrate skills in selecting and applying appropriate outcome measures used in cardio-respiratory care.
- Demonstrate skills in identifying impairments, activity limitations and participatory restrictions caused by cardio respiratory disorders with appropriate rationale.
- Prioritise and formulate physiotherapy goals.

MODULE 3	**PHYSIOTHERAPY TECHNIQUES IN CARDIORESPIRATORY DYSFUNCTION**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Physiotherapy techniques for airway secretions
- Explain the physiological mechanism, Indications, Contra indications, precautions and evidence pertaining to physiotherapy techniques used for airway secretions
- Demonstrate physiotherapy techniques used to clear airway secretions for :
    - Positioning
    - Postural Drainage
    - Chest wall manipulation
    - Force Expiratory Techniques
    - Active cycle of breathing techniques
    - Autogenic drainage
    - Positive Expiratory Pressure
    - IPPB
- Explain the physiological mechanism, Indications, Contra indications, precautions and evidence pertaining to Physiotherapy techniques used for improving lung volume
- Techniques for improving lung volume:
    - Deep Breathing
    - Thoracic Expansion
    - Sustained maximal inspiration
    - IPPB

- CPAP
- Explain the Physiological mechanism, Indications, Contra indications, precautions and evidence pertaining to physiotherapy techniques used for reducing breathlessness
- Demonstrate Physiotherapy Techniques for reducing breathlessness:
  - Relaxation positions,
  - Breathing control,
  - Pacing techniques.
- Explain the Physiological mechanism, Indications, Contra indications, precautions and evidence pertaining to adjuncts used in respiratory physiotherapy care.
- Demonstrate skills in selecting and administering
  - Humidification therapy
  - Aerosol therapy
  - Oxygen therapy
- Demonstrate skills in assessing and identifying impairments, activity limitations and participatory restrictions in clients with respiratory disorders (Acute exacerbations and chronic)
  - Asthma
  - COPD
  - Interstitial lung disease Bronchiectasis
  - Pneumonia
  - Pleural disorders
- Prioritise Physiotherapy related problems based on the assessment in providing respiratory care
- Plan Physiotherapy care with rationale for the identified problems in respiratory care
- Demonstrate skills in providing Physiotherapy care for the identified problems in clients with respiratory disorders .

MODULE 4	**PULMONARY SURGERIES AND REHABILITATION**	Assignment/ Quiz	Numerical solving Task	**10 HOURS**

- Demonstrate skills in assessing and identifying impairments, activity limitations and participatory restrictions in clients undergone pulmonary surgeries
- Demonstrate skills in providing Physiotherapy care for the identified problems in clients undergone pulmonary surgeries for
  - Lung volume reduction
  - Lung transplantation
  - Pleural surgeries
- Define Pulmonary Rehabilitation
- Discuss the need for pulmonary rehabilitation
- Explain the components of Pulmonary Rehabilitation
- Demonstrate skills in performing Physiotherapy assessment in clients referred for Pulmonary rehabilitation:
  - Subjective Assessment
  - Physical Examination
  - Exercise Testing
  - Respiratory muscle testing
  - Exercise Prescription.

MODULE 5	**NEONATAL and PEDIATRIC PHYSIOTHERAPY ASSESSMENT**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Anatomical and Physiological differences between the Adult and Pediatric lung

- Neonatal and Pediatric Physiotherapy – Chest physiotherapy for children, The neonatal unit, Modifications of chest physiotherapy for specific neonatal disorders
- Postural Drainage for pediatric population and modifications at home
- Therapeutic tools, Equipment's, Aids and appliances in Pediatric Physiotherapy rehabilitation
- Intensive care unit and Physiotherapy – Equipments, instruments, Common Physiotherapy procedures in Neonatal and pediatric intensive care
- Cardio-Thoracic surgeries – Thoracotomy – Definition, Types of Incisions with emphasis to the site of incision, muscles cut and complications. Lung surgeries: Pneumonectomy, Lobectomy segmentectomy – Indications, Physiological changes and Complications; Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung. An overview of cardiac surgeries in paediatrics

MODULE 6	**PEDIATRIC CARDIOPULMONARY ASSESSMENT**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Disorders of the Cardiovascular System (Definition, Clinical features, Diagnosis and Choice of management for the following disorders):
  - Congenital Heart diseases
  - Acyanotic congenital heart disease and
  - Cyanotic congenital heart disease:
    - Patent Ductus
    - Arteriosus
    - Coarctation of Aorta
    - Atrial Septal Defect
    - Ventricular Septal Defect
    - Tetralogy of Fallot
    - Transposition of Great Vessels
- Physiotherapy assessment and management in Pediatrics Cardiac conditions
- Physiotherapy assessment and management in Respiratory conditions in Pediatrics -
  - Childhood asthma
  - Respiratory distress syndrome
  - Hyaline membrane disease/Bronchopulmonary dysplasia,
  - Meconium aspiration syndrome
  - Pneumonia
  - Cystic fibrosis
  - Bronchiectasis
  - Congenital diaphragmatic hernia

MODULE 7	**PHYSIOTHERAPY TECHNIQUES IN CARDIAC SURGERIES and DISORDERS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Assess and identify impairments, activity limitations, and participation restrictions in clients with cardiac disorders and post-cardiac surgeries.
- Provide physiotherapy care for patients undergoing:
  - Coronary Artery Bypass Grafting (CABG)

- Valve repair/replacement
- Pacemaker insertion
- Congenital heart defect surgeries

- Manage physiotherapy for clients with:
  - Ischemic Heart Disease (IHD)
  - Cardiac failure
  - Rheumatic Heart Disease
- Prioritize physiotherapy problems and plan care with appropriate rationale.
- Understand and define cardiac rehabilitation, its need, and the interdisciplinary team's role.
- Perform comprehensive physiotherapy assessments for cardiac rehab, including subjective evaluation, physical examination, and exercise testing.

MODULE 8	**CRITICAL CARE PHYSIOTHERAPY**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**

- Identify common lines, tubes, and devices used in ICU settings.
- Interpret ICU monitor readings and integrate findings into physiotherapy decision-making.
- Analyze and interpret relevant investigations for physiotherapy diagnosis.
- Recognize and prioritize physiotherapy-manageable problems in critical care.
- Evaluate indications, precautions, advantages, and limitations of physiotherapy techniques using current evidence.
- Design and discuss evidence-informed physiotherapy protocols for critical care patients.

Targeted Application and Tools that can be used:

- Assessment Tools: ABG, ECG, PFT, Six-Minute Walk Test, Auscultation
- Techniques: ACBT, PEP, IPPB, DBE, Thoracic Expansion, Cough Assist
- Devices: Incentive Spirometer, BiPAP, CPAP, Oxygen Therapy
- Outcome Measures: Borg Scale, MRC Dyspnea Scale, Functional Walk Tests
- ICU Equipment: Chest Tubes, Suction, Ventilators, ICU Monitors
- Paediatric Tools: Pediatric PT devices, suction catheters, neonatal aids

List of Laboratory Tasks: (60 HOURS)

1. Demonstration of gas exchange assessment and interpretation.
2. Demonstration of full cardio-respiratory physical exam (palpation, percussion, auscultation).
3. Demonstration of chest expansion and 6MWT measurement.
4. Demonstration of interpretation of ABG, PFT, ECG.
5. Demonstration of physiotherapy airway clearance techniques (ACBT, postural drainage).
6. Demonstration of techniques for improving lung volume (deep breathing, CPAP).
7. Demonstration of breathlessness reduction techniques (breathing control, relaxation).
8. Demonstration of oxygen therapy and humidification application.
9. Demonstration of pulmonary rehabilitation exercise prescription.
10. Demonstration of outcome measure selection for respiratory disorders.

Text Book(s):

- Cash's Textbook for Physiotherapists in Chest, Heart and Vascular diseases

- Cash's Textbook in General Medicine and Surgical Conditions for Physiotherapists
- Chest Physical Therapy and Pulmonary Rehabilitation – Donna Frown Filter
- Brompton's Hospital Guide
- Physiotherapy in Respiratory and Cardiac Problems – Pryor and Prasad
- Cardiovascular Rehabilitation – Webber

Reference Book (s):

- Exercise and the Heart – Wenger
- ECG – P.J. Mehta
- Cardiopulmonary Physical Therapy – Irwin Scott
- Essentials of Cardiopulmonary Physical Therapy – Hillegass and Sodosky
- Exercise Physiology – McArdle

Project Work/ Assignments:

- Prepare a detailed case report of cardio-respiratory assessment including history, physical exam (palpation, percussion, auscultation), and interpretation of investigations (ABG, PFT, ECG).

- Design a functional capacity report using 6-minute walk test, chest expansion measurements, and outcome scales for a respiratory disorder (e.g., COPD or asthma).

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Assessing and managing respiratory and cardiovascular conditions in adults and children—including asthma, COPD, congenital heart diseases, and post-cardiothoracic surgeries—using physiotherapeutic techniques such as airway clearance, breathing exercises, chest mobility training, and exercise tolerance programs for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3405	**COURSE TITLE:SPORTS PHYSIOTHERAPY and EXERCISE PRESCRIPTION (Type of Course: Core Course)**		**L-T-P-C**	8	2	4	12
Version No.	1.0						
Course Pre-requisites	NIL						
Anti-requisites	NIL						
Course Description	This course aims to build the foundation of Sports Physiotherapy by equipping students with the knowledge and skills to assess, prevent, and manage sports injuries and prescribe exercise programs. It emphasizes fitness evaluation, injury rehabilitation, and guidelines for health promotion through physical activity across populations including special groups. Simulation, field exposure, and demonstrations are integral to learning.						
Course Objective	● Conduct fitness assessments and prescribe appropriate exercise programs. ● Apply prevention and rehabilitation techniques for sports injuries. ● Promote health and wellness through education and physical activity guidelines. ● Recognize the needs of special populations and adapt exercise interventions accordingly. ● Integrate evidence-based practice in sports physiotherapy. ● Understand the role of physiotherapy in promoting safe participation in sports. ● Identify and manage common acute and overuse injuries in athletes. ● Conduct fitness assessments and prescribe appropriate exercise programs.						
Course Outcomes	**CO1**: Understand the importance of sports and physical activities in health promotion. **CO2**: Describe the methods for safe participation in sports and physical activities. **CO3**: Identify, evaluate, analyse and discuss the common acute and overuse injuries encountered in sports and plan initial management. **CO4**: Demonstrate the techniques used in the area of sports physiotherapy. **CO5**: Execute physical fitness testing of healthy population. **CO6**: Apply theoretical basis of physiological effects and best available evidence on effectiveness, efficacy and safe application of management guidelines.						
Course Content:							
MODULE 1	**INTRODUCTION TO SPORTS**	Assignment/ Quiz	Numerical solving Task	**20 HOURS**			
● Importance of sports in health promotion ● Types of sports: ○ contact ○ Non-contact ○ Team sports ○ Individual sports ○ Social economic importance of sports, ○ Role of Physiotherapist in sports.							

MODULE 2	SPORTS INJURIES	Assignment/ Quiz	Numerical solving Task	30 HOURS

- **Types of sports injuries**
  - Acute
  - Overuse
  - Soft tissue injury
- Stages of healing
- **Principles of Treatment for soft tissue injuries**
  - Acute
  - Sub acute
  - Chronic stages
- **Safe participation:**
  - Causes,
  - Risk factors of sports injuries
  - Principles of prevention of injuries in sports and physical activities
  - Levels of prevention,
  - Methods of prevention
    - Active measures
    - Passive measures
    - Protective Equipment.

MODULE 3	MANAGEMENT OF COMMON SPORTS INJURIES	Assignment/ Quiz	Numerical solving Task	30 HOURS

- Sprain
- Strain
- Contusion
- Laceration
- Lateral ligament sprain of ankle
- Rotator cuff injuries
- Collateral and Cruciate injuries of knee
- Meniscal injuries of knee
- Supraspinatus and bicipital tendonitis
- Pre-patellar and sub-acromial bursitis
- Tennis and Golfer's elbow
- Hamstring strains
- Quadriceps contusion
- TA rupture,
- Dequervain's tenosynovitis
- Trigger and Mallet finger
- Plantar fasciitis
- Wrist sprains

MODULE 4	TECHNIQUES AND REHABILITATION IN SPORTS	Assignment/ Quiz	Numerical solving Task	20 HOURS

- Taping
- Bandaging
- Moving the injured participant
- Stretcher use
- Cardio pulmonary Resuscitation
- Causes of collapse
- Treatment of collapsed athletes
- Recovery methods
- Rehabilitation in Sports

- Description of components of physical fitness
    - Strength
    - Endurance
    - Flexibility
    - Power
    - Aerobic and anaerobic capacity
    - Agility
    - Coordination
    - Body composition
- Assessment of physical fitness:
    - Physical Activities Readiness Questionnaire
    - Fitness screening for mental and physical fitness
    - Tests of individual components of fitness
    - Body Mass Index

MODULE 5	**HEALTH PROMOTION AND SPECIAL POPULATIONS**	Assignment/ Quiz	Memory Recall based Quizzes	**30 HOURS**

- Health, fitness, and wellness promotion:
    - Principles
    - Methods
    - Cardiopulmonary Endurance (continuous, intermittent, fartlek)
    - Anaerobic capacity
    - Strength
    - Flexibility
    - Agility
    - Coordination
    - Health Education
    - Healthy Nutrition
    - Balanced diet
    - Relaxation
- Health, fitness, and wellness issues of specific population groups:
    - Childhood and Adolescence
    - Pregnancy
    - Older adults
    - Hypertension
    - Diabetes
- Special ability in sports: Paralympics sports, types, classification of athletes, specific problems.

MODULE 6	**EXERCISE TESTING AND PRESCRIPTION**			**20 HOURS**

- Guidelines for Exercise Testing and Prescription benefits and risks associated with physical activity, pre-participation health screening.
- General principles of exercise prescription, exercise prescription for healthy populations with special considerations
- Exercise prescription for populations with other chronic diseases and health conditions, overweight and obesity.

Targeted Application and Tools that can be used:

- Assessment Tools: PAR-Q, BMI, flexibility tests, fitness component tests
- Injury Management: Taping, bandaging, CPR, emergency handling
- Rehabilitation Tools: Stretchers, braces, taping aids, therapeutic exercise protocols
- Exercise Prescription: Fartlek, interval training, circuit training
- Special Populations Tools: Modified fitness tests for elderly, pregnancy, para-athletes

- Documentation: Screening forms, risk assessment charts, fitness logs

List of Laboratory Tasks: (60 HOURS)

1. Demonstration of pre-participation examination for risk factor identification.
2. Demonstration of acute management of sports injuries.
3. Demonstration of safe participation principles using protective equipment.
4. Demonstration of stages of healing and corresponding treatment plan.
5. Demonstration of bandaging techniques for soft tissue injuries
6. Demonstration of taping techniques for common joint injuries.
7. Demonstration of moving injured participant and stretcher use.
8. Demonstration of CPR techniques for collapsed athlete.
9. Demonstration of recovery methods for acute collapse.
10. Demonstration of management plan for common injuries like ankle sprain or rotator cuff injury.

Text Book(s):

- Brukner and Khan – Clinical Sports Medicine, McGraw Hill
- Zulunga et al – Sports Physiotherapy, W.B. Saunders

Reference Book (s):

- Essentials of Sports Medicine – Dr. Mahindra Kumar
- Principles of Exercise Therapy – Dena Gardiner
- Foundational book on therapeutic exercise prescription.

Project Work/ Assignments:

- Prepare a case report on pre-participation examination including risk factor identification, screening, and clearance for participation in a chosen sport.

- Document the management plan for an acute sports injury (e.g., ankle sprain or rotator cuff injury) including first aid, taping, and bandaging techniques.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Assessing sports injuries, designing and implementing sport-specific rehabilitation programs, applying taping and bracing techniques, and prescribing evidence-based strength, conditioning, and recovery protocols for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT 406	**COURSE TITLE:PT ETHICS, MEDICO LEGAL ASPECTS, MANAGEMENT and ADMINISTRATION (PTLM) (Type of Course: Multidisciplinary Course)**	**L-T-P-C**	4	2	0	6
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course introduces the essential ethical, legal, and management principles in physiotherapy practice. It prepares students to handle ethical dilemmas, comply with legal regulations, and apply management skills to improve patient care and run successful physiotherapy services, fostering compassionate and competent professionals.					
Course Objective	• Understand the ethical principles and professional code of conduct in physiotherapy practice. • Gain knowledge of legal responsibilities, consent procedures, and medico-legal documentation. • Develop an understanding of health policy, regulatory frameworks, and roles of statutory bodies. • Acquire basic skills in planning, organizing, and managing physiotherapy services. • Learn about administrative functions including budgeting, staffing, and quality assurance in healthcare. • Prepare students for leadership roles in institutional and private practice settings.					
Course Outcomes	After completion of this course the student shall be able to **CO1:** Explain the concepts of morality, ethics, and legality in healthcare. **CO2:** Identify ethical issues and apply ethical reasoning in physiotherapy practice. **CO3:** Discuss professionalism, professional conduct, and codes of ethics in physiotherapy. **CO4:** Describe the legal framework and regulations related to physiotherapy practice. **CO5:** Explain the principles of management and administration in physiotherapy settings. **CO6:** Apply basic concepts of quality control, marketing, finance, and entrepreneurship in physiotherapy practice.					
Course Content:						

MODULE 1	**ETHICAL ISSUES, MORALITY AND PROFESSIONALISM**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Ethical issues in Physiotherapy practice: professionalism, informed consent, confidentiality, abuse, social characteristics, personal relationships, client interest, satisfaction, communication, malpractice, negligence, rights of patients, liability and obligations.
- Concept of morality, ethics and legality.
- Personal values, ethical or moral values.
- Professionalism and professional values: integrity, objectivity, competence, due care, confidentiality, accountability, altruism, compassion, caring, excellence, duties, social responsibility.
- Attitude and behavior: professional behavior, accountability, responsibility, misconduct.

MODULE 2	**CODE OF CONDUCT, RELATIONSHIPS AND RESEARCH ETHICS**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Code of professional conduct: differences between professions, importance of team efforts.
- Relationships with patients, healthcare institutions, colleagues, peers, medical and other professionals, referral relationships.
- Professional ethics in research, education, patient care delivery.
- Salient features of Helsinki Declaration, ICMR code of ethics for research involving human subjects, WCPT ethical principles.

MODULE 3	**LEGAL FRAMEWORK, CONSULTING and DEVELOPMENT OF PROFESSION**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Laws governing Physiotherapy practice: AHCPCA, Consumer Protection Law, People with Disability Act, Professional Indemnity insurance policy.
- Direct access: meaning, responsibilities.
- Consulting process: skills of a good consultant, trust in consultant-client relationship, ethical and legal issues in consultation.
- Development of Physiotherapy profession.

MODULE 4	**PRINCIPLES OF MANAGEMENT and ADMINISTRATION**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Introduction to management and administration: meaning, definition, scope, principles, elements of management, relevance to Physiotherapy practice.
- Planning: definition, nature, principles, advantages/disadvantages, components (objectives, policy, procedure, rules, methods, project, budget, strategy), types, process, decision making.

- Organizing: definition, steps, types, organizational chart, hierarchy, authority, power, responsibility, accountability, delegation, centralization, decentralization.
- Staffing: definition, functions, manpower planning, recruitment, training, appraisal, remuneration.

MODULE 5	**CONTROL, DIRECTING, FINANCE, MARKETING**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Controlling and monitoring: types, steps, methods (MIS, QMS, QA, QC, inventory, store, record keeping).
- Directing: definition, nature, significance, principles, elements (supervision, communication, motivation, leadership).
- Finance: meaning, nature, scope, goals, functions (investment, dividend, financial decisions), budgeting.
- Marketing: meaning, concept, importance, elements (product, price, promotion, distribution), branding, pricing, advertising, publicity, social marketing, advocacy, sensitization.

MODULE 6	**QUALITY ASSURANCE, ENTREPRENEURSHIP and PHYSIOTHERAPY UNIT MANAGEMENT**	Assignment/ Quiz	Memory Recall based Quizzes	**15 HOURS**

- Quality assurance: establishment of standards, financial and clinical audits, total quality management.
- Setting of a Physiotherapy service unit.
- Organization of Physiotherapy department.
- Entrepreneurship in Physiotherapy practice: need, advantages, opportunities, challenges, barriers.

Targeted Application and Tools that can be used:

- Management Tools: Organizational charts, job descriptions, SWOT analysis
- Quality Assurance Tools: Audit checklists, QA/QC templates
- Entrepreneurial Tools: Budget plans, marketing templates, patient feedback forms
- Regulatory Frameworks: AHCPCA guidelines, indemnity policies, PWD Act reference sheets.
- Legal and Ethical Tools: Consent forms, ethical case analysis, policy interpretation.

List of Laboratory Tasks: NIL

Text Book(s):

- Medical Ethics – CM Francis (Jaypee)

- Ethical Issues: Perspectives for the Physiotherapists – Raja K Davis F (Jaypee)
- Medical Ethics – Thomas Percival (Cambridge University Press)

- Medical Ethics: A Very Short Introduction – Dunn and Hope (Oxford)
- Principles of Hospital Administration and Planning – BM Sakharkar (Jaypee)

Reference Book (s):

- Medical Ethics: A Very Short Introduction – Dunn and Hope (Oxford)
- Principles of Hospital Administration and Planning – BM Sakharkar (Jaypee)

Project Work/ Assignments:

- Case study on a medico-legal issue in physiotherapy practice
- Prepare a business plan for a physiotherapy clinic including budget and services
- Design a quality audit checklist for a physiotherapy department.

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Applying ethical principles, understanding medico-legal responsibilities, and practicing basic administrative tasks such as documentation, report writing, patient record management, and quality assurance procedures in clinical settings for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3407	**COURSE TITLE:COMMUNITY PHYSIOTHERAPY and REHABILITATION (Type of Course:Core Course)**	**L-T-P-C**	4	2	2	7
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course integrates community medicine knowledge with physiotherapy skills for the rehabilitation of individuals and populations. It emphasizes community-based rehabilitation (CBR), assessment and management of disabilities, orthotics and prosthetics, vocational and social rehabilitation, and health education. It also prepares students to address occupational health, ergonomics, and architectural barriers to support inclusive environments.					

<table>
<tr><td>Course Objective</td><td colspan="4">Apply community-based rehabilitation strategies in rural and urban settings.
Evaluate and prescribe assistive devices, orthotics, and prosthetics.
Promote awareness, prevention, and education for disabilities.
Assess and manage community-specific health risks and disabilities.
Identify and reduce architectural and ergonomic barriers to participation.
Promote occupational health and workplace modifications.</td></tr>
<tr><td>Course Outcomes</td><td colspan="4">CO1: Describe the concepts, principles, and organization of rehabilitation, including the roles of rehabilitation teams and related organizations.

CO2: Explain the legal frameworks and policies related to disability and rehabilitation.

CO3: Demonstrate understanding of community-based rehabilitation, disability models, and disability evaluation.

CO4: Assess and prescribe assistive devices, orthotics, prosthetics, and environmental modifications for individuals with disabilities.

CO5: Apply vocational, social, occupational, ergonomic, and health education principles in rehabilitation.

CO6: Plan, implement, and evaluate community-based physiotherapy programs focusing on disability prevention and functional training for daily living activities.</td></tr>
<tr><td>Course Content:</td><td colspan="4"></td></tr>
<tr><td>MODULE 1</td><td>INTRODUCTION TO REHABILITATION and ROLE OF PHYSIOTHERAPY</td><td>Assignment/ Quiz</td><td>Numerical solving Task</td><td>15 HOURS</td></tr>
<tr><td colspan="5">Introduction of Rehabilitation and History.
Epidemiology of disability (impairment, disability, phases of disability process).
Principles of Rehabilitation and concept of team approach with roles of each individual participant.
Organization of Rehabilitation unit.
Disability prevention evaluation and principles of Rehabilitation Management.
Role of Physiotherapy in Rehabilitation (Preventive, treatment and restoration).
Role of Physiotherapy in CBR: screening for disabilities, prescribing exercise program, prescribing and devising low cost locally available assistive aids, modifications physical and architectural barriers for disabled, disability prevention,</td></tr>
</table>

strategies to improve ADL, rehabilitation program for various neuro-musculoskeletal and cardiothoracic disabilities.

MODULE 2	**COMMUNITY BASED REHABILITATION and DISABILITY MODELS**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Introduction to Community Based Rehabilitation: definition, historical review, concept of CBR, need, difference between institution-based and community-based rehabilitation, objectives, scope, members, models, extension services and mobile units, camp approach.
- Disability and Rehabilitation: concept and definition, models of disability, international classification of functioning, impairment, handicap, activity limitation, participation restriction, environmental factors, contextual factors.
- Roles of rehabilitation team members.
- Role of family members in rehabilitation of a physically handicapped.
- PWD Act 1995, Rights of Person with Disability Act 2016, National Trust Act.
- National district-level community programs: primary rehabilitation unit, regional training center, district rehabilitation center, PHC, village rehabilitation worker, anganwadi worker.

MODULE 3	**VOLUNTARY and INTERNATIONAL ORGANIZATIONS, HEALTH DELIVERY SYSTEMS**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Role of voluntary organizations in CBR: charitable organizations, voluntary health agencies – national and international NGOs, multilateral and bilateral agencies.
- International health organizations: WHO, UNICEF, UNDP, UNFPA, FAO, ILO, World Bank, USAID, SIDA, DANIDA, Rockfeller, Ford Foundation, CARE, Red Cross.
- Assessment of disability in rural and urban setups.
- Healthcare delivery system and preventive measures with specific reference to disabling conditions.
- Community education program.
- Application of physiotherapy skills at community level with special reference to rural needs.

MODULE 4	**ORTHOTICS, PROSTHETICS, ASSISTIVE DEVICES and TECHNOLOGIES**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Principles of orthotics: types, indications, contraindications, assessment, uses, fitting – upper limb, lower limb, spine.
- Principles of prosthetics: types, indications, contraindications, assessment, uses, fitting – region wise.
- Assistive devices and technologies.
- Demonstration and fabrication of low-cost assistive devices with locally available materials.
- Introduction to occupational therapy: definition, scope, importance of ADLs, self-care activities (toilet, eating, dressing etc).

MODULE 5	**INTELLECTUAL, SENSORY DISABILITIES and VOCATIONAL REHABILITATION**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Identification, assessment, classification of intellectual disabilities; etiogenesis, principles of management, prevention, vocational training, home education program.
- Principles and mechanisms of communication including speech and hearing; common disorders of speech and hearing; etiogenesis, clinical features, assessment, management.
- Identification, assessment, classification of visual disabilities; etiogenesis, principles of management, prevention, rehabilitation, vocational training, home education.
- Vocational and social rehabilitation: aspects of disability, evaluation, vocational goals, role of social worker.

MODULE 6	**HEALTH EDUCATION, ARCHITECTURAL BARRIERS and OCCUPATIONAL HEALTH**	Assignment/ Quiz	Numerical solving Task	**15 HOURS**

- Architectural barriers: description, possible modifications with reference to rheumatoid arthritis, CVA, spinal cord injury and other disabling conditions.
- Health education: concepts, aims, objectives, approaches, models, contents, principles, practice.
- Occupational health and ergonomics: occupational hazards, overuse/fatigue injuries, ergonomic evaluation, mechanical stresses, workplace modification, psychological hazards, stress management, role of PT in industrial setup.

Targeted Application and Tools that can be used:

- Assessment Tools: Disability grading, ICF framework, ADL scales
- Assistive Devices: Low-cost aids, orthotics, prosthetics, wheelchairs, walkers

List of Laboratory Tasks: (30 HOURS)

1. Demonstration of disability screening and disability survey methods in a community setting.
2. Demonstration of assessment and prescription of assistive devices and orthotics for common disabilities.
3. Demonstration of fabrication of low-cost assistive devices using locally available materials.
4. Demonstration of evaluation and prescription techniques for musculoskeletal, neuromuscular, and cardiothoracic disabilities at community level.
5. Preparation and delivery of community education programs on disability prevention and care.
6. Demonstration of functional training in ADL for disabled individuals.
7. Demonstration of workplace ergonomic assessment and modification recommendations.
8. Demonstration of vocational rehabilitation planning for persons with disabilities.
9. Field visit report: PHC, regional rehabilitation center, mobile camp or NGO in disability care.
10. Demonstration of architectural barrier identification and recommendations for modification.

Text Book(s):

1. Handbook of Rehabilitation – Sunder

2. Orthotics in Rehabilitation – McKee and Morgan
3. Orthotics, Prosthetics and Assistive Devices for Physiotherapists – Sinha, Sharma and Tripathy
4. Park's Textbook of Preventive and Social Medicine – K. Park
5. Physical Rehabilitation – Assessment and Treatment – Sullivan and Schmitz
6. Occupational Therapy and Physical Dysfunction – Tuner, Forster and Johnson
7. Textbook of Preventive and Social Medicine – Piyush Gupta, O.P. Ghai

Reference Book (s):

- Status of Disabled in India – 2000 – RCI Publication
- Legal Rights of Disabled in India – Gautam Bannerjee
- ICF 2001 – WHO
- Training in the Community for the Disabled – Padmini Hallender

Online Resources:(ebooks,notes,ppts,video lectures etc.):

https://presiuniv.knimbus.com

Topics relevant to "SKILL DEVELOPMENT": Conducting community assessments, planning and delivering need-based physiotherapy interventions in rural and urban settings, and implementing home-based, school-based, and community-based rehabilitation programs for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3408	**COURSE TITLE:PROJECT WORK ORIENTATION (Type of Course: Research Project) (90 HOURS)**	**L-T-P-C**	6	0	0	6
Version No.	1.0					
Course Pre-requisites	Research Methodology, Biostatistics and Evidence Based Practice					
Anti-requisites	NIL					
Course Description	This course provides final-year physiotherapy students with practical, hands-on clinical exposure through a structured internship program. Under the supervision of qualified physiotherapy faculty, students will engage in real-world clinical postings, complete a project (case study, literature review, or technique analysis), and maintain a verified logbook. The internship fosters critical thinking, professional development, and a research-oriented mindset, ultimately preparing students for independent clinical practice and advanced studies.					
Course Objective	By the end of the internship, students will be able to: 1. Apply theoretical knowledge in real clinical settings through supervised patient care. 2. Demonstrate professional behavior, communication skills, and adherence to ethical practice. 3. Develop research interest through independent or supervised projects. 4. Maintain systematic documentation of clinical activities and reflections. 5. Enhance decision-making and clinical reasoning skills. 6. Gain exposure to interdisciplinary healthcare teamwork and administrative processes.					
Course Outcomes	**CO1:** Apply physiotherapy skills and knowledge to assess and manage patients in clinical settings. **CO2:** Demonstrate professional conduct, communication, and teamwork in diverse healthcare environments. **CO3:** Maintain a comprehensive and reflective clinical logbook verified by supervising faculty. **CO4:** Design and complete a project that demonstrates research aptitude and academic inquiry. **CO5:** Integrate evidence-based practice in clinical decision-making and patient care. **CO6:** Fulfill internship requirements through consistent attendance, documentation, and performance evaluation.					

Project Work

- The candidate shall submit a project under the supervision of a Physiotherapy faculty during internship. The project may be a case study or of recent technique or literature reviews etc., to make the student have a research mind and to facilitate higher studies.

- The interns shall maintain the record of work which is to be verified and certified by the Physiotherapy faculty under whom he/she works. Based on the record of work and project, the internship completion shall be reported in the form of grades by the HOD/principal while issuing the "Certificate of Satisfactory Completion" of internship following which the University shall award the BPT degree.

- All internees will be assessed based on their satisfactory attendance, performance in the postings and the presentation of the logbook and project. The credits and hours of internship will be mentioned in the transcript.

- The internship assessment weightage will be based on the following criteria (domains % of the total marks of the internship assessment):
  a) Attendance (10%)
  b) Log book (60%)
  c) Project (30%)

Topics relevant to "SKILL DEVELOPMENT": Identifying research problems, conducting literature reviews, formulating research questions, selecting appropriate study designs, and preparing structured project proposals for Skill Development through Participative Learning techniques. This is attained through the assessment component mentioned in the course plan.

Course Code: BPT3409	**COURSE TITLE:CLINICAL ROTATION (390 HOURS)**	**L-T-P-C**	0	0	26	13
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	This course offers supervised clinical training through structured rotational postings in various healthcare and community settings. Learners will gain hands-on experience in patient assessment, bedside approach, special tests, treatment planning, and clinical decision-making. Emphasis is placed on identifying indications and contraindications for physiotherapy, determining appropriate treatment parameters, and using relevant outcome measures. A clinical logbook					

	and project component will promote reflective learning and research aptitude, fostering competence in evidence-based physiotherapy practice.
Course Objectives	By the end of the internship, learners will be able to: ● Deliver supervised physiotherapy care across multiple clinical and community settings. ● Conduct thorough patient assessments and develop appropriate physiotherapy interventions. ● Apply clinical reasoning to select treatment parameters and monitor patient outcomes. ● Integrate evidence-based practices in all aspects of patient management. ● Maintain a certified logbook and complete a supervised project demonstrating academic inquiry. ● Exhibit professionalism, ethical conduct, and effective interdisciplinary communication.
Course Outcomes	After completion of this clinical posting, the student shall be able to: **CO1:** Provide physiotherapy care under supervision across a variety of clinical environments, demonstrating practical skills and sound clinical judgment. **CO2:** Perform detailed assessments, special tests, and formulate individualized, evidence-based treatment plans. **CO3:** Identify indications and contraindications for physiotherapy and apply suitable outcome measures for monitoring progress. **CO4:** Maintain an organized, faculty-verified logbook reflecting daily clinical activities and learning milestones. **CO5:** Complete a project (case study, technique analysis, or literature review) demonstrating research interest and academic engagement. **CO6:** Display professional behavior, ethical practice, and effective communication in all clinical interactions.
Course Content:	Learners will rotate through the following departments/areas: 1. Physiotherapy Outpatient Department (OPD) 2. Neurology, Neurosurgery and Neuro ICU 3. Community Health – Primary Health Centers (PHC) 4. Orthopedics 5. General Medicine and Medical ICU (MICU) 6. General Surgery and Cardiothoracic Surgery ICU (CTS ICU) 7. Developmental Pediatrics and Child Guidance Clinic 8. Obstetrics and Gynecology (OBG) 9. Geriatric Care – Old Age Homes 10. Industrial Visits – Ergonomics and Workplace Assessment

Course Code: BPT7501	**COURSE TITLE:INTERNSHIP (2016 HOURS)**	**L-T-P-C**	0	0	136	68
Version No.	1.0					
Course Pre-requisites	NIL					
Anti-requisites	NIL					
Course Description	The internship Program in physiotherapy is designed to provide final-year students with comprehensive, hands-on clinical exposure across multiple specialties. It aims to integrate theoretical knowledge with practical application in real-world healthcare settings. During this period, students work under supervision in hospitals, community settings, and specialized clinics, enhancing their diagnostic, therapeutic, and communication skills. The Program encourages independent clinical reasoning, evidence-based practice, and continuous professional development. It prepares the physiotherapy graduate to transition confidently into professional practice by cultivating core competencies in assessment, treatment planning, patient management, and interdisciplinary collaboration across various domains of physiotherapy.						
Course Objectives	At the end of the internship Program, the Physiotherapy graduate will be able to: ● Independently assess, diagnose, prevent, and treat patients across various clinical conditions using appropriate physiotherapy interventions. ● Demonstrate enhanced clinical skills and confidence through hands-on experience in patient care, simulation-based learning, and supervised treatment delivery. ● Communicate effectively with patients, caregivers, healthcare professionals, and the community, ensuring clarity, empathy, and professionalism in all interactions. ● Engage in continuous professional development by staying updated with recent advances, evolving treatment techniques, and emerging research in the field of physiotherapy					
Course Outcomes	After completion of this clinical posting, the student shall be able to:					

	CO1. Independently perform patient assessment, clinical diagnosis, physiotherapeutic planning, and implementation across various clinical conditions. **CO2.** Demonstrate increased clinical competency, decision-making ability, and confidence through supervised hands-on experience and simulation-based learning. **CO3.** Exhibit effective communication skills with patients, caregivers, healthcare teams, and the wider community, ensuring professionalism and empathy. **CO4.** Apply recent advances, updated treatment procedures, and relevant research findings in clinical practice for evidence-based physiotherapy care.
Course Content:	Learners will rotate through the following departments/areas: 1. Musculoskeletal / Orthopaedic Physiotherapy – 45 days 2. Neurological Physiotherapy – 45 days 3. Community Physiotherapy / Rural Posting – 2 months 4. Cardiology ICU / NICU – 1 month 5. Pulmonology / TB Hospital / Medicine – 1 month 6. Sports Physiotherapy – 1 month 7. Obstetrics and Gynecological Physiotherapy – 1 month 8. Pediatric Physiotherapy – 1 month 9. Surgery / Oncology – 1 month 10. Burns and Plastic Surgery – 1 month