MAHARASHTRA UNIVERSITY OF HEALTH SCIENCES, NASHIK

SYLLABUS

FOR

Competency-Based Entry Level Physiotherapy Undergraduate Curriculum

BACHELOR OF PHYSIOTHERAPY (B.P.T.)

DEGREE COURSE

This syllabus is applicable from the academic year 2023-2024

(The syllabus may be amended as needed after implementation in phase wise manner)

VC Message

Dean Allied Health Message

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PHYSIOTHERAPY

1. DEFINITION

`**Physiotherapy**' is a branch of modern medical science that includes examination, assessment, interpretation, physical diagnosis, planning and execution of treatment and advice to any person for the purpose of preventing, correcting, alleviating, and limiting dysfunction, acute and chronic bodily malfunction including life-saving measures via chest physiotherapy in the intensive care unit, curing physical disorders or disability, promoting physical fitness, facilitating healing and pain relief and treatment of physical and psychological disorders through modulating psychological and physical response using physical agents, activities, and devices including exercise, mobilisation, manipulations, therapeutic ultrasound, electrical and thermal agents and electrotherapy for diagnosis, treatment, and prevention.
(Definition as per the Maharashtra State Council for Occupational therapy & Physiotherapy, 2004)

`Physiotherapist' is a qualified professional who has acquired all the above-mentioned knowledge and skills for entry into practice after being awarded a Bachelor's degree in the subject of " Physiotherapy" from a recognized institute affiliated with the University conducting a full-time course not less than four years and six months of internship.

Through the program, the student will acquire theoretical and practical skills to effectively meet patient and community needs. He or she will acquire knowledge, skills, and attitude in basic sciences, medical, behavioural, and social sciences, and physiotherapy core subjects and would be able to integrate them horizontally and vertically throughout the curriculum.

Competency: Competency includes the understanding of knowledge, clinical skills, interpersonal skills, problem-solving, clinical judgement, and technical skills. Competency-based education is a philosophy and an approach to educational design where learner professional progression occurs only when competency is demonstrated. It is an observable ability of a health professional to do something successfully or efficiently.

Domains of competencies:
Cognitive or Knowledge (K)
Psychomotor or skill (S)
Affective or attitudinal (A)

Levels of competencies:
Knows (K)
Knows How (KH)
Shows (S)
Shows How (SH)
Does (D)

Scope of Practice: The role of physiotherapists in the delivery of health services is rapidly changing and dynamic in nature. Physiotherapy is an autonomous profession; the physiotherapist is a direct care provider, a researcher, an educator, a leader, and an advocate for the profession.
The current scope of practice involves but is not limited to acute care, intensive care, diagnosing dysfunction, and building capacity and performance to improve functioning in musculoskeletal, Cardiovascular, respiratory, neurological, developmental, and paediatric dysfunctions; gynaecology and women's health, geriatric, wellness, and industrial health and sports across the lifespan. The scope of practice also involves super specialty areas, hand, and various medical and surgical conditions across the spectrum.
With increasing technological advances the physiotherapist with sound knowledge of movement science can advance the scope of practice.

2. ROLES AND ATTRIBUTES OF INDIAN PHYSIOTHERAPY GRADUATE

The Graduate Physiotherapy Program aims to create a physiotherapist who would be able to practise as an autonomous professional by possessing the required knowledge, skills, and attitude to effectively assess, and diagnose the structural and functional impairment, the relevant contextual factors, functioning, and participation of an individual in society and community and thus choose and implement appropriate physiotherapeutic modalities with a holistic approach for management to meet the needs of the individual and or community as relevant nationally to the best available standard of practice. The graduate will be able to implement physiotherapy safely and effectively in a range of settings and situations with varying complexity after integrating knowledge, skills, attitudes, and values with clear decision-making and professional judgement tofulfil various roles and responsibilities. As a professional would be able to recognize red flags, theneed for referral, and the scope of practice and expertise.

As an autonomous healthcare professional, the physiotherapy graduate is responsible for developing, maintaining, or restoring motor function and movement throughout the lifespan using evidence-based practice and shared decision-making.

As an autonomous physiotherapy practitioner the graduate who passes the physiotherapy degree program prepares for the following roles and attributes:

1. **Physiotherapy Professional**:
   - Who would be able to assess, plan, implement, modify and discharge with a safe and ethical professional judgement
   - Who would be competent and proactive to promote the health of the community at primordial, primary and secondary, and tertiary level;
   - Be competent to practise preventive, curative, restorative and rehabilitative physiotherapy;
   - Have clinical decision-making ability to evaluate functioning and disability, capacity and performance;
   - Be able to rationalise different therapeutic approaches based on needs to improve functioning and quality of life.
   - Be competent to discharge one's responsibility in an ethical and just manner in a variety of healthcare settings
   - A professional with integrity responsibility, accountability, and the ability to reflect and able to manage professional and ethical conflicts
   - Be able to appreciate the psychosocial and cultural factors affecting health
   - Articulate unique contribution of physical therapy in patient care
   - Has a professional commitment

2. **A Researcher** with the ability to conduct scientific inquiry, appraise literature, and apply evidence to Physiotherapy practise with a patient-centric approach and shared decision-making.
3. **A communicator** with effective verbal, and nonverbal skills and documentary skills to improve patient communication, communication with family, Interprofessional communication, and Interpersonal communication adequately, sensitively, and effectively.
4. **A Leader** who would work effectively and responsibly in a healthcare team collaboratively to maximise health outcomes and acquire basic managerial skills to manage healthcare resources with the assumption of roles as appropriate.
5. **A Health Advocate** for health promotion, Prevention of disease, and improving quality of life through improving capacity and functioning, early recognition of risks, and contributing to the Health care team with a holistic approach to meet national needs.
6. **A Reflector and Life- long learner** able to keep abreast of knowledge and skills and reflect on learned techniques, address existing gaps in knowledge and skills, and integrate evidence-based practice

3. SUBJECT COURSE DOMAINS

The Subject Course Domains identified for Developing Physiotherapy Competency which would be horizontally and vertically integrated throughout the curriculum are

1. **Knowledge and application of preclinical and Para-clinical courses**
   a. Anatomy, Physiology, Biochemistry
   b. Pathology, Microbiology, Pharmacology
2. **Knowledge and application of clinical and behavioural sciences**
   a. Medicine, Paediatrics, NeuroMedicine, Dermatology
   b. Surgery, cardiac surgery, plastic surgery,Orthopaedics, Obstetrics & Gynaecology, ENT, Ophthalmology
   c. Community Health and Sociology, Psychiatry, Psychology
3. **Physiotherapy Practice**
   a. Physiotherapeutic Foundations
      i. Kinesiology and Movement Science I & II (this would be integrated with anatomy and Physiology)
      ii. Physiotherapy I, II, III, IV, V (which includes Electrotherapy, Kinesiotherapy, and advanced Physical therapy skills)

   b. Physical therapy Diagnosis
      i. Physical Therapy Diagnosis or physiotherapy diagnosis (includes ICF and Clinical Decision making)

      This subject is integrated with pre, para, and clinical and behavioural sciences. It applies the biopsychosocial model to address functioning in an individual

   c. **Physiotherapy Management utilising the model of the International classification of functioning, clinical decision-making and evidence-based practice** in
      i. Musculoskeletal Physiotherapy
      ii. Neuro Physiotherapy
      iii. Cardiovascular and Respiratory Physiotherapy Including ICU
      iv. Community Physiotherapy (women's Health, Industry, Geriatrics, Sports)

These subjects are integrated with all pre, para, clinical and behavioural sciences and with Physiotherapy core to advance clinical decision-making, diagnostics, planning, and implementation skills.

4. **COMPEL Module:**
   1. **COM**munication Skills
   2. **P**rofessionalism and **E**thics
   3. Research Methodology, Critical Appraisal, **E**vidence-based practice
   4. **L**eadership, Management, administration, and Interprofessional collaboration
   5. **L**ifelong learning & Reflection

   This is in continuum throughout to develop professional attributes, research, and communication

4. COMPETENCIES WITHIN THE DOMAINS

By the end of the BPT program, Physiotherapy Graduate would have the following Competencies within each subject/ course.

Domain:

1. Knowledge and Application of Pre and Paraclinical courses

1. Acquire knowledge in pre and paraclinical courses
2. Apply the knowledge in pre and paraclinical courses with relevance to physiotherapy practice

2. Knowledge and application of Clinical and behavioural sciences

1. Acquire Knowledge of various diseases, and pathophysiology causing changes in structure and function
2. Acquire knowledge of various therapeutic, pharmacotherapeutics, and surgical management
3. Apply the above with relevance of physiotherapy diagnosis and intervention

3. Physiotherapy Practice

i) Demonstrate knowledge relevant to the area of health care or physiotherapy practice

ii) Plan and conduct a comprehensive assessment, Physiotherapy examination, and Systems screening to arrive at a physical therapy diagnosis, plan, execute and document physiotherapy treatment independently or along with the multidisciplinary team.

iii) Integrate, organise and interpret information gathered as a part of problem-solving and decision-making skills.

iv) Consider various contextual, socio-economical, and cultural factors to arrive at a decision regarding prevention, diagnosis, treatment, and functioning for the problem in a specific patient

v) Use the scientific knowledge of body structure and function, its movement need and potential, socio-cultural factors, activities and participation to arrive at a physical therapy diagnosis as a measure of functioning

vi) Prioritization of problems with the ability to execute all physiotherapeutic strategies to improve and maintain activities and functions.

vii) Critically think, weigh the evidence and reflect upon the process used to arrive at physical therapy diagnosis and plan of physiotherapy care.

viii) Negotiate achievable and measurable functional and clinical outcomes with the patient

ix) Establish patient-centred goals, safely and effectively and implement context-specific evidence-based practice making appropriate use of technology to restore the integrity of body systems essential to movement and functions in Physiotherapy practice for dysfunctions or enhancement of functions pertaining to acute, In critical care, sub-acute or chronic (overuse) aspects related to, but not limited to Musculoskeletal (orthopaedic), Neurological, Cardiovascular and respiratory conditions, fitness, health and sports,

Obstetric and gynaecological components, dysfunctions of occupational origins or as a consequence of physiological functioning, including ageing.

x) Operate and maintain physiotherapy and related tools (equipment's and other outcome measures) used in the treatment of clients, physiotherapy treatment planning (both electrotherapy and exercise therapy) & procedures independently.

xi) Provide up-to-date client-centric education and/ or build client-centric teams, including caregivers, to provide various physiotherapeutic interventions and proactively empower clients toward their optimal functioning and well-being in an ethical and economic manner.

xii) Demonstrate the ability to incorporate existing and emerging technologies

4. Communication:

1. Communicate effectively, sensitively, and adequately in the language understood by the patient, family members/caregivers and with fellow colleagues, and with team members
2. Document assessment, treatment plan, advice, home programs, follow-ups, and outcomes in a legible manner and maintain timely records to share with other professionals as appropriate
3. Communicate in a culturally-competent manner to create trust and an environment for physiotherapy intervention, empowerment, and collaboration.
4. Develop reflective listening and negotiating skills to develop trust and enhance relationships and outcomes with patients, caretakers, and other colleagues, adjusting approaches as required to meet the situation
5. Communicate in a team clearly and adequately to improve patient outcomes

5. Professional Practice, Ethics, and Values

i. Practice ethically, follow the laws of the land and resolve ethical conflicts upholding the moral values and principle of "DO NO HARM" always.

ii. Comply with the regulations of the state, and country governing the practice of physiotherapy as an autonomous profession, ethical and professional codes, and guidelines.

iii. Practise ethical behaviours in digital practice over social media or use of internet technology or electronic digital data protection.

iv. Be culturally sensitive and competent with respect for all forms of inclusion, diversity, dignity, privacy, autonomy, and human rights of the individual, or legal guardian, who is seeking services regardless of settings

v. Provide honest, competent, and accountable professional services within the scope of practice and recognise the limitations of their own competence.

vi. Develop an altruistic approach and provide fair, equitable, inclusive, and empowering quality services and ensure their own needs and interests as a physiotherapist do not compromise practice;
vii. Obtain informed consent prior to intervention and respect the right of the individual to refuse intervention
viii. Recognize the harm and weigh the benefit to harm to manage risk responsibly and effectively
ix. Demonstrate appropriate professional behaviour and attitudes

6. Research, critical appraisal, and Evidence-based Practice:

1. Critically inquire about existing literature and use the best available evidence and new knowledge to inform and adapt the practice to ensure it is safe and effective
2. Identify clear, focused questions arising from practice that may serve as stimuli for future research
3. Use reliable and valid outcome measures to evaluate and modify practice
4. Contribute to the profession through research in accordance with recognised standards and ethical practices
5. Disseminate research at scientific forums and through publication, appreciating the interdependence of practice, research, and education within the profession

7. Leadership, Management, Interprofessional Collaboration, and Administration

i) Lead effectively as appropriate, and proactively
ii) Manage the complexity of working autonomously, within professional competence and scope.
iii) Understand and promote the role of the physiotherapist to improve function and structure of the health
iv) Be responsive to organisational management structures in a dynamic healthcare environment
v) Interact with administrative and governance structures to inform, develop, and/or implement appropriate health policies and strategies, and contribute to the planning and development of services that address the health needs of individuals and the community
vi) Provide for the ongoing growth and development of the profession and for the identification of the unique contribution of physiotherapy and its evolving scope of practice
vii) Work in a team, Identify roles and responsibilities in a team, and communicate as a team member and a leader where needed
viii) Engage in respectful, collaborative practice within multidisciplinary and interprofessional teams to optimise measurable clinical outcomes with a common goal

ix) Work collaboratively with other members of multidisciplinary and interprofessional teams, and with patients, families, and caregivers to determine needs and formulate goals for physiotherapy intervention
x) Teach and mentor colleagues
xi) Be aware of one's own role and the role of others in multi-professional team
xii) Assume leadership roles in health advocacy and share relevant information while ensuring confidentiality
xiii) Demonstrate effective team working for optimal service delivery

8. Lifelong Learning Reflection

1. Assess and identify individual learning needs
2. Demonstrate initiative and willingness to learn
3. Assess one's own practice against peers and benchmarks, and set realistic learning goals
4. Construct and implement a personal development plan to address learning needs
5. engage in attending CME, conferences for continuous professional development
6. Demonstrate ability to reflect on practice and seek support where needed to improve and develop one's own personal and professional efficacy and effectiveness
7. Identify learning needs related to the use of technology in physiotherapy
8. Incorporate lifelong learning and experience into practice
9. Engage in shared learning with other professionals

9. Health Advocacy:

1. Address and act in accordance with the health need of the community and country
2. Emphasise the importance of physical activity and exercise and facilitate activities for inclusion from physiotherapist's perspective to improve societal health and wellness
3. Empower patients to facilitate health behaviour change
4. Develop strategies to manage ambiguity, uncertainty, change, and stress to develop resilience and to manage physical, emotional, and mental well-being
5. Use a biopsychosocial approach when applying health promotion and prevention strategy

5. PREAMBLE

Physiotherapy or Physical Therapy (P.T.) is a **Movement Science** with an established theoretical and scientific base and widespread clinical applications in the **Prevention, Restoration & Rehabilitation, Maintenance, and Promotion of optimal physical function.** Physiotherapists **diagnose and manage movement dysfunction** and enhance physical and functional abilities. This physical dysfunction may be the sequelae of involvement of any of the systems like Musculoskeletal, Neurological, Cardiovascular, Respiratory, or other body systems.

These practitioners contribute to society and the profession through practice, teaching, administration, and the discovery and application of new knowledge about physiotherapy experiences of sufficient excellence and breadth by research to allow the acquisition and application of essential knowledge, skills, and behaviours as applied to the practice of physiotherapy.

Learning experiences are provided under the guidance and supervision of competent faculty, in both the classroom and clinic. The designed curriculum will prepare the entry-to-practice physiotherapist (PT), to be an autonomous, effective, safe and compassionate professional, who practises collaboratively in a variety of healthcare setups such as neonatal to geriatric, from critical care to community fitness to sports training and is responsive to the current and future needs of the healthcare system.

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

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

ESSENTIAL REQUIREMENTS FOR COURSE COMPLETION

The following "essential requirements" specify those attributes that the faculty consider necessary for completing the professional education enabling each graduate to subsequently enter clinical practice. The purpose of this curriculum is to delineate the cognitive, affective, and psychomotor skills deemed essential for the completion of this program and to perform as a competent

physiotherapist who will be able to evaluate, plan & execute physiotherapy treatment independently.

COGNITIVE LEARNING SKILLS: The student must demonstrate the ability to receive, interpret, remember, reproduce and use information in the cognitive, psychomotor, and affective domains of learning to solve problems, evaluate work, and generate new ways of processing or categorising similar information listed in course objectives.

PSYCHOMOTOR SKILLS: The student must demonstrate the following skills.

1. **Locomotion ability**:
   Get to lecture, laboratory, and clinical locations, and move within rooms as needed for changing groups, partners, and workstations. Move quickly in an emergency situation to protect the patient (e.g. from falling).

2. **Manual tasks:**
   a. Manoeuvre another person's body parts to effectively perform evaluation techniques. Manipulate common tools used for screening tests of the cranial nerves, sensation, range of motion, and blood pressure, e.g., cotton balls, safety pins, goniometers, Q-tips, and sphygmomanometer. Safely and effectively guide, facilitate, inhibit, and resist movement and motor patterns through physical facilitation and inhibition techniques (including the ability to give timely urgent verbal feedback).
   b. Manipulate another person's body in transfers, gait, positioning, exercise, and mobilisation techniques. Manipulate evaluation and treatment equipment safely and accurately apply to patients. Manipulate bolsters, pillows, plinths, mats, gait assistive devices, and other supports or chairs to aid in positioning, moving, or treating a patient effectively.
   c. Competently perform and supervise cardiopulmonary resuscitation

3. **Fine motor/hand skills:**
   a. Legibly record thoughts for written assignments (including diagrams) and tests. Document evaluations, patient care notes, referrals, etc. in standard medical charts in hospital/clinical settings in a timely manner and consistent with the acceptable norms of clinical settings.
   b. Safely apply and adjust the dials or controls of therapeutic modalities.
   c. Safely and effectively position hands and apply mobilisation and therapeutic techniques.

4. **Visual acuity** to
   a. Read written and illustrated material in the English language, in the form of lecture handouts, textbooks, literature, and patient charts.
   b. Observe active demonstrations in the classroom.
   c. Visualise training videos, projected slides/overheads, X-ray pictures, and notes written on a blackboard/whiteboard.
   d. Receive visual information from patients, e.g., movement, posture, body mechanics, and gait necessary for comparison to normal standards for purposes of evaluation of movement dysfunctions.
   e. Receive visual information from the treatment environment, e.g., dials on modalities and monitors, assistive devices, furniture, flooring, structures, etc.
   f. Receive visual clues as to the patient's tolerance of the intervention procedures. These may include facial grimaces, muscle twitching, withdrawal, etc.

5. **Auditory acuity** to
   a. Hear lectures and discussions in an academic and clinical setting.
   b. Distinguish between normal and abnormal breathing, lung and heart sound using a stethoscope.

6. **Communication**:
   a. Effectively communicate information and safety concerns with other students, teachers, patients, peers, staff, and personnel by asking questions, giving information, explaining conditions and procedures, or teaching home programs. These all need to be done in a timely manner and within the acceptable norms of academic and clinical settings.
   b. Receive and interpret written communication in both academic and clinical settings in a timely manner.
   c. Receive and send verbal communication in life-threatening situations in a timely manner within the acceptable norms of clinical settings.
   d. Physiotherapy education presents exceptional challenges in the volume and breadth of required reading and the necessity to impart information to others. Students must be able to communicate quickly, effectively, and efficiently in oral and written English with all members of the healthcare team.

7. **Self-care**:
   Maintain general good health and self-care in order not to jeopardise the health and safety of self and individuals with whom one interacts in the academic and clinical settings.

AFFECTIVE LEARNING SKILLS: The student must be able to:

1. Demonstrate respect to all people, including students, teachers, patients, and medical personnel, without showing bias or preference on the grounds of age, race, gender, sexual preference, disease, mental status, lifestyle, opinions or personal values.
2. Demonstrate appropriate affective behaviours and mental attitudes in order not to jeopardise the emotional, physical, mental, and behavioural safety of patients and other individuals with whom one interacts in the academic and clinical settings and to be in compliance with the ethical standards of the profession.
3. Acknowledge and respect individual values and opinions in order to foster harmonious working relationships with colleagues, peers, and patients.

PROFESSIONAL DRESS CODE STANDARDS:

It is important to portray a professional image. A clinician with inappropriate dress, grooming, or conduct can damage the patient's confidence in the quality of their care, sometimes even resulting in a delay in the restoration of health.

Haircuts, hair styling, and personal grooming need to be neat, conservative and inconspicuous. Grooming and style should be practical and allow one's duties to be performed without embarrassment or inconvenience

DRESS:

Modest casual wear is appropriate on campus and in class.
Clinical /Lab Dress: Aprons for all clinical assignments, any class that is held in a clinical facility and in any class where patients are present.

ADMISSION INTO THE COURSE:

A student graduated from Maharashtra State Board with compulsory science subjects of Physics, Chemistry and Biology who has appeared for the selection process as specified by DMER as per the directives in force.

EXAMINATION PATTERN:

- The terms would commence as per directives of MUHS, generally in August except in the First year.
- Internal Assessments would be carried out as specified in the syllabus
- University exams would be conducted at the end of the year as specified in the syllabus on the content in theory as well as practical.
- Internal Assessment marks would be based on the university syllabus as passed by the Board of Studies.

- At the end of the Final year candidates are to join the parent institute for a 6-month internship within 5 days of the declaration of the result.
- The number of attempts and provision of allowed to keep term (ATKT) would be as per directives of the University as passed by the Board of Studies.

ATTENDANCE:

The compulsory minimum attendance as specified in the syllabus would be needed for the candidate to appear in the university exam. (Theory 75 % and Practical/clinical 80%). Candidates failing to fulfil the required attendance will not be eligible for filling out the examination form.

VACATION:

Vacation would be as per University direction and dates.

6. FRAMEWORK OF THE CURRICULUM

COURSE DURATION
Four years and Six months of Internship.

I B.P.Th.

a. The course deals with the knowledge and application of basic foundation in biological Science of Anatomy, physiology, and biochemistry, and physiotherapy core subjects of Kinesiology and movement science and physiotherapy
b. Students' knowledge of Physics i.e. – Mechanics, Electricity, Water, Sound & Light is recalled to apply to the human body in understanding movements and the various physiotherapeutic modalities under the subject of Electrotherapy & Kinesiotherapy.

- **B.P.Th.**

a. The course deals with an understanding of altered physiology by studying pathology & Microbiology.
b. The students get oriented to various Pharmacotherapeutic agents, their mechanism of action, and their relevance to physiotherapy along with their effects by studying Pharmacology.
c. The students will acquire knowledge about normal and altered human minds & behaviour by studying Psychology & Psychiatry. They will also learn the skills required for effective communication with patients and caregivers.
d. Students will acquire the knowledge of Biomechanics as applicable to the human body in the context of Kinetics & kinematics of Joints, Movements & daily activities under the subject of Kinesiology and movement science and shall acquire knowledge and learn various physiotherapeutic skills on models in the subject of Kinesiotherapy.
e. In the subject of Electrotherapeutics, students will acquire knowledge and learn the application & uses of various electrotherapeutic modalities on models.

- **B.P.Th.**

a. The course deals with knowledge of the disease, its pharmacological and surgical management, and the application of movement dysfunction in relevance to the clinical subjects of Orthopaedics, General Surgery, Medicine, Neurology, Paediatrics, Dermatology & Gynecology & Obstetrics, Community Medicine and Sociology.

b. Students will acquire knowledge about the principles of the International Classification of Functioning (I.C.F.) and its applicability in the context of movement dysfunctions.
c. Students will learn physiotherapeutic evaluation skills including electrodiagnosis of patients to arrive at a Physical Therapy Diagnosis in Neuromuscular, Cardiovascular & Respiratory dysfunction.
d. They will also acquire knowledge of various specialised manual therapy and neurodevelopmental techniques and cardiorespiratory practice skills on models under the subject of Physiotherapeutic skills.
e. Knowledge about basics of kinesiotherapy and electrotherapy in Physiotherapy practice for dysfunctions pertaining to acute, sub-acute, or chronic (overuse) aspects related to Musculoskeletal, Neurological, Cardiac, vascular, respiratory, sports, obstetrics and gynaecology, occupational origins or as a consequence of physiological functioning, including ageing and pregnancy will be integrated

- **B.P.Th.**

a. The course deals with the complete integration of biological, and clinical science along with physiotherapy core subjects.
b. Students will revise, recall and integrate the knowledge of previous years to evaluate, functionally diagnose, plan and execute short and long-term management of various musculoskeletal, neurological & cardiovascular- respiratory dysfunctions in hospital and community settings.
c. Students also acquire knowledge pertaining to health promotion & disease prevention throughout their lifespan in the community. They will also be able to analyse, prevent and treat problems associated with various industries in community physiotherapy.
d. Students will also rationalise biomechanical principles & application of a variety of aids & appliances used for ambulation, protection & prevention by studying Bioengineering.

INTERNSHIP

a. A period of 6 months (26 weeks) of continuous clinical practice to enhance the clinical reasoning, judgement, programme planning, intervention, evaluation of the intervention, follow up and referral skills of all the dysfunctions and impairments learned throughout the curriculum of four years.
b. Those candidates declared to have passed the final year examination in all subjects shall be eligible for the internship which is to be carried out in the parent university.
c. The internship shall be done in a teaching hospital recognized by the University. A degree certificate shall be awarded ONLY on successful completion of six months of internship.

d. The Internship will be rotatory for 6 weeks each in areas of musculoskeletal, neurosciences, cardiovascular and respiratory (including critical care), and community. It shall cover clinical branches concerned with Physiotherapy such as Orthopaedics, Cardiovascular & Respiratory including ICU, Neurology & Neurosurgery Paediatrics, General Medicine, Surgery, Obstetrics, and Gynecology both inpatient and outpatient services.

e. The institute can decide on an elective posting for a period of 2 weeks. The list of available elective postings will be decided by the institute and shall have mentors in each area with a maximum of 10 students and a minimum of 2 students per area. The institute will declare available electives prior to the university

f. The students either individually or in a group will complete a short project which can be but is not limited to either a narrative review, documentation of cases in a series, or retrospective analysis

g. Successful Completion: The student must maintain a logbook. On completion of each posting, the same will have to be certified by the faculty in charge of the posting for both attendance as well as work done. On completion of all the postings, the duly completed logbook will be submitted to the Principal/Head of the program to be considered as having successfully completed the internship program.

COMPEL MODULE

Integration of soft skills, attitudes, ethics, professionalism, and research is essential for a practising physiotherapist. Hence the curriculum would address these competencies through the module COMPEL I-IV. These would include Course Modules in gaining competencies in Communication Skills, Professional Practice & Ethics, Research methodology, critical appraisal, Evidence-based practice, Leadership, Management, administration, and inter-professional collaboration, and lifelong learning and Reflection throughout the continuum from First year to Fourth year and internship.

A logbook would be mandatory to document the skills attained through the **COMPEL COURSE MODULE** throughout the curriculum. The course includes a college exam in the subject of Professional Practice & Ethics and Research Methodology at IV BPTh and submission of a Research Project in Internship. The communication skills and professional attributes would be evaluated during supervised clinical practice as MET, NOT MET, and Needs Improvement. An additional component of marks would be included in internal and university assessments to evaluate students' ability of verbal, nonverbal, and written communication

Competencies of COMPEL module:

Students will be able to:

I. Communication skills:

a. Learn to develop effective communication skills.
b. communicate with patients, family, and peers in an effective manner
c. Develop inter-professional skills
d. Demonstrate empathy during patient and peer interactions
e. Develop effective active listening skills
f. Identify barriers in communication

II. Professional Practice & Ethics

a. Acquire the knowledge of ethical principles, and code of professional practice and resolve ethical dilemmas
b. Acquire the skill to take informed consent
c. Understand the moral & legal aspects of professional practice, acquire necessary skills and attributes of professional
d. Understand the roles of various national and international physiotherapy associations and bodies
e. Practice reflection as an important tool for professional development
f. Identify strengths and weaknesses to understand the importance of lifelong learning as an aspect of professional development

III. Research Methodology & Biostatistics & Evidence-based practice

a. The course deals with knowledge of Research Methodology, Biostatistics, ability to critically appraise literature and analyse available evidence to make informed decisions to practice.
b. The practical application would be in the form of short projects done during internship

IV. Leadership, Administration, and Management.

a. The course will sensitise students to the principles of Hospital Administration, Management & Marketing.
b. The students will learn to develop leadership skills and work in a team, respect team members, and collaborate
c. The students will be able to take up leadership positions in healthcare, set up clinics, understand the need for infrastructure, develop financial literacy and manage resources.

Abbreviations /Terminologies used for this competency-based program

DOAP	:	Demonstration- Observation - Assistance – Performance
DOPS	:	Direct Observation of Procedural Skills
LAQ	:	Long answer questions
SAQ	:	Small answer questions
MCQ	:	Multiple choice questions
OSCE	:	Objective Structured Clinical Examination
OSPE	:	Objective Structured Practical Examination
PBL	:	Problem based Learning
CBL	:	Case based learning
SDL	:	Self-directed Learning
SGD	:	Small group discussion
WPBA	:	Workplace Based Assessment
ICF	:	International Classification of Function
ADL	:	Activities of Daily Living
IL	:	Interactive Learning
ECE	:	Early Clinical Exposure
Demo	:	Demonstration

7. SUBJECTS SCHEDULE

I B.P.T. TRANSCRIPT HOURS - 1482

Sr.No.	SUBJECTS	Teaching Hrs
1	**COMPEL- Module I**	20
	BASIC MEDICAL SCIENCES	
2	Human Anatomy	210
3	Human Physiology	200
4	Biochemistry (College exam)	50
	PHYSIOTHERAPY	
5	Kinesiology & Movement Science - Paper I	130
6	Physiotherapy - Paper I (Electrotherapy)	200
7	Physiotherapy - Paper II (Kinesiotherapy)	230
8	Seminars - · Kinesiology & Movement science · Electrotherapy · Kinesiotherapy · Introduction to ICF	60 (20+ 20+20)
9	**Observational clinical practice** Observe in area of Musculoskeletal, Neurological, Cardiovascular and Respiratory, Community Physiotherapy use of Electrotherapy and Kinesiotherapy and Integrate knowledge of Anatomy, Physiology, Biochemistry, Kinesiology and Movement Science	382
TOTAL		**1482**

II.B.P.T. TRANSCRIPT HOURS -1482

Sr.No.	SUBJECTS	Teaching Hrs
1	**COMPEL -Module II**	20
	MEDICAL SCIENCES	
2	Pathology	50
3	Microbiology (College Exam)	35
4	Pharmacology	50
5	Psychiatry including Psychology (College exam)	50
	PHYSIOTHERAPY	
6	Kinesiology And Movement Science - Paper II	130
7	Physiotherapy - Paper III (Electrotherapy II)	230
8	Physiotherapy - Paper IV (Kinesiotherapy-II)	230
	Seminars - · Kinesiology & Movement science · Electrotherapy · Kinesiotherapy · ICF -structure and functional impairments	20 40 30
10	**Supervised clinical practice** Supervised clinical practice in the area of Musculoskeletal, Neurological, Cardiovascular and Respiratory, Community Physiotherapy Practice use of Electrotherapy and Kinesiotherapy in clinical practice areas under supervision. Integrate knowledge of Kinesiology and Movement Science, pathophysiology, impairments, and dysfunctions	597
TOTAL		**1482**

III B.P.T. TRANSCRIPT HOURS - 1526

Sr.No	SUBJECTS	Teaching Hrs
1	**COMPEL – MODULE III**	20
	MEDICAL SCIENCES	
2	Surgery-I	55
3	Surgery-II	60
4	Medicine-I (including Dermatology)	65
5	Medicine-II	65
6	Community medicine & Sociology	60
7	Obstetrics Gynaecology (College Exam)	30
	PHYSIOTHERAPY	
9	Physiotherapy Diagnosis (Inclusive of Electrodiagnosis)	230
	Physiotherapy - Paper V (Physiotherapeutic skills)	230
10	Seminar: I.C.F - · Assessing capacity and performance, · Evaluation of ADL, · System dysfunctions, · Exercise Physiology · Goal setting using ICF framework	90
11	**Supervised clinical practice** Supervised clinical practice in the evaluation of functioning in the area of Musculoskeletal, Neurological Cardiovascular and Respiratory, Community Physiotherapy. Practice use of Physiotherapeutic skills learned in Ist and II BPT, in clinical practice areas under supervision. Integrate knowledge of Kinesiology and Movement Science, pathophysiology, Impairments and dysfunctions, and clinical sciences to evaluate functioning using ICF framework	621
TOTAL		**1526**

IV. B.P.T. TRANSCRIPT HOURS – 1592

Sr.No	SUBJECTS	Teaching Hrs
1	**COMPEL - Module IV**	
	Professional practice & Ethics Communication Skills Leadership Administration, Management & Marketing Reflection	35
	Research Methodology, critical appraisal, Evidence-based Practice & Biostatistics	40
	PHYSIOTHERAPY	
2	Musculoskeletal Physiotherapy	200
3	Neuro Physiotherapy	200
4	Cardiovascular Respiratory Physiotherapy (Including Critical Care)	200
5	Community Physiotherapy	200
6	Principles of Bioengineering	30
7	Seminar (application of ICF model, · How to do a Literature search, · Critical appraisal, · Applying Evidence-Based Practice in areas of Core Physiotherapy specialisations)	60
8	**Supervised clinical practice** Supervised clinical practice in the evaluation of functioning and its management in the area of Musculoskeletal, Neurological, Cardiovascular and Respiratory, Community Physiotherapy. Practice use of Physiotherapeutic skills learned in clinical practice area under supervision Integrate knowledge gained throughout the curriculum and apply Evidence-Based approach in Physiotherapy diagnosis and management	627
TOTAL		**1592**

INTERNSHIP TRANSCRIPT HOURS: 1092

Sr.No.	SUBJECTS	Hours
	PROJECT	350
	Evidence-Based Practice and Critical appraisal	50
	SUPERVISED CLINICAL PRACTICE	
	Musculoskeletal Physiotherapy	6 weeks
	Neuro Physiotherapy	6 weeks
	Cardiovascular Respiratory Physiotherapy (Including Critical Care)	6 weeks
	Community Physiotherapy	6 weeks
	ELECTIVE	2 weeks
	TOTAL HRS	1092 hrs

8. I B.P.T. TRANSCRIPT HOURS - 1482

Sr.No.	SUBJECTS	Teaching Hrs
1	**COMPEL- Module I**	20
	BASIC MEDICAL SCIENCES	
2	Human Anatomy	210
3	Human Physiology	200
4	Biochemistry (College exam)	50
	PHYSIOTHERAPY	
5	Kinesiology & Movement Science - Paper I	130
6	Physiotherapy - Paper I (Electrotherapy)	200
7	Physiotherapy - Paper II (Kinesiotherapy)	230
8	Seminars - (Kinesiology & Movement science Electrotherapy Kinesiotherapy Introduction to ICF)	60 (20+ 20+20)
9	**Observational clinical practice** Observe in area of Musculoskeletal, Neurological, Cardiovascular and Respiratory, Community Physiotherapy use of Electrotherapy and Kinesiotherapy and Integrate knowledge of Anatomy, Physiology, Biochemistry, Kinesiology and Movement Science	300
TOTAL		**1482**

HUMAN ANATOMY
(Didactic –150hrs + Practical / Laboratory –60hrs) **TOTAL -210 HRS**

COURSE DESCRIPTION:

The focus of this course is an in-depth study and analysis of the regional and systemic organization of the body. Emphasis is placed on the structure and function of human movement.It is integrated with the subject of kinesiology and movement science paper I & II A comprehensive study of human anatomy with emphasis on the nervous, musculoskeletal and circulatory systems is incorporated. Introduction to general anatomy lays the foundation of the course. Dissection and identification of structures in the cadaver supplemented with the study of charts, models, prosected material, and radiographs are utilized to identify anatomical landmarksand configurations of the:

Ø Upper limb and thoracic region
Ø Lower limb, abdomen, and pelvis
Ø Head and Neck
Ø Nervous system

Sr. No.	Regions	Didactic Hours	Practical Hours	Total Hours
1	GENERAL ANATOMY AND HISTOLOGY	17	03	20
2	MUSCULOSKELETAL SYSTEM	57	33	90
3	NEURO ANATOMY	32	12	44
4	SYSTEMIC ANATOMY	09	03	12
5	CARDIOVASCULAR & RESPIRATORY ANATOMY	13	05	18
6	ABDOMEN	04	02	06
7	SENSORY ORGANS	04	02	06
8	ENDOCRINE & EXOCRINE SYSTEM	04	-	04
9	RADIOLOGY	10	-	10
TOTAL		**150**	**60**	**210**

Sr. No.	The student will be able to	Domain	Level	T/L	Assessment
1	**GENERAL ANATOMY AND HISTOLOGY:** **a. Discuss and Describe General Anatomy:** i. Fascia ii. Muscles iii. Bones iv. Joints v. Nerve **vi.** Vessels	K	KH	IL	SAQ,
	b. Describe General Histology related to : i. Epithelial ii. Connective tissue iii. Muscle iv. Bone and cartilage v. Nerve and vessels vi. Embryology	K	KH	, IL Practs	SAQ
	c.Identify & Describe Anatomical aspects of muscles, bones, joints, and their attachments & to understand and analyze movements. d.Gain Knowledge of the anatomyof the living (living anatomy). e.Discuss the Anatomical basisof various clinical conditions.	K	KH, SH	, IL Demon stration Practs	SAQ, LAQ, Spots

Sr. No.	Regions	Domain	Level	T/L	Assessment
2	**MUSCULOSKELETAL SYSTEM: The students will be able to**	K	KH,S	IL Demonstate Practicals	SAQ LAQ SPOTS VIVA
	A. Identify and describe muscles of a. Superior extremity b. Inferior extremity c. Back & Thoracic Cage d. Head Neck &Face i. Skull and Mandible ii. Facial Muscles, blood supply, nerve supply iii. Triangles of neck, Glands, Tongue & Palate iv. Larynx & Pharynx v. Muscles of mastication & T.M. joint vi. Extraocular muscles with nerve supply vii. Nose & Para nasal sinuses B. Apply knowledge of anatomy on the living (Living Anatomy) and acquire knowledge of surface anatomy related to: a. Upper extremity b. Lower extremity c. Head Neck & Face d. Trunk				

Sr. No.	Regions	Domain	Level	T/L	Assessment
3	**Nervous System: The students will be able to describe**				
	A. Describe and Identify various parts of the Nervous system (NEUROANATOMY) a. General organization of the Nervous System b. Central Nervous System c. Cranial nerves d. Peripheral Nerves (should be done with respective parts) i. Autonomic Nervous System: ii. Sympathetic iii. Parasympathetic B. Identify & describe various parts of the nervous system. C. Describe blood circulation of C.N.S. & spinal cord. D. Identify the Structures of various C.N.S Trans-sections. E. Identify and describe the course of peripheral nerves. F. To understand the anatomical basis of clinical conditions of the nervous system.	K,S	KH, SH	DL, Practs	SAQ, LAQ, Spots

Sr. No.	The students will be able to :	Domain	Level	T/L	Assessment
4	**Describe and Identify components of other body systems (SYSTEMIC ANATOMY):** **a.Alimentary system** **b.Urinary System** **c.Genital system:** **i.Male organs** **ii.Female organs** **(Pelvic cavity and Pelvic floor)**	K,S	K,S	IL	SAQ
5	A. Identify anatomical components of Cardiovascular and Respiratory System anatomy a. Thoracic wall b. Mediastinum c. Heart and major blood vessels d. Lungs e. Diaphragm & Intercostals f. Ribs and sternum B. describe various structures of the Cardio Vascular &Respiratory system and the course of blood vessels C.Identify and describe various structures of the Thoracic cage and mechanisms of Respiration D.Apply knowledge of Living anatomy with respect to CardioVascular &Respiratory systems. E.Identify the anatomical basis of clinical conditions of the cardiovascular &Respiratorysystem	K	KH, S	IL,	SAQ LAQ Spots Viva

Sr. No.	Regions	Domain	Level	T/L	Assessment
6	**Describe and Identify the musculature of ABDOMEN and Pelvis**	K	KH	IL	SAQ
7	**Describe and Identify parts of SENSORY ORGANS:** **a. Ear** **b. Eye** **c. Skin**	K,S	KH, SH	IL	SAQ
8	**Describe ENDOCRINE & EXOCRINE SYSTEM**	K,	KH	IL	SAQ
9	**Understand RADIOLOGY**	K,	KH	IL	SPOTS

HUMAN PHYSIOLOGY
(Theory -150 hrs, Practical / Laboratory -50 hrs) **TOTAL 200 hrs**

COURSE DESCRIPTION:

The course is designed to study the function of the human body at the molecular, cellular, tissue and systems levels. The major underlying themes are; the mechanisms for promoting homeostasis, cellular processes of the metabolism, membrane function and cellular signaling; the mechanisms that match supply of nutrients to tissue demands at different activity levels; the mechanisms that match the rate of excretion of waste products to their rate of production; the mechanisms that defend the body against injury and promote healing.

These topics address the consideration of nervous and endocrine regulation of the cardiovascular, hematopoietic, pulmonary, renal, gastro-intestinal and musculoskeletal systems including the control of cellular metabolism. The course stresses on the integrative nature of physiological responses in normal function and disease.

This course will serve as a pre-requisite/foundation for the further courses i.e. Exercise physiology or Pathology. The course integrates with the subject of anatomy horizontally and medicine, pathology, pharmacotherapy vertically along with physical therapy core subjects

The student will be able to

1. Acquire the knowledge of the relative contribution of each organ system in the maintenance of the Milieu Interior (Homeostasis)
2. Describe physiological functions of various systems, with special reference to Musculoskeletal, Neuro-motor, Cardio-respiratory, Endocrine, Uro-genital function, & alterations in function with aging
3. Analyze physiological response & adaptation to environmental stresses with special emphasis on physical activity, altitude, and temperature
4. Acquire the skill of basic clinical examination, with special emphasis on the Peripheral & Central Nervous system, Cardiovascular & Respiratory system, & Exercise tolerance

Sr. No.	Topics	Didactic hrs	Practical hrs	Total hrs
1.	**GENERAL PHYSIOLOGY**	25	42	**172**
2.	**NERVOUS SYSTEM**	35		
3.	**EXCRETORY SYSTEM**	06		
4.	**TEMPERATURE REGULATION**	02		
5.	**ENDOCRINE SYSTEM**	06		
6.	**REPRODUCTIVE SYSTEM**	08		
7.	**SPECIAL SENSES**	05		
8.	**RESPIRATORY SYSTEM**	20		
9.	**CARDIOVASCULAR SYSTEM**	20		
10.	**GASTRO INTESTINAL SYSTEM**	03		
11.	**EXERCISE PHYSIOLOGY**	015	08	**023**
12.	**PHYSIOLOGY OF AGEING**	005	-	**005**
Total		**150**	**50**	**200**

Sr. No.	The student will be able to in	Domain	Level	T/L Method	Assessment
1	**GENERAL PHYSIOLOGY**	K	KH	IL	SAQ
	a. Cell: i. Describe the structure of cell membrane ii. Describe the transport across cell membrane iii. Define and describe homeostasis	K	KH	IL	SAQ
	b. Blood: i. Describe Rh- ABO system & mismatch-transfusion ii. Describe WBC iii. Describe Plasma protein iv. Describe Platelets v. Describe Hemoglobin vi. Describe Normal values of blood (composition & function) vii. Define and Describe Bleeding time & clotting time viii. Interpret blood reports for haemoglobin values, platelets, WBC	K,S	KH,SH	IL + Tutorial	SAQ Practical
	c. Nerve: i. Explain the structure, classification & Properties ii. Explain and describe R.M.P& action potential iii. Explain explicitly propagation of nerve impulse iv. Describe in detail the nerve injuries – degeneration, regeneration and reaction of degeneration	K	KH	IL	SAQ

Sr. No.	Topics	Domain	Level	T/L Method	Assessment
	d. Muscle: i. Explain and describe the structure- properties-classification- smooth, skeletal, cardiac, excitation/ contraction coupling ii. Explain the factors affecting development of muscle tension, fatigue, load. iii. Describe the Neuro-muscular transmission; applied physiology: Myasthenia gravis, Eaton Lambert Syndrome. iv. Draw GRAPHS: v. a. Skeletal muscle and its properties vi. b. Cardiac muscle-properties-effect of Ach & Adrenaline	K,S	KH.SH	IL Practical demo	SAQ
2	**NERVOUS SYSTEM:**	K	KH	IL+ Tutorial	SAQ, LAQ

	a. Describe in detail the functions of the nervous system, classify – C.N.S.,P.N.S. & A.N.S. b. Explain in detail synapse-structure, properties, & transmission; c. Describe the Reflexes-classification & properties; d. Describe in detail receptor physiology: classify, State properties. e. Elaborate and explain the Physiology of Touch, Pain, Temperature & Proprioception; f. Describe in detail the sensory and motor tracts: state the effect of transaction (complete and incomplete) at various levels g. Describe in detail the physiology of Muscle Tone (muscle spindle); Explain explicitly the Stretch reflex	K,S	KH,SH	IL TUTORIAL PRACT Bedside clinic	SAQ LAQ Practical

Sr. No.	Topics	Domain	Level	T/L Method	Assessment
	h. Describe the connection & function of Basal ganglia, Thalamus, Hypothalamus, Sensory and Motor cortex, Cerebellum, Limbic system, Vestibular Apparatus i. Autonomic nervous system: Explain the structure and functions of the sympathetic and the parasympathetic nervous system. j. Explain Learning, memory & conditioned reflex k. Describe the physiology of Voluntary movement l. Demonstrate evaluation of sensory and motor system				
3	**EXCRETORY SYSTEM:**	K	K	IL	SAQ
	a. Describe structure & function of Kidneys b. Discuss Urineformation;(to excludeconcentration and dilution) c. Describe theJuxtaglomerular apparatus d. Discuss the fluid and electrolyte balance – Na, K, H2O e. Describe the neural control of micturation f. Describe Types of bladder: Applied physiology g. Discuss Acid base balance				
4	**TEMPERATURE REGULATION**	K,S	K,SH	IL PRactical	SAQ Practical
	a.Discuss temperature regulation b.Demonstrate temperature measurement				

Sr. No.	Topics	Domain	Level	T/L Method	Assessment
5	**ENDOCRINE SYSTEM:**	K	K	IL	SAQ
	a. Describe and discuss secretion- regulation & function of Pituitary-Thyroid-Adrenal-Parathyroid-Pancreas b. Understand the applied physiology (abnormalities) of the above mentioned glands				
6	**REPRODUCTIVE SYSTEM:**	K	K	IL	SAQ
	a. Describe the physiology of ovary and testis b. Discuss in detail physiology of menstrual cycle and spermatogenesis c. Describe the functions of progesterone, estrogen and testosterone d. Describe in detail Puberty & menopause e. Describe and explain explicitly the physiological changes during pregnancy				
7	**SPECIAL SENSES:**	K	K	IL	
	a. Describe the structure and function of the eye b. Discuss Applied physiology: errors of refraction, accommodation, reflexes – dark and light adaptation, photosensitivity. c. Discuss the structure and function of the ear d. DiscussApplied physiology-types of deafness				

Sr. No.	Topics	Domain	Level	T/L	Assessment
8	**RESPIRATORY SYSTEM:**				
	a. Explain in detail the structure and function of the RS b. Describe in detail mechanics of respiration; c. Discuss in detail pulmonary volumes & capacities; d. Describe anatomical & Physiological Dead space-ventilation/perfusion ratio, alveolar ventilation e. Discuss in detail transport of respiratory gases f. Describe and discuss nervous & chemical control of respiration g. Describe in detail Pulmonary function tests-Direct & indirect method of measurement h. Draw graph of volumes and capacity i. Discuss physiological changes with altitude & acclimatization	K,S	KH, SH	IL+ Tutorial	SAQ, LAQ

Sr. No.	Topics	Domain	Level	T/L	Assessment
9	**CARDIOVASCULAR SYSTEM**	K,S	KH.SH	IL Practical Demo	SAQ, LAQ
	a. Describe in detail structure & properties of cardiac muscle b. Explain in detail cardiac impulse- initiation and conduction c. Explain in detail Cardiac cycle d. Describe in detail Heart rate regulation e. Describe in detail blood pressure- definition- regulation- Cardiac output- regulation & function affecting; Peripheral resistance, venous return f. Discuss and describe in detail the regional circulation- coronary-muscular, cerebral g. describe and interpret in detail Normal ECG. h. Demonstrate Blood pressure- effects of change in posture & exercise i. Demonstrate the examination of pulse				
10	**GASTRO INTESTINAL SYSTEM:**	K	K	IL	SAQ
	a. Discuss absorption and digestion in brief b. Discuss liver function				

Sr. No.	Topics	Domain	Level	T/L	Assessment
11	**EXERCISE PHYSIOLOGY**	K,S	KH, SH	IL+ Tutorial+ PRACT	SAQ LAQ PRACTICAL
	a. Describe and discuss Basal Metabolic Rate and Respiratory Quotient b. Describe in detail energy metabolism c. Discuss fatigue d. Describe in detail oxygen debt e. Describe in detail the acute cardio vascular changes during exercise, difference between mild, moderate and severe exercise, concept of endurance f. Describe the acute respiratory changes during exercise g. Describe in detail the concept of training/conditioning, effects of chronic exercise/effect of training on the cardiovascular & respiratory system h. Describe body temperature regulation during exercise i. Describe hormonal and metabolic effects during exercise j. Explain explicitly the effects of exercise on muscle strength, power, endurance k. Explain in detail physical fitness and its components l. Demonstrate the skills of testing Physical fitness: m. Breath holding n. Mercury column test; o. Cardiac efficiency test- Harvard step test- Master step test				
12	**PHYSIOLOGY OF AGEING** (With respect to all systems)	K	KH	IL TUTORIAL	SAQ LAQ

	Describe in detail the effect of ageing on various systems				
13	Demonstrate the skills of clinical examination: History taking and general examination /Respiratory system / cardio vascular system / Higher functions /Cranial nerves /Reflexes / Motor & Sensory system	K,S	KH,SH	ECE Bedside clinic	Practical

Sr. No.	PHYSIOLOGY PRACTICAL : Topics	Practical Hours
1.	Haematology – (demonstration only)	6hrs
2.	Draw GRAPHS:	5hrs
	a. Skeletal muscle and its properties	
	b. Cardiac muscle-properties-effect of Ach & Adrenaline	
3.	Demonstrate Blood pressure- effects of change in posture &exercise	4hrs
4.	Demonstrate the examination of pulse	2hrs
5.	Understand the procedure of Spirometry a. Lung volumes and capacities b. Timed vital capacity	4hrs
6.	Understand the procedure of Perimetry	1hr
7.	Demonstrate the skills of testing Physical fitness: a. Breath holding b. Mercury column test; c. Cardiac efficiency test- Harvard step test- Master step test	8hrs
8.	Demonstrate the skills of clinical examination: History taking and general examination /Respiratory system /cardio vascular system / Higher functions /Cranial nerves /Reflexes / Motor & Sensory system	20hrs
TOTAL		**50 hrs**

BIOCHEMISTRY (COLLEGE EXAM)

(Didactic 46hrs + Demonstrations 4hrs) **TOTAL 50 HRS**

COURSE DESCRIPTION:

This course provides the knowledge and skills in fundamental organic chemistry and introductory biochemistry that are essential for further studies It covers basic biochemical, cellular, biological and microbiological processes, basic chemical reactions in the prokaryotic and eukaryotic cells, the structure of biological molecules, introduction to the nutrients i.e. carbohydrates, fats, enzymes, nucleic acids and amino acids.

The student would know:

1. Various biomolecules which are present in the body and functions
2. The formation and fate of these biomolecules
3. Their normal levels in body fluids required for functioning and their abnormal levels to understand the disease process.

Sr. No.	Topics	Didactic Hours	Demonstrations Hours	Total Hours
1	CARBOHYDRATES	9		**9**
2	PROTEINS	6		**6**
3	ENZYMES	4		**4**
4	VITAMINS	4		**4**
5	MINERALS	5		**5**
6	HORMONES	1		**1**
7	NUTRITION	3		**3**
8	CLINICAL BIOCHEMISTRY	6	4	**10**
9	LIPID	4		**4**
10	MUSCLE CONTRACTION	4		**4**
	TOTAL	**46**	**4**	**50**

Sr. No.	The student will be able to	Domain	Level	T/L	Assessment
1	**CARBOHYDRATES**	K	KH	IL	SAQ
	1. Classify carbohydrates and Discuss its metabolism with examples 2. Describe pathways for :Digestion and Absorption, Glycogenesis, Gluconeogenesis, Glycogenolysis and HMP pathway, Glycolysis, Electron transport chain for ATP synthesis, TCA cycle. 3. Discuss Hormonal regulation of blood 4. Discuss Glucose,and Glycogen storage disorders, Diabetes mellitus, Glycosuria, changes in Carbohydrate, Protein & Lipid metabolism. .				
2	**PROTEINS**	K	KH	IL	SAQ
	a. Define, provide Functional Classification, and discuss Digestion & Absorption, decarboxylation, deamination, transamination, transmethylation, Urea cycle, clinical significance of serum urea, function of glycine, Phenylalanine, trytophan, methionine tyrosine. b. Able to understand the structure of protein, the essential and non-essential amino acids.				

Sr. No.	Topics	Domain	Level	T/L	Assessment
3	**ENZYMES**	K	KH	IL	SAQ
	Define, Ennumerate Modern Classification, and Factors affecting enzymes Action, diagnostic & therapeutics uses & enzymesIsoenzymes, Competitive & Non competitive inhibition.				
4	**VITAMINS**	K	KH	IL	SAQ
	Define and Classify , Fat & water soluble vitamins,itsfunctions, Deficiencymanifestations, sources & RDA				
5	**MINERALS**	K	KH	IL	SAQ
	a.Identify important minerals and itsrole, b.Ennumerate deficiency manifestationsCa, P, Fe, I, Zinc, Selenium, FluorineMagnesium Na and K. Function sources,				
6	**HORMONES**	K	KH	IL	SAQ
	aDefine Hormones with mechanism of action, classification.				
7	**NUTRITION**	K	KH	IL	SAQ
	a.Describe Composition of food, balanced diet, b.Discuss Protein deficiency Kwashiorkor, Marasmus, Nitrogen balance, major Identify Dietary constituent & their importance. C.Discuss energy requirements, factors affecting B.M.R., S.D.A. (Specific Dynamic Action) and R.Q. (Respiratory Quotient)				

Sr. No.	Topics	Domain	Level	T/L	Assessment
8	**CLINICAL BIOCHEMISTRY**	K	KH	IL	SAQ
	a. Interpret Liver Function Test, Renal Function Test, Lipid profile in serum b. Discuss Starvation metabolism, Hemoglobin chemistry and metabolism c. Demonstrations: Demonstration of estimation of various biomolecules and their interpretation Interpret reports of various conditions (including Diabetic profile, Cardiac profile, Uric acid and Gout)				
9	**LIPID**	K	KH	IL	SAQ
	Define, and classify with examples biomedical importance, Phospholipids & lipoproteins functions. Digestion & absorption of lipid, β oxidation of fatty acid with Energetics, Knowledge of Ketone bodies and their metabolism, Prostaglandins and essential fatty acids, Cholesterol, importance of cholesterol, obesity				
10	**MUSCLE CONTRACTION**	K	KH	IL	SAQ
	Acquire Knowledge of Mechanism & Biochemical events Connective Tissue- Biochemistry of connective tissue Collagen-Glyco-protein proteoglycans				

KINESIOLOGY & MOVEMENT SCIENCE - PAPER I

(Didactic –95Hrs , Practical / Laboratory –35Hrs- **TOTAL 130 HRS)**

COURSE DESCRIPTION:

This course covers the definition of various terms used in mechanics, Biomechanics, kinesiology, as well as its importance in physiotherapy. It applies the mechanical principles to simple equipments of therapeutic gymnasium and familiarizes the candidate to its use. It covers the types of human motions as well as planes and relative axes of motion. It explains the inter-relationship among kinematic variables and utilizes this knowledge to describe and analyze motion. The course also covers the various starting and derived positions used in physiotherapeutics. It is integrated with the subject of Anatomy

The students will be able to

1. Understand the various terms used in relation to Mechanics, Biomechanics & Kinesiology.
2. Understand the basic principles of Biophysics related to the mechanics of movement / motion.
3. Understand the application of these principles to the simple equipment designs along with their efficacy in Therapeutic Gymnasium.
4. Describe various starting positions and Derived positions used in therapeutics.
5. Demonstrate various starting and derived positions used in therapeutics.

Sr.No.	Topics	Didactic Hours	Practical/LaboratoryHours	TotalHours
1	MECHANICS & BASICBIOMECHANICS	40	---	40
2	MUSCLE BIOMECHANICS	15	-	15
3	JOINT BIOMECHANICS	15	–	15
4	STARTING & DERIVED POSITIONS	15	35	50
5	REGIONAL KINESIOLOGY - Shoulder complex - Hip joint	10	-	10
TOTAL		**95**	**35**	**130**

Sr. No.	The student will be able to	Domain	Level	T/L	Assessment
A	**MECHANICS & BASIC BIOMECHANICS**				
	i. Describe Mechanics & its Application to the human body	K	KH	IL	LAQ SAQ
	ii. Define terminologies: Mechanics (Statics & Dynamics), Biomechanics, Kinetics, Kinematics Osteokinematics, Arthrokinematics, Open Chain &Closed Chain kinematics	K	KH	IL	LAQ SAQ
	iii. Discuss the concept of Axes & Planes	K	K, KH	IL Demo	LAQ SAQ
	iv. Recall Newton's Laws of inertia & motion and understand their application to the human body and movements	K	K, KH	SDL IL Demo	LAQ SAQ
	v. Recall the physics of Gravity and understand concepts of Centre of Gravity, Line of Gravity and Base of Support.	K	K, KH	SDL	LAQ SAQ
	vi. Discuss the application of concepts of Centre ofGravity, Line of Gravity, and Base of Support to Equilibrium and its types	K	K, KH	IL	LAQ SAQ
	vii. Describe the mechanics of Force, Work, Energy, Power, Friction, Momentum, Torque, and Pendulum	K	K, KH	IL	LAQ SAQ
	viii. Discuss the application of the Parallelogram of Forces to muscle action	K	K, KH	IL Demo	LAQ SAQ
	ix. Describe the concept of Mechanical and Anatomical pulleys and application to muscle action	K	K, KH	IL Demo	LAQ SAQ

Sr. No.	Topics	Domain	Level	T/L	Assessment
	x. Discuss the concept of Anatomical Levers	K	K	IL	LAQ SAQ
	xi. Discuss the Fluid mechanics related to Hydrotherapy (physics, statics & dynamics)	K	K	IL	LAQ SAQ
B.	**MUSCLE BIOMECHANICS**				
	i. Describe the Elements of muscle structure–fiber, size, motor unit, length-tension, arrangement & number relationship	K	K	IL	LAQ SAQ
	ii. Ennumerate the Classificationof muscles - Types of Muscles, Anatomical & Physiological	K	K	IL	LAQ SAQ
	iii. describe the Types of muscle work / Typesof Contractions – Isometric, isotonic, isokinetic, concentric, eccentric	K	KH	IL	LAQ SAQ
	iv. Discuss the Roles of muscles as Agonist, Antagonist, Fixators, Synergist	K	KH	IL	LAQ SAQ
	v. Discuss the concepts of Active & Passive insufficiency and their applications in therapeutics	K	KH	IL	LAQ SAQ
	vi. Discuss the concept of Range of Muscle Work and Angle of pull – with importance to efficiency of muscle work and stability of joint	K	KH	IL	LAQ SAQ

Sr. No.	Topics	Domain	Level	T/L	Assessment
C.	**JOINT BIOMECHANICS**				
	i. Describe the Basic principles of joint design	K	K	IL	LAQ SAQ
	ii. Describe the anatomical basis of Classification of joints	K	K	IL	LAQ SAQ
	iii. Discuss the Basic concepts of Joint function – kinetics & kinematics	K	K	IL	LAQ SAQ
	iv. Describe the concepts of Osteokinematics & Arthrokinematics and describe various examples of the same	K	KH S	IL	LAQ SAQ
	v. Define Concave-ConvexRule and discuss its application to joint motion	K	KH S	IL	LAQ SAQ
D.	**STARTING & DERIVED POSITIONS**				
	i. Describe various Starting positions and Derived positions in therapeutics	K	KH S	IL Practicals	LAQ Practicals
	ii. Discuss the application of stability, Base of Support, Gravity and muscle work in relation to various starting and derived positions	K	KH S	IL Practicals	LAQ Practicals
E.	**REGIONAL KINESIOLOGY**				
	1] SHOULDER COMPLEX				
	i. Recall the anatomy of the shoulder complex	K	K	SDL IL Tutorials SGD	SAQ
	ii. Describe the kinetics and kinematics of shoulder complex with emphasis on scapula-humeral rhythm and force couples	K,S	KH,S	IL	LAQ SAQ

Sr. No.	Topics	Domain	Level	T/L	Assessment
	2] HIP JOINT				
	i. Recall the anatomy of the hip joint	K	K	SDL IL Tutorials SGD	SAQ
	ii.Discuss the kinetics and kinematics of hip joint Analyze the forces acting on movement of Hip Joint	K,S	KH,S	IL	LAQ SAQ

PHYSIOTHERAPY PAPER I (ELECTROTHERAPY - I)

Didactic 75 hrs + Practical 125hrs [**TOTAL-200HRS**]

COURSE DESCRIPTION:

This course will cover the basic principles of Physics that are applicable in medical equipment used in Physiotherapy. It will also help to understand the fundamentals of currents, sound waves, Heat & its effects, electro medical radiations and their effects as well as their application in physical therapy. It covers the skill of application of superficial thermal agents and cryotherapy.

The student will be able to:

a) Recall the physics principles & Laws of Electricity, Electromagnetic spectrum, & ultra sound
b) Describe effects of electromagnetic field at the cellular level & risk factors on prolonged exposure.
c) Recall and Understand the Main electrical supply, Describe Electric shock, precautions & prevention
d) Describe Types & Production of various Therapeutic electrical currents & describe the panel diagrams of the machines
e) Describe principles of thermal agents, effects, uses & precautions of various superficial thermal agents.
f) Describe sound waves, physiological & therapeutic effects of therapeutic Ultrasound.
g) Describe principles, uses, mechanics of Biofeedback in physiotherapy.
h) Test the working of the various electrotherapeutic equipment
i) Recall and Understand, certain common electrical components such as transistors, valves, capacitors, transformers etc & the simple instruments used to test / calibrate these components [such as potentiometer, oscilloscope , multimeter] of the circuit ; & will be ableto identify such components.
j) Describe & identify various types of electrodes used in therapeutics, describe electrical skin resistance & significance of various media used to reduce skin resistance.
k) Acquire knowledge of various superficial thermal agents such as Paraffin wax bath, Cryotherapy, Hydrocollator packs, Home remedies, their physiological & therapeutic effects, Merits / demerits& acquire the skill of application.
l) Acquire skills of application of biofeedback, ultrasound

Sr. No.	Topic	Didactic Hours	Practical / Lab Hours	Total hours	Subject integration
1	MEDICAL ELECTRONICS AND ELECTRICITY	8	-	8	Anatomy, Physiology, Physics
2	PAIN	4	-	4	
3	LOW FREQUENCY CURRENTS	10	18	28	
4	MEDIUM FREQUENCY CURRENTS	4	9	13	
5	HIGH FREQUENCY CURRENTS	17	26	43	
6	SUPERFICIAL THERMAL AGENTS	17	52	69	
7	ACTINOTHERAPY	11	14	25	
8	BIOFEEDBACK	4	6	10	
TOTAL		**75**	**125**	**200**	

SYLLABUS

Sr. No.	The student will be able to	Domain	Level	T/L	Assessment
1	**MEDICAL ELECTRONICS AND ELECTRICITY**			Seminar /Recall in small group discussions	SAQ
	i. Basic Physics				
	a. Recall and understand Basic Physics, condenser Mains supply, current electricity, Electromagnetic induction, Magnetism Transmission of heat	K/ KH K/ KH	K	SDL IL	
	ii. Shock				SAQ
	a.Define shock	K/ KH	K	IL SGD	
	b. Discuss types of shock- Electric and Earth shock	K/ KH	K	IL SGD	
2	**PAIN**				
	a. Discuss in detail the Pain pathway	K	KH	IL	LAQ
	b. Describe the Pain gate theory	K	KH	IL	LAQ
	c. Explain the mechanism of descending pain suppressing system. Physiological block.	K	KH	IL	LAQ
	d. Acquire the knowledge about the physiology of pain, Pain pathways & Methods of pain modulation.	K/C	KH	SDL IL	LAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
3	**LOW FREQUENCY CURRENTS**				
i.	**Cellular Bio-physics**				
	1. Describe Resting membrane potential and potential difference	K	KH	IL/Seminar	SAQ
	2. Describe Action potential	K	KH	IL/Seminar	SAQ
	3. Explain electrical activity of nerve ,conduction of electrical impulses and saltatory conduction	K	KH	IL/Seminar	SAQ
	4. Discuss reception and emission of EMF signals by a cell (effects of electromagnetic fields on cell)	K	K	IL	-
ii.	**Diagnostic Electrical Muscle Stimulator**				
	1. Draw and explain panel diagram of Diagnostic Electrical Muscle Stimulator	K,S	KH,S	IL Practical	SAQ, LAQ
	2. Perform testing of apparatus	K/S	SH/P	DAOP	practical /Skill assessment
	3. Identify and differentiate faradic and galvanic current while testing apparatus	K,S	KH,SH	DOAP	Skill assessment
iii.	**Faradic currents**				
	1. Define and describe faradic - type current	K	K	IL	SAQ, LAQ
	2. Explain duration, frequencies and various waveforms of faradic type current with its graphical representation	K	K	IL	SAQ, LAQ
	3. Explain surging of Faradic type current	K	K	IL	SAQ, LAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
iv.	**Galvanic currents/ Direct current: and interrupted galvanic current**				
	1. Describe Galvanic Current/Direct current	K	K	IL	SAQ, LAQ
	2. Describe Interrupted Direct current	K	K	IL	SAQ, LAQ
	3. Explain in details duration , frequency waveforms of IG current and draw its graphical representation	K,S	K,SH	IL	SAQ, LAQ
	v. TENS				
	a. Classify TENS	K	K	IL	SAQ, LAQ
	b. Describe physical principles	K	K	IL	SAQ, LAQ
	c. Draw panel diagram	K,S	KH/SH	DOAP	Practical
	d. Demonstrate testing of apparatus	K/S/A/C	SH/D	DOAP	Skill Assessment
4.	**MEDIUM FREQUENCY CURRENTS**				
	IFT				
	a. Define interferential therapy and its principle.	K	KH	Lectures, SGD	Written/ viva
	b. Draw / demonstrate a basic neat panel diagram of IFT unit signifying its importance & use of each part to the physiotherapist.	K, S	KH, SH	DOAP	Written, skill
	c. Identify the target tissue(eg.nerves, muscle) to bring about the expected physiological change.	K,S	KH	Lectures, SGD	Written/ viva
	d. Explain the electrical properties of tissue when the particular physiological effect is brought by IFT application	K	KH	Lectures, SGD	Written/ viva

Sr. No.	Topics	Domain	Level	T/L	Assessment
5.	**HIGH FREQUENCY CURRENTS**				
i.	**S.W.D.**				
	Discuss and Describe D.C. and A.C. with respect to:	K	KH	IL	SAQ,LAQ
a.	Thermionic valves – Diode and Triode Transformers Types & Functions	K,S	KH,SH	IL	SAQ, LAQ
b.	Draw and explain panel diagram of SWD machine with different electrodes	K,S	KH,SH	IL	SAQ, LAQ
c.	Explain block and circuit diagram with production of SWD current	K,S	KH,SH	IL	SAQ, LAQ
ii.	**Ultrasound**				
	a. Discuss Characteristics of sound waves and their velocities.	K,S	KH,SH	IL	SAQ, LAQ
	b. Define Ultrasonics.	K	K	IL	SAQ
	c. Define Reflection, Refraction and Attenuation of Sound waves.	K	K	IL	SAQ
	d. Explain Interference of sound waves	K	KH	IL	SAQ
	e. Draw and explain panel diagram of Ultrasound machine	K,S	KH, SH	IL	SAQ
	f. Explain principle of US	K, S	KH, SH	IL	SAQ, LAQ
	g. Perform testing of apparatus	K, S	KH, SH	DOAP	Skill assessment
	h. Describe the mechanism of Production with block diagram	K	KH	IL	LAQ/SAQ
	i. Discuss Physiological & Therapeutic effects	K	KH	IL	LAQ/SAQ
	j. Describe Technique & Methods of Application, Phonophoresis	K	KH	IL	LAQ/SAQ

Sr. No.	The student will be able to in the following topics:	Domain	Level	T/L	Assessment
	k. Explain Indications and Contraindications	K	KH	IL	LAQ/SAQ
	l. Enumerate Dangers and Precautions	K	KH	IL	LAQ/SAQ
6	**SUPERFICIAL THERMAL AGENTS**				
	i. Home remedies ii. Paraffin wax bath iii. Whirlpool iv. Contrast Bath v. Hydro-collator hot packs vi. Cryotherapy	K,S,A	K, KH,S	IL, Pract demo	Practical
	a. Describe using appropriate diagrams the principles underlying superficial thermal agents	K	KH,S	Lectures, Group Discussions	SAQ, LAQ
	b. Define the thermal terminologies (including specific heat, latent heat, etc.)	K	K	Lectures, Group Discussions	SAQ, LAQ
	c. Describe various normal physiological effects of these modalities	K	K	Lectures, Group Discussions Seminar	SAQ, LAQ
	d. Enlist uses, merits and demerits pertaining to these modalities	K	K	Lectures, Group Discussions	SAQ, LAQ
	e. Describe various safety precautions to be taken before the usage of the aforementioned modalities	K	KH, SH	Lectures, Group Discussions	SAQ
	f. Demonstrate a practical approach to fix the modality on a model	A, , K,S	D, SH	DOAP	Practical
	f. Demonstrate an ability to prescribe a home remedies	K, S	SH	DOAP	Practical

Sr. No.	Topic	Domain	Level	T/L	Assessment
7	**ACTINOTHERAPY**				
i)	UVR				
	a. Define UVR	K	K	IL	SAQ/LAQ
	b. Classify UVR	K	K	IL	SAQ/LAQ
	c. Describe the Process of production of UVR	K	K	IL	SAQ/LAQ
	d. Describe different types of UVR lamps	K	K	IL	SAQ/LAQ
	e. Demonstrate testing of the UVR machine	K,S	KH,S	IL, Practical	SAQ/LAQ Practical
ii)	**IR**				
	1. Define IR	K	K	IL	SAQ/LAQ
	2. Classify IR and types of lamps	K	K	IL	SAQ/LAQ
	3. Describe the production of IR	K	K	IL	SAQ/LAQ
	4. Test the IR Machine	K/S	K/KH/SH	DOAP Practical	Practical
iii)	**LASER**				
	1.Describe physical principles	K	KH	IL	SAQ/LAQ
	2.Explain properties	K	KH	IL	SAQ/LAQ
	3.Explain types	K	K	IL	SAQ
	4.Test the LASER Machine	K/S	K/KH/SH	DOAP Practicals	Practicals
8	**BIOFEEDBACK**				
	a. Define Biofeedback	K	K	IL	SAQ
	b. Describe principles of biofeedback	K	K	IL	SAQ
	c. enumerate electrotherapeutic modalities as biofeedback	K	K	IL	SAQ
	d. Explain mechanism of Biofeedback	K	KH	IL	SAQ, LAQ

Sr. No.	Topics	Domain	Level	T/L	Assessment
	e. Explain the biofeedback equipment	K	KH	IL	SAQ, LAQ
	f. Enlist the different Therapeutic effects	K	KH	Lectures, SGD	Written, Practical, Viva Voce
	g. Demonstrate methods of application	K,S, A,	KH, SH	DOAP	Written, Practical, Viva Voce

PRACTICAL

Practical demonstrations of:

Sr. No.	Topic
1.	The techniques of testing the following ALONG WITH PANEL DIAGRAM
	i. Low Frequency currents-Diagnostic Muscle stimulator, Transcutaneous Nerve Stimulation
	ii. Medium Frequency currents-I.F.T.
	iii. High Frequency currents-Short Wave Diathermy, Ultrasound
	iv. Actinotherapy: I.R. (no panel diagram), U.V.R. (no panel diagram), LASER. (no panel diagram)
2.	The skill of application of THERMAL AGENTS (on models) :
	i. Hot packs
	ii. P.W.B.
	iii. Contrast bath
	iv. Cryotherapy

PHYSIOTHERAPY PAPER II (KINESIOTHERAPY)

(Didactic – 90 Hrs, Practical / Laboratory –140Hrs) **TOTAL 230 HRS**

COURSE DESCRIPTION

This course covers the classification of movements along their distinguishing characteristics and skill of measurement of ranges of joint movements in various planes and axes. This course additionally covers therapeutic principles and skills of application of massage, yoga, aerobic exercise and use of therapeutic gymnasium inclusive of suspension therapy. It also enhances the skill of evaluation of vital parameters & sensory system.

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

i) Understand the setting up of a therapeutic gymnasium and the uses and applications of various equipments therein.
ii) Understand the principles and basis of classification of movements, their effects and uses, and application to therapeutic techniques.
iii) Enumerate the factors facilitating and limiting joint mobility, and the principles of various joint mobility exercises using different types of movements, along with the indications and contraindications for these exercises.
iv) Gain knowledge of the principles underlying the use of Goniometry for measuring the Range of Motion.
v) Be able to interpret the findings of assessment of the basic vital parameters.
vi) Know the physiological pathways underlying the various sensations, tone and reflexes.
vii) Understand the principles of massage, its indications, contra-indications, physiological and therapeutic effects.
viii) Understand the underlying principles of different types of relaxation techniques.
ix) Enumerate the basic physiological principles of aerobic conditioning and general fitness exercises.
x) Understand the basic principles of Yoga, its indications, precautions and physiological effects.
xi) Describe & also acquire the skills of use of various equipments of the Therapeutic Gymnasium
xii) Demonstrate the movements in terms of various anatomical planes and axes.
xiii) Demonstrate passive and active movements.
xiv) Demonstrate the skill of objective assessment of Range of Motion of the joints by Goniometry following all principles.
xv) Demonstrate the skills of assessment for basic evaluation of sensations, reflexes, tone & vital parameters
xvi) Demonstrate the skills of application of therapeutic massage while following the physiological and biomechanical principles.

xvii) Demonstrate the skills of application of relaxation methods while following the physiological principles of relaxation.

xviii) Demonstrate fitness skills on self & group while following physiological responses and principles of aerobic exercises for general fitness.

xix) Demonstrate the basic skill of performing Pranayama & Yogasanas with all basic principles, indications and precautions in place.

xx) Demonstrate empathetic behavior towards peers, teachers and models / subjects during interaction and demonstration of therapeutic techniques.

Sr.No.	Topics	Didactic Hours	Practical/ Laboratory Hours	Total Hours	Subject integration
1	**THERAPEUTIC GYMNASIUM**	25	15	**40**	**Anatomy, Physiology, Kinesiology 1**
2	**CLASSIFICATION OF MOVEMENTS**	10	25	**35**	
3	**JOINT MOBILITY**	10	15	**25**	
4	**GONIOMETRY**	10	35	**45**	
5	**BASIC EVALUATION OF VITAL PARAMETERS**	07	07	**14**	
6	**ASSESSMENT OF SENSATIONS, REFLEXES AND TONE**	05	05	**10**	
7	**THERAPEUTIC SOFT TISSUE MANOUVERS**	08	08	**16**	
8	**RELAXATION**	05	05	**10**	
9	**AEROBIC CONDITIONING AND BASIC PRINCIPLES OF GENERAL FITNESS**	05	05	**10**	
10	**INTRODUCTION TO YOGA**	05	20	**25**	
TOTAL		**90**	**140**	**230**	

Sr. No.	The student will be able to in the following topics	Domain	Level	T/L	Assessment
	THERAPEUTIC GYMNASIUM				
	i. Discuss and describe the Specifications for a therapeutic gymnasium set up	K,S	KH,SH	Demo IL	LAQ SAQ Practicals
	ii. Differentiate between types of equipments – Movable and Non-movable	K,S	KH,SH	Demo SGD	SAQ
	iii. Identify equipments like finger ladder, therapeutic balls, Weights, Resistance bands, tubes, & wands and understand their application in therapeutics	K,S	K,S	Demo	SAQ
	iv. Describe the uses of accessories such as Pulleys, Springs, Shoulder wheel, Walking aids, Suspension therapy equipment in therapeutics	K	KH,S	IL Demo	SAQ
	v. Discuss Principles of Suspension Therapy along with types of Suspensions and effects and uses of Suspension Therapy	K	KH	IL Demo Practicals	SAQ LAQ
	vi. Identify parts of Suspension Apparatus and understand applied mechanics of all above accessories	K,S	K,S	IL Demo Practicals	SAQ LAQ
	vii. Demonstrate the techniques for individual joints using different types of Suspension	S	KH,SH	Demo Practicals	Practicals SAQ LAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
	CLASSIFICATION OF MOVEMENTS				
	i. Define different types of physiological movements	K	K	I Lecture	SAQ LAQ
	ii. Describe classification as active, active-assisted, free active, assisted-resisted, resisted & passive	K	KH	ILDem o	SAQ LAQ
	iii. Apply the Principles of movements to therapeutic Techniques	K	KH S	IL Practicals	Practicals SAQ LAQ
	iv. Analyze and apply different types of movements	K	KH S	I L	SAQ LAQ Practicals
	JOINT MOBILITY				
	i. Define terminologies associated with joint mobility	K	K	IL	SAQ LAQ
	ii. Identify and describe the causes oflimitation of joint mobility	K,S	KH,S	I L	SAQ LAQ
	iii. Describe the Indications and contraindications	K	KH	IL	SAQ LAQ
	iv. Discuss Principles of techniques used for improving joint mobility	K	KH	IL	SAQ LAQ
	d. Demonstrate the techniques of individual joints mobility Exercises for joints of Upper Limb, Lower Limb & Spine, using active, assisted, passive movements	S	KH S SH	Practicals IL	Practicals SAQ LAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
	GONIOMETRY				
	i. Define Goniometry	K	K	Lecture	SAQ LAQ
	ii. Describe different types of Goniometers	K	K	Lecture	SAQ LAQ
	iii. Describe Principles underlying the use of Goniometry	K	KH	Lecture	SAQ LAQ
	iv. Demonstrate the techniques for individual joint movements	S	KH S SH	Practicals Lecture	SAQ LAQ
	v. Describe Uses of Goniometry	K	KH	Lecture	SAQ LAQ
	BASIC EVALUATION OF VITAL PARAMETERS				
	1. Demonstrate the assessment of following Vital parameters i. Temperature ii. Blood Pressure (Palpatory & Auscultatory methods) iii. Heart Rate / Pulse rate iv. Respiratory Rate v. Chest expansion vi. Chest excursion	S	KH S SH	Demo	Practicals
	2. Interpret and explain the findings of assessment of the above mentioned parameters	K,S	KH,S	Practicals	Viva

Sr. No.	Topic	Domain	Level	T/L	Assessment
	ASSESSMENT OF SENSATIONS, REFLEXES AND TONE				
	i. Demonstrate the assessment of different types of sensations, tone and reflexes	S	KH S SH	Practicals	Practicals
	ii. Explain the physiology of different types of sensations, tone and reflexes	K	KH	Practicals	Viva
	THERAPEUTIC SOFT TISSUE MANOUVERS				
	i. Define Therapeutic Soft Tissue Manouvers	K	K	Lecture	LAQ SAQ
	ii. Describe Classification of various soft tissue manouvers	K	K	Lecture	LAQ SAQ
	iii. Discuss n the Principles of therapeutic soft tissue manouvers	K	K KH	Lecture	LAQ SAQ
	iv. Ennumerate the indications and contraindications for therapeutic soft tissue manouvers	K	K KH	Lecture	LAQ SAQ
	v. Discuss the effects & uses of therapeutic soft tissue manouvers	K	K KH	Lecture	LAQ SAQ
	vi. Demonstrate the basic Therapeutic soft tissue manouvers	S	K KH S SH	Practicals	Practicals

Sr. No.	Topic	Domain	Level	T/L	Assessment
	RELAXATION				
	i. Discuss the Principles behind the techniques of Relaxation	K	K KH	Lecture	LAQ SAQ
	ii. Demonstrate the techniques General-Jacobson's, Shavasana Reciprocal (Laura Mitchell) Local - Heat, Massage, Gentle/Rhythmic passive movements	S	K KH S SH	Practical Demo	Practical Demo
	iii. Describe and compare the effects and uses of different techniques	K	KH	IL	SAQ
	AEROBIC CONDITIONING AND BASIC PRINCIPLES OF GENERAL FITNESS				
	(as applied to self and group) i. D i s c u s s the physiology of aerobic and anaerobic exercise.	K	K	SDLPractic als	Practicals
	ii. Define the components of fitness session (definition of term sonly)	K	K	Practicals	Practicals
	iii. Demonstrate Warmup and Cool down exercises	S	SH	Practicals	Practicals
	iv. Discuss Group & Recreational activities	K	KH	Demo	Practicals
	INTRODUCTION TO YOGA				
	i. Define Yoga	K	K	Lecture	SAQ
	ii. Discuss Principles and philosophy of Yoga	K	KH	Lecture	SAQ
	iii. Discuss the physiological effects of Asanas and Pranayamas	K	KH	Lecture	SAQ
	iv. Describe thebenefits, contra -indications & cautions for each Asana	K	KH	Lecture	SAQ LAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
	v. Demonstrate the technique of following Yogasanas 1) Surya Namaskar 2) Meditative postures i) Siddhasana ii) Padmasana 3) Asanas in Standing a) Tadasana b) Ardha Chakrasana c) Utkatasana d) Pada Hastasana e) Trikonasana f) Vrikshasana 4) Asanas in Sitting (a) Vajrasana (b) Parvatasana (c) Janushirasana (d) Gomukhasana (e) Ushtrasana (f) Ardha Matsyendrasana (g) Kurmasana (h) Shashankasana (i) Mandukasana 5) Asanas in Supine a) Ardha halasana b) Sarvangasana c) Pavan Muktasana d) Matsyasana e) Halasana f) Chakrasana g) Setu Bandhasana h) Shavasana 6) Asanas in Prone a) Makarasana b) Bhujangasana c) Salabhasana d) Dhanurasana e) Naukasana f) Marjarasana Analyze the kinetics and kinemtics of various yoga postures	S	KH SH	IL Practical Demo	Practical

PRACTICAL: Practical demonstrations of:

Sr.No.	Topics
1	The techniques of active, passive, assisted and resisted movements
2	The techniques of various accessories and equipments used in therapeutic gymnasium, its biomechanical principles and uses.
3	The techniques of use of suspension method for assisted and resisted movements of different joints.
4	Relaxation procedures
5	Therapeutic soft tissue manouvers (techniques)
6	Yogasanas in various positions
7	Aerobic exercise for self and others
8	Assessment of vita lparameters in different body positions (supine, sitting and standing)
9	Assessment of and sensory system, tone and reflexes.
10	Measurement of joint R.O.M. using goniometry.

9. II B. P. T SYLLABUS

Transcript Hours- 1482

Sr No.	Subject	Theory Hours	Practical /Clinical Hours	Total Hours	Subject integration
1	COMPEL II			20	
	MEDICAL SCIENCES				
1	Pathology	50	-	50	**Horizontal Integration** Anatomy Physiology Vertical Integration : Medicine, Surgery and allied clinical
2	Microbiology (College exam)	31	4	35	
3	Pharmacology	50	-	50	
4	Psychiatry (Including Psychology) college exam	30	20	50	
	PHYSIOTHERAPY				
1	Kinesiology & Movement science Paper II	95	35	130	Anatomy Physiology Kinesiology- I Kinesiotherapy -I
2	Physical Therapy Paper III (Kinesiotherapy-II)	95	135	230	
3	Physical Therapy Paper IV (Electrotherapy-II)	80	150	230	

4	Seminar (including introduction to **terms** of I.C.F. definition of terms Activity Limitation and Participation Restriction (***not for examination***) and in core physiotherapy Electrotherapy- Kinesiotherapy Kinesiology ICF –		20 40 30	90	

Sr. No.	Topic	Domain	Level	T/L	Assessment
5	Supervised clinical practice (To practice clinical skills under the supervision at the O.P.D./ I.P.D. setup) Clinical assignments should include Observation, Clinical History taking& technical assistance to the clinicians · Therapeutic Gymnasium · Kinesiotherapy& · Electro Therapy To maintain a Register / Log book- in which the prescribed Case Histories & written assignments are documented & to obtain the signature from the respective section In-charge at the end of the assignment.		597	597	
	TOTAL HOURS	**451**	**1031**	**1482**	

PATHOLOGY

[DIDACTIC–50HRS]

COURSE DESCRIPTION:

Students will develop an understanding of pathology underlying clinical disease states involving the major organ systems and epidemiological issues. Students will learn to recognize pathology signs and symptoms considered red flags for serious disease. Students will use problem-solving skills and information about pathology to decide when referrals to another health care provider or alternative interventions are indicated. Students will develop the ability to disseminate pertinent information and findings, and ascertain the appropriate steps to follow.

The student will be able to:

a) Acquire knowledge of concepts of cell injury & changes produced by different tissues, organs and capacity of the body in healing process.
b) Acquire the knowledge of general concepts of neoplasia with reference to the Aetiology gross & microscopic features, & diagnosis in different tissues, & organs of the body.
c) Acquire knowledge of common immunological disorders & their resultant effects on the human body.
d) Recall the Aetiology – pathogenesis, the pathological effects & the clinico–pathological correlation of common infections & non-infectious diseases.
e) Understand in brief, about the common Haematological disorders & investigations necessary to diagnose them.
f) Correlate normal & altered morphology of different organ systems in different diseases needed for understanding disease process & their clinical significance

Sr. No.	Topics	Didactic Hours	Subject Integration
1	**GENERAL PATHOLOGY**	04	Integrated with Anatomy and Physiology and clinical sciences
2	**INFLAMMATION & REPAIR**	06	
3	**IMMUNO–PATHOLOGY**	04	
4	**CIRCULATORY DISTURBANCES**	04	
5	**PATHOLOGIC CHANGES IN VITAMIN DEFICIENCIES**	01	
6	**GROWTH DISTURBANCES**	04	
7	**MEDICAL GENETICS**	01	
8	**SPECIFIC PATHOLOGY**	10	
9	**MUSCULAR DISORDERS**	03	
10	**NEURO-MUSCULAR JUNCTION**	01	
11	**BONE & JOINTS**	05	
12	**G.I. SYSTEM**	01	
13	**ENDOCRINE**	02	
14	**HEPATIC DISEASES**	01	
15	**CLINICAL PATHOLOGY**	03	
TOTAL		**50**	

Sr. No.	The student will able to in	Domain	Level	T/L	Assessment
1	**GENERAL PATHOLOGY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Discuss Cell Injury-Causes, Mechanism & Toxic injuries with special reference to Physical including ionizing radiation, Chemical & Biological b. Describe Reversible injury (degeneration)- types-morphology-cloudy swelling, hyaline, fatty changes c. Discuss Intra-cellular Accumulation- Mucin, Protein d. Discuss Irreversible cell injury-types of necrosis-Apoptosis Calcification – Dystrophic & Metastasis e. Discuss Extra-cellular accumulation - Amyloidosis				
2	**INFLAMMATION & REPAIR**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. DiscussAcute inflammation – features, causes, vascular & cellular events b. Describe Morphologic variations - Ulcers c. Discuss Inflammatory cells & Mediators d. Discuss Chronic inflammation: Causes, Types, Non-specific & Granulomatous – with examples e. Describe Wound healing by primary & secondary union, factors promoting & delaying healingprocess f. Discuss Healing at various sites - bone,nerve & muscle				

	g. Discuss Regeneration & Repair				

Sr. No.	Topic	Domain	Level	T/L	Assessment
3	**IMMUNO–PATHOLOGY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Describe Immunes system: organization-cells-antibodies-regulation of immune responses b. Discuss Hyper-sensitivity (types andexamples including graft rejection) c. Discuss Secondary Immuno-deficiency including H.I.V. d. Discuss Basic concepts of autoimmune disease (emphasis on S.L.E. & R.A.)				
4	**CIRCULATORY DISTURBANCES**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Describe Oedema-pathogenesis- types-transudates/exudates b. Discuss Chronic venous congestion-lung, liver c. DiscussThrombosis–formation–fate–effects d. DiscussEmbolism–types-clinicaleffects e. Discuss Infarction–types–commonsites f. Discuss Gangrene–types–etiopathogenesis g. Discuss Shock–Pathogenesis, types				
5	**PATHOLOGIC CHANGES IN VITAMIN DEFICIENCIES**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**

Sr. No.	Topic	Domain	Level	T/L	Assessment
6	**GROWTH DISTURBANCES**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Discuss Atrophy, Hypertrophy, Hypoplasia, Metaplasia, Agenesis, Dysplasia b. Discuss Neoplasia classification, Histogenesis, Biologic behaviours, difference between Benign & Malignant tumour c. Discuss Malignant neoplasms- grades- stages- local & distal spread d. Discuss Carcinogenesis: Physical, Chemical, Occupational, Heredity, Viral, Nutritional e. Discuss Precancerous lesions &Carcinoma in situ f. Describe and DiscussTumour & host interactions– local and systemic effects- metastatic (special referenceto bones and C.N.S.)				
7	**MEDICAL GENETICS (in brief):** Classify with examples ofGenetic disorders	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
8	**SPECIFIC PATHOLOGY: The student will be able to discuss and describe specific pathology related to**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**

	a. C.V.S. i. Atherosclerosis-ischemic heart diseases– Myocardial Infarction– Pathogenesis/Pathology ii. Hypertension iii. C.C.F. iv. Rheumatic Heart Diseases v. Peripheral Vascular Diseases				

Sr. No.	Topic	Domain	Level	T/L	Assessment
	b. Respiratory i. C.O.P.D. ii. Pneumonia (lobar, bronchial, viral), Lung Abscess iii. T.B: Primary, Secondary– morphologic types iv. Pleuritis & its complications v. Lung collapse – Atelectasis vi. Occupational Lung diseases (With special emphasis on Silicosis, Asbestosis, Anthracosis) vii. A.R.D.S. **c. Neuropathology:** i. Reaction of nervous tissue to injury, infection & ischemia ii. Meningitis: Pyogenic, T.B.M., Viral iii. Cerebro-vascular diseases – Atherosclerosis – Thrombosis, Embolism, Aneurysm, Hypoxia, Infarction & Haemorrhage, Hydrocephalous, Increased Intracranial Pressure iv. Leprosy v. Parkinsonism				
9	**MUSCULAR DISORDERS** a. Classify of Muscular disorders with emphasis on Muscular Dystrophies	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**

Sr. No.	Topic	Domain	Level	T/L	Assessment
10	**NEURO- MUSCULAR JUNCTION**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Discuss and describe pathogenesis of Myasthenia gravis b. Discuss aetiology and features of Myasthenic syndrome				
11	**BONE&JOINTS: Discuss and describe pathogenesis and changes related to**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Osteomyelitis–Rickets – Osteomalacia– Osteoporosis b. Arthritis-degenerative (Osteoarthritis, Calcaneal spur, Periarthritis, Spondylosis) -inflammatory (R.A., Ankylosing Spondylitis, Gout) c. Miscellaneous-P.I.D., Haemarthosis d. Infective-T.B.				
12	**G.I. SYSTEM**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Discuss and describe pathogensesi related to Gastric / Duodenal ulcer, Enteric fever, T.B., Enteritis, Gastritis (related to consumption of NSAID)				
13	**ENDOCRINE: Describe and discuss pathogenesis and manifestations of:**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Hypo and Hyperthyroidism b. Diabetes				
14	**HEPATICDISEASES: Discuss and describe pathogensesis and manifestation of** a. Cirrhosis–emphasis to systemic effects of portal hypertension				
15	**CLINICAL PATHOLOGY: Dicuss and describe Pathogenesis**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**

	associated with:				
	a. Anaemia–(deficiency)– T.C./D.C./Eosinophilia Anaemia b. Muscle/ Skin / Nerve biopsy c. microscopic appearance of muscle necrosis – fatty infiltration				

MICROBIOLOGY (College Exam)

(Didactic-31hrs+Demonstration-4hrs) **TOTAL: 35HRS**

COURSE DESCRIPTION:

Students will develop an understanding of pathology underlying clinical disease states and involving the major organ systems and epidemiological issues. Epidemiological issues will be presented and discussed. Students will learn to recognize pathology signs and Symptoms considered red flags for serious disease. Students will use problem-solving skills and information about pathology to decide when referral to another health care provider or alternative intervention is indicated. Students will develop the ability to disseminate pertinent information and findings, and ascertain the appropriate steps to follow.

Sr. No.	Topics	Didactic Hours	Demonstration Hours	Total Hours
1	**GENERAL MICROBIOLOGY**	4	1	**5**
2	**LABORATORY DIAGNOSIS OF INFECTION**	2	1	**3**
3	**IMMUNOLOGY**	5		**5**
4	**SYSTEMIC BACTERIOLOGY**	7		**7**
5	**MYCOLOGY**	2	1	**3**
6	**VIROLOGY**	5		**5**
7	**PARASITOLOGY**	3	1	**4**
8	**APPLIED MICROBIOLOGY**	3		**3**
	TOTAL	**31**	**4**	**35**

At the end of the course, the candidate will

1. Have sound knowledge of prevalent communicable diseases and the agents responsible for causing clinical infections, pertaining to C.N.S, C.V.S, Musculoskeletal system, Respiratory system, Genito urinary system, wound infections and of newer emerging pathogens.
2. Know the importance and practices of best methods to prevent the development of infections in self and patients (universal safety precautions)

SYLLABUS

Sr. No.	The student will be able to:	Domain	Level	T/L	Assessment
1	**GENERAL MICROBIOLOGY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Classify Micro- organisms and describe Bacterial Anatomy (cell wall, capsule, spore, flagella and types asper their shape and arrangement) b. Discuss Sterilization c. Discuss Disinfection				
2	**Discuss LABORATORY DIAGNOSIS OF INFECTION**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
3	**IMMUNOLOGY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Discuss Innate immunity & acquired immunity b. DiscussStructure and function of immune system and Immune response–normal/ abnormal c. Define Antigen, Antibody and Antigen-anti body reaction & application for diagnosis d. DiscussHyper–sensitivity e. DiscussAuto-immunity				

Sr. No.	Topic	Domain	Level	T/L	Assessment
4	**SYSTEMIC BACTERIOLOGY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Discuss Infection caused by grampositive cocci Staphylococcus, Streptococcus and Pneumococcus b. Discuss Infection caused by gram negative cocci Gonococci andMeningococci c. Discuss infection caused by Clostridium d. Discuss infection caused by Enterobacteriaceae (E. coli, Klebsiella) and Pseudomonas e. Discuss infection by Salmonella and Vibrio f. Discuss infection by Mycobacterial infection: i. Tuberculosis-Leprosy ii. Atypical Mycobacterium iii Syphilis and Leptospirosis-Morphology & pathogenesis				
5	**MYCOLOGY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Discuss Superficialmycosis b. Discuss Mycetoma and opportunisticfungal infection c. Discuss Mycology and Virologydemonstration				
6	**VIROLOGY: Discuss various viruses and its manifestations**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Introduction & general properties, b. DNA virus c. Measles, Mumps, Rubella, polio and congenital viral infections d. Hepatitis and Rabies e. H.I.V.				

Sr. No.	Topic	Domain	Level	T/L	Assessment
7	**PARASITOLOGY: Discuss various parasitic infection and its manifestation**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Introduction-Entamoeba histolytica b. Malaria, Filaria c. Toxoplasma–Cysticercosis & Echinococcus				
8	**APPLIED MICROBIOLOGY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Describe Hospital acquired infections, Universal safety precautions and Waste disposal b. Discuss Diseases involving Bones,Joints-Nerves-Muscles-Skin- Brain-Cardio pulmonarysystem, Burn and wound infections				

PHARMACOLOGY

[DIDACTIC– 50 hrs]

COURSE DESCRIPTION:

This course covers the basic knowledge of Pharmacology including administration, physiologic response and adverse effects of drugs under normal and pathologic conditions. Topics focus on the influence of drugs in rehabilitation patient/client management. Drugs used in iontophoresis and phonophoresis will be discussed in detail.

candidate will be able to:

a. Describe Pharmacological effects of commonly used drugs by patients referred for Physiotherapy; list their adverse reactions, precautions, contraindications, formulation & route of administration.
b. Identify whether the pharmacological effect of the drug interferes with the Therapeutic response of Physiotherapy & vice versa
c. Indicate the use of analgesics & anti-inflammatory agents with movement disorders with consideration of cost, efficiency, & safety for individual needs.
d. Know the other essential & commonly used drugs by patients- The bases for their use & common as well as serious adverse reactions.

Sr. No.	Topics	Didactic Hours	Subject integration
1	GENERAL PHARMACOLOGY	04	Anatomy, Physiology Pathology & Clinical sciences and physiotherapy core subjects
2	DRUGS ACTING ON C.N. S	11	
3	DRUGS ACTING ON AUTONOMIC NERVOUS SYSTEM	07	
4	DRUGS ACTING ON C.V.S.	07	
5	DRUGS ACTING ON RESPIRATORYSYSTEM	03	
6	CHEMOTHERAPY	03	
7	OTHER CHEMO THERAPEUTIC DRUGS	03	
8	ENDOCRINE	08	
9	DRUGS IN G.I. TRACT	02	
10	HEAMATINICS	01	
11	DERMATOLOGICAL DRUGS	01	
TOTAL		**50**	

Syllabus:

Sr. No.	The student will be able to in	Domain	Level	T/L	Assessment
1	**GENERAL PHARMACOLOGY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	i. Discuss Pharmacokinetics ii. Discuss Routes of administration iii. Discuss Adverse drug reaction andreporting iv. Discuss Factors modifying drug effect				
2	**Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CNS**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	i. Alcohols + Sedatives & Hypnotics ii. Anti-convulsant iii. Drug therapy in Parkinsonism iv. Analgesics & antipyretics – especially Gout & R.A. v. Psycho Therapeutics Local anaesthetics, counterirritants				
3	**: Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on ANS**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	i. Adrenergic ii. Cholinergic iii. Skeletal muscle relaxants				
4	**Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on CVS**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**

	i. Anti-hypertensives ii. Antianginal-Anti platelets, Myocardial Infarction iii. C.C.F. iv. Shock v. Coagulants and Anticoagulants				
5	**Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on respiratory system**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	i. Cough ii. Bronchial asthma iii. C.O.P.D.				

Sr. No.	Topic	Domain	Level	T/L	Assessment
6	**CHEMOTHERAPY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	i. Discuss General principles i. Describe the mechanism/s of action, types, doses, side effects, ii. indications and contraindications of Anti-Tuberculosis iii. Anti–Leprosy				
7	**Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of other chemo therapeutic drugs:**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	i. Drugs used in Urinary Tract Infection ii. Tetra/chlora iii. Penicillin iv. Cephalosporin v. Aminoglycosides vi. Macrolides				
8	**Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act on endocrine:**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	i. Insulin and oral Anti diabetic drugs ii. Steroids-Anabolic steroids iii. Drugs for osteoporosis, Vitamin D, Calcium, Phosphorus iv. Thyroid & Anti thyroid v. Oestrogen +Progesterone				
9	**Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of the drugs which act IN G.I. TRACT for**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**

	i. Peptic ulcer ii. Diarrhoea, Constipation & Anti emetics				
10	**Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of HEAMATINICS** i. Vitamin B, Iron	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
11	**Describe the mechanism/s of action, types, doses, side effects, indications and contraindications of DERMATOLOGICAL DRUGS** i. Scabies, Psoriasis, Local anti-fungal	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**

PSYCHIATRY (INCLUDING PSYCHOLOGY)
College Exam
[Didactic 30 hrs + Clinical 20 hrs**]-TOTAL 50 HRS**

COURSEDESCRIPTION:

The course design increases awareness of psychosocial issues faced by individuals. Their significance at various points on the continuum of health and disability should be emphasised. The course discusses personal and professional attitudes and values as they relate to developing therapeutic relationships. It emphasizes on communication skills for effective interaction with patients, health-care professionals and others. It expects students to identify common psychiatric conditions.

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours	Subject integration
1	**PSYCHOLOGY**	10	--	**10**	Anatomy Physiology Pathology
2	**PSYCHIATRY**	20	20	**40**	
	TOTAL	30	20	**50**	

OBJECTIVES:

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

a. Define the term Psychology & its importance in the health delivery system, & will gain knowledge of psychological maturation during human development & growth & alterations during aging process.
b. Understand the importance of psychological status of the person in health & disease; environmental & emotional influence on the mind & personality.
c. Have the knowledge and skills required for good interpersonal communication.
d. Enumerate various Psychiatric disorders with special emphasis to movement / Pain &ADLs
e. Acquire the knowledge in brief, about the pathological & etiological factors, signs/symptoms & management of various Psychiatric conditions.
f. Understand **the patient more empathetically.**

SYLLABUS

Sr. No.	Topic The student will be able to in	Domain	Level	T/L	Assessment
1.	**PSYCHOLOGY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Define and understand its fields and subfields				
	b. Discuss, Describe and understand Developmental psychology (childhood adolescence, adulthood and old-age) and its theories in brief				
	c. Acquire knowledge of Theories of learning, Role of learning in human life				
	d. Discuss concept of Memory, its types and enumerate causes of loss of memory				
	e. Discuss concept of Attention & perceptionNature of attention [in brief] Nature of perception, Principles of grouping]				
	f. Discuss Motivation and theories: conflict and frustration–Types of Common Defence mechanisms, Stress–common reactions to frustrations				
2	**PSYCHIATRY**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Elicit Psychiatry History & Mental Status Examination				
	b. Classify Mental disorders				
	c. Discuss Schizophrenia & its types				
	d. Discuss Other psychotic disorders (Psychotic disorder, Delusional disorder, Schizo-				

	affective disorders, Postpartum psychosis				
	e. Define and discuss Mood disorder				
	f. Discuss organic brain disorders (delirium, dementia, Amnestic syndromes, Organic personality disorder,)				
	g. Discuss Anxiety disorders Phobia, Obsessive Compulsive Disorder, Post Traumatic Disorders and Conversion disorder				
	h. Discuss Somatoform disorder, (Hypochondriasis, Dissociative disorder, Conversion disorder, & Pain disorder)				
	i. Somatization disorder				
	j. Personality disorder				
	k. Substance related disorder(alcohol)				
	l. Discuss Disorders of infancy–childhood &adolescence i. Attention Deficit Hyperactivity Disorder, ii. Mental Retardation iii. Conduct disorder, iv. Pervasive developmental disorder v. Enuresis vi. Speech disorder				
	m. Discuss Geriatric Psychiatry				
	n. Discuss Eating disorder				
	o. Discuss Management: ECT, Pharmacotherapy, Group therapy, Psychotherapy, Understand the principles of Cognitive Behavioural Therapy and Rational Emotive Therapy.				

CLINICAL
HOURS: 20 hrs

A. Able to practice Mindfulness

B. History, Mental Status Examination & evaluation of:

1. Schizophrenia
2. Anxiety disorder
3. Personality Disorder
4. Somatoform disorder
5. Childhood Disorder (ADHD, MR)
6. Organic Brain Disorder(dementia)

C. Seminar/Workshop on Communication Skills

KINESIOLOGY AND MOVEMENT SCIENCE PAPER II

(Didactic 95 hours; Practical / Laboratory 35 hours=Total 130 hours)

Course Description:

This course covers the application of various terms used in mechanics, biomechanics kinesiology as well as its importance in physical therapy.
It covers the application of knowledge of types of human motions as well as planes and relative axes of motion and the inter-relationship among kinematic variables and utilizes this knowledge to describe and analyse motion not limited to joints but also to the understanding of their assimilated function related to Gait, Posture and Activities of Daily Living.

The student will be able to:

1. Understand the different ways in which movement of joints is studied in terms of Kinematics and Kinetics
2. Understand the normal movement of joints and their assimilation into functional patterns of Posture and Gait.
3. Understand functional activities of daily living from a biomechanical perspective
4. Demonstrate the assessment of posture (on models)
5. Demonstrate the assessment of Gait (on models)
6. Describe and Analyse functional activities of daily living from a biomechanical perspective
7. Analyse, interpret, synthesise, and evaluate information obtained from the concepts of basic and regional kinesiology.

Sr. No.	Topic	Didactic	Practical Lab	Total	Subject Integration
1	Regional Kinesiology	60	-	60	Anatomy & Kinesiology I, Kinesiotherapy I
2	Kinesiology of Posture	12	12	24	
3	Kinesiology of Gait	12	12	24	
4	Kinesiology of Activities of Daily Living	11	11	22	
	TOTAL	**95**	**35**	**130**	

Sr. No.	The student will be able to in	Domain	Level	T/L	Assessment
1	Regional Kinesiology				
a	**Elbow Complex** i.) Recall the anatomy of the elbow ii) Recall the concepts of basic Joint biomechanics iii) Apply the above to the understanding of the Kinematics and Kinetics of the elbow	K	SDL K K KH	Seminar Interactive Lectures	SAQs LAQs
b	**Wrist and Hand Complex** i) Recall the anatomy of the Wrist and Hand ii) Recall the concepts of basic Joint biomechanics iii) Apply the above to the understanding of the Kinematics and Kinetics of the Wrist and Hand iv) Emphasise on the applicationof the above in prehensile function	K	K K KH	Seminar Interactive Lectures	SAQs LAQs
c.	**Knee Complex** i.) Recall the anatomy of the Tibio femoral and patella femoral joints ii) Recall the concepts of basic Joint biomechanics iii) Apply the above to the understanding of the Kinematics and Kinetics of the Knee	K	K K KH	Seminar Interactive Lectures	SAQs LAQs

Sr. No.	Topic	Domain	Level	T/L	Assessment
d.	**Ankle and Foot Complex** i) Recall the anatomy of the Ankle and foot ii) Recall the concepts of basic Joint biomechanics iii) Apply the above to the understanding of the Kinematics and Kinetics of the Ankle and foot iv) Emphasise on the application of the above in functional application of Arches of foot.	K	K K KH	Seminar Interactive lectures	SAQs LAQs
e.	**Vertebral Column** i) Recall the anatomy of the Cervical, Thoracic, Lumbar and Sacral spine with emphasis on Intervertebral disc, Spinal ligaments ii) Apply the above to the understanding of the Kinematics and Kinetics of the Vertebral column including Rib Cage, Sacroiliac joint and Pubic Symphysis	K	K KH	Seminar Interactive Lecture	SAQs LAQs
f.	Temporo-mandibular Joint i. Recall anatomy of Skull and Mandible ii. Discuss the Kinematicsand Kinetics of the TM joint	K	K KH	Seminar Interactive lectures	SAQs LAQs

Sr. No.	Topic	Domain	Level	T/L	Assessment
2.	**Kinesiology of Posture**				
	i. Define Posture ii. Discuss Development of Human posture iii. iii. Describe Changes from quadruped to biped iv. Discuss Factors affecting posture; Postural patterns and Postural Mechanism v. Discuss Ideal postural alignment in all 3 planes vi. Discuss Physiological deviations vii. DiscussAnalysis of all views	K, S	K K KH KH	Seminar Interactive lectures Demonstration	SAQs LAQs Practical
3.	**Kinesiology of Gait**				
	Describe Gait with respect to i. Characteristics of Human locomotion ii. Gait cycle: Phases: Traditional & RLA iii. Kinematics and Kinetics iii. Variables iv. Determinants v. Subjective & Objective evaluation	K, S	K K KH	Seminar Interactive lectures Demonstration	SAQs LAQs Practical

Sr. No.	Topic	Domain	Level	T/L	Assessment
4.	**Kinesiology of Activities of Daily Living**				
	Apply the knowledge of joint kinematics and kinetics towards the understanding of ADL viz. i. Supine to Sitting, Sitting to Standing, ii. Squatting up and down, iii. Staircase Climbing up & down iv. Lifting, v. Pulling, Pushing, vi. Overhead activities, vii. Running, Jogging	K, S	K K KH	Seminar Interactive lecture Demonstration	

PHYSIOTHERAPY PAPER III (ELECTROTHERAPY-II)

Didactic:80 + Practical / Laboratory –150 hrs [**TOTAL –230 Hrs**]

COURSE DESCRIPTION:

This course tends to explore fundamental skills in application of electrotherapeutic modalities and knowledge of indications, contraindications and physiological principles needed for appropriate patient care. It includes topics such as Electrical stimulation, T.E.N.S., Iontophoresis, Ultrasound / Phonophoresis, Diathermy and Electro diagnostic testing etc.

the candidate will be able to:

1. Recall the knowledge about the physiology of pain, Pain pathways & Methods of pain modulation, selection of appropriate modality for Pain modulations.
2. Describe the Physiological effects, Therapeutic uses, indication & contraindications of various Low/ Medium & High Frequency modes / Actinotherapy
3. Describe the Physiological Effects & therapeutic uses of various therapeutic ions & topical pharmaco -therapeutic agents to be used for the application of Iontophoresis.
4. Acquire knowledge of advanced modalities like TECAR therapy & Shockwave Therapy and their physiological, therapeutic effects
5. Acquire the skills of application of the Electro therapy modalities on models, for the purpose of learning the skills.
6. Acquire an ability to select the appropriate mode as per the tissue specific & area specific application with reasoning.
7. Acquire skills of performing strength duration on models.

Sr. No.	Topic	Didactic	Practical	Total	Subject Integration
1	**LOW FREQUENCY CURRENTS**	29	70	**99**	Anatomy/ Physiology Electrotherapy- I
2	**MEDIUM FREQUENCY CURRENTS**	08	20	**028**	
3	**HIGH FREQUENCY CURRENTS**	12	15	**27**	
4	**ACTINOTHERAPY**	15	25	**40**	
5	**ELECTROTHERAPY: WOUNDCARE**	08	20	28	
6	**INTRODUCTION TO ADVANCE ELECTROTHERAPY**	08	-	**08**	
	TOTAL	80	**150**	**230**	

SYLLABUS

Sr. No.	Topic: The students will be able to in	Domain	Level	T/L	Assessment
1	**LOW FREQUENCY CURRENTS**				
i.	**Faradic currents**				
	a. Define and describe faradic type current				
	b. Explain Physiological & Therapeutic effects, Indications, Contraindications of i) faradic type ii) strong surged faradic and iii) sinusoidal currents				
	c. Identify motor points of muscles supplied by nerves of face, upper limb, lower limb and scapula	K/S/ A	KH/SH/ P	DOAP	Skill Assessment/ Practical
	d. Demonstrate technique and perform application of faradic type current for stimulation of nerves	K/S/ A/	KH/SH/ P	DOAP	Skill Assessment/ Practical
	e. Describe Indications, Principle of application, Technique of application for i) faradism under pressure ii) Faradic foot bath iii) Functional re-education iv) Functional Electrical Stimulation				
	e. Describe Indications, Principle of application, Technique of application for i) faradism under pressure ii) Faradic foot bath iii) Functional re-education iv) Functional Electrical Stimulation	K/S/ A/	KH/SH/ P	IL/ DOAP	Skill Assessment/ Practical

Sr. No.	Topic	Domain	Level	T/L	Assessment
ii.	**Galvanic / Direct currents (Continuous DC & Interrupted DC)**				
	a. Define Galvanic / Direct currents and Interrupted DC/IG current	K	K	IL	SAQ/LAQ
	b. Differentiate between Galvanic and interrupted galvanic currents (Continuous DC & Interrupted DC)	K	KH	IL	LAQ/SAQ
	c. Explain accommodation of nerve and its properties	K	KH	IL	LAQ/SAQ
	d. Explain Physiological & Therapeutic effects, Indications, Contraindications	K	KH	IL	LAQ/SAQ
	e. Identify motor points ofmuscles of face, upper limb, lower limb and scapula	K/S/ A/	KH/SH/ P	DOAP	Skill Assessment / Practical
	f. Demonstrate Technique & Methods of application of Interrupted Galvanic currents	K/S/ A/	KH/SH/ P	DOAP	Skill Assessment / Practical
	g. Explain anodal and cathodal galvanism	K	KH	IL	SAQ
	h. Define Ionization / Iontophoresis	K	K	IL	SAQ/LAQ
	i. Explain theory of Medical Ionisation	K	KH	IL	SAQ/LAQ
	J Describe Effects & Uses of various Ions, Indications and contraindications, Dangers and precautions	K	KH	IL	LAQ/SAQ
iii.	**High Voltage Currents**	K	K	IL	SAQ/LAQ
	a. Explain High Voltage currents and its pulse duration, frequencies				
	b. Brief introduction of effects and uses of High Voltage currents.				

Sr. No.	Topic	Domain	Level	T/L	Assessment
iv	**Micro Currents**	K	K	IL	SAQ/LAQ
	1. Explain Micro Currents and its pulse duration, frequencies				
	2. Brief introduction of effects and uses of micro currents.				
v	Didynamic currents	K	K	IL	SAQ/LAQ
	1. Explain Didynamic currents and its pulse duration, frequencies High Voltage Currents				
	2. Brief introduction of effects and uses of Didynamic currents.				
vi	**Transcutaneous Electrical Nerve Stimulation (T.E.N.S.)**				
	1. Define T.E.N.S	K	K	IL	SAQ
	2. Explain various types of T.E.N.S.	K	K	IL	SAQ/LAQ
	3. Describe Physiological & Therapeutic effects	K	KH	IL	SAQ/LAQ
	4. Describe Technique & Methods of Application	K /S	KH/ SH	IL	SAQ/LAQ
	5. Explain Indications & contraindications	K	K	IL	SAQ/LAQ
	6. Demonstrate Technique & Methods of Application 1. Rationalize the use of TENS for pain relief 2. Demonstrate the use of appropriate TENS in clinical area 3. Use electrode placement rationally	K/S/ A/C	SH/P	DOAP	Skill Assessment / Practical

Sr. No.	Topic	Domain	Level	T/L	Assessment
vii	**Strength Duration Curve**				
	1. Explain principles of S-D curve.	K	KH	IL	LAQ/SAQ
	2. Define Chronaxie and Rheobase	K	K	IL	LAQ/SAQ
	3. Describe techniques of plotting the curve	K/S	KH/SH	IL/ DOAP	Skill Assessment / Practical
	4. Explain & Differentiate characteristics of SDC for innervated and denervated muscles Identify abnormal curves	K/S	KH/SH	IL	LAQ/SAQ
	5. Demonstrate and plot SDC on models 6. Observe SDC in patients in clinical area	K/S/ A	KH/SH/ P	DOAP	Skill Assessment / Practical
2	**MEDIUM FREQUENCY CURRENTS**				
	i. Interferential Therapy				
	a. Define IFT & its types.	K	K	IL	LAQ/SAQ
	b. Explain the physiological effects of IFT.	K	KH	Lectures, SGD	Written, Practical, Viva Voce
	c. Explain the therapeutic effects of IFT.	K	KH	Lectures, SGD	Written, Practical, Viva Voce
	d. Enumerate the appropriate dose to bring about the desired physiological & therapeutic effect. (As they are dose dependent)	K	KH	Lectures, Group Discussions	Written/ practical
	e. Explain techniques different methods of application of IFT	K, S, A, C	P	Observe/ practical	Skill lab/OSCE/practical
	f. Describe different types of Electrodes (including vacuum), its Effects & Uses	K	KH	Lectures, SGD	Written, Practical, Viva Voce
	g. Explain indications, contraindications, dangers and precautions of IFT	K, S, A, C	P	Observe/ practical	Skill lab/practical

Sr. No.	Topic	Domain	Level	T/L	Assessment
	h. Explain advantages of IFT over low frequency current	K	KH	Lectures, SGD	Written, Practical, Viva Voce
	ii. Russian Currents	K	K	IL	SAQ/LAQ
	a. Explain Russian currents and its pulse duration, frequencies				
	b. Brief introduction of effects and uses of Russian currents.				
3	**HIGH FREQUENCY CURRENTS S.W.D.**				
	a. Define and describe types of SWD	K	K	IL	SAQ
	b. Discuss Physiological and therapeutic effects of Continuous and Pulsed SWD	K	KH	IL	SAQ, LAQ
	c. Describe Technique and methods of application of Continuous and Pulsed SWD	K	KH	IL	SAQ, LAQ
	d. Describe types of Electrodes used, Effects and Uses of Continuous and Pulsed SWD	K	KH	IL	SAQ, LAQ
	e. Explain Indications and Contraindications of Continuous and Pulsed SWD	K	KH	IL	SAQ, LAQ
	f. Enumerate Dangers and Precautions of Continuous and Pulsed SWD	K	KH	IL	SAQ, LAQ
	g. Demonstrate technique and Methods of application of SWD for Sinusitis, low back pain, knee pain, shoulder, facial nerve, pelvic inflammatory disease.	K/S/ A/C	KH, SH	DOAP	Practical/O SPE

Sr. No.	Topic	Domain	Level	T/L	Assessment
4.	**ACTINOTHERAPY**				
	a. IR				
	1. Describe physiological effects of IR	K	K	IL	SAQ/LAQ
	2. Describe therapeutic effects of IR	K	K	IL	SAQ/LAQ
	3. Describe contraindications and indications of IR	K	K	IL	SAQ/LAQ
	4. Describe precautions and dangers of IR applications	K	K	IL	SAQ/LAQ
	5. Demonstrate application of IR for pain relief (neck, shoulder, knee, back)	K/S/ A/C	KH/SH	DO AP	Skill Assessment / Practical
	b. UVR				
	a. Describe the physiological effects of UVR		K	IL	LAQ
	b. Describe the therapeutic effects of UVR		K	IL	LAQ
	c. Demonstrate patient preparation for UVR application		KH/SH	DOAP	P
	d. Describe the Contraindications and Dangers of UVR and prevention		K	IL	DL
	e. Demonstrate test dose application		KH/SH	DOAP	P
	f. Demonstrate Application of UVR for Wound care		KH/SH	DOAP	P
	c. Laser – He/ Ne & I.R. combination				
	a. Describe Physiological & Therapeutics effects	K	KH	IL	LAQ/SAQ
	b. Demonstrate Technique & Methods of Application	K /S	SH/ P	DO AP	Practical/ Skill Assessment
	c. Describe Effects & Uses	K	KH	IL	LAQ/SAQ
	d. Explain Indications & contraindications	K	KH	IL	LAQ/SAQ
	e. Describe Dangers & Precautions	K	KH	IL	LAQ/SAQ
	f. Describe Dosage	K	K	IL	LAQ/SAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
5	**ELECTROTHERAPY: WOUND HEALING**				
	a. Understand the rationalebehind these modalities considering their physiological and therapeutic effects, indications and contraindications	K	K, KH	IL, SGD	SAQ / LAQ
	b. Discuss dosage of the said modalities for wound healing	K, S	K, KH, SH	IL, SGD, DOAP	SAQ/LAQ/ Skill Assessment, Practical,
	c. Demonstrate the working ofthe apparatus and ensure safety precautions	K, S, C, A	KH, SH	DOAP	Skill Assessment, Practical, Viva Voce
	d. Discuss various merits and demerits of these modalities	K	K	Lectures, Group Discussions	SAQ, LAQ, Viva Voce
6.	**INTRODUCTION TO ADVANCE LECTROTHERAPY**				
	a. TECAR Therapy				
	1. Define the terminologies of the above modalities.	K	K	Lectures, Group Discussions	SAQ, LAQ
	2. Discuss, History and Physical principles of the modalities	K	K	Lectures, Group Discussions	SAQ, LAQ
	3. Enlist various therapeutic and physiological effects of the modalities.	K	KH	Lectures, Group Discussions	SAQ, LAQ, Practical Assessment
	4. Indications, Contraindications and Precautions of the modalities	K	KH	Lectures, Group Discussions	Skill Assessment, Practical, Viva Voce

Sr. No.	Topic	Domain	Level	T/L	Assessment
	b. Shockwave Therapy				
	1. Define the terminologies of the above modalities.	K	K	Lectures, Group Discussions	SAQ, LAQ
	2. Discuss, History and Physical principles of the modalities	K	K	Lectures, GroupDiscussions	SAQ, LAQ
	3. Enlist various therapeutic and physiological effects of the modalities.	K	KH	Lectures, Group Discussions	SAQ, LAQ, Practical Assessment
	4. Indications, Contraindications and Precautions of the modalities	K	KH	Lectures, Group Discussions	Skill Assessment, Practical, Viva Voce
	PRACTICAL:				
	Skills of application to be practiced on models				

PHYSIOTHERAPEUTICS IV (KINESIOTHERAPY PAPER I I)

(Didactic – 95 Hrs, 135 Practical / Laboratory –Hrs) **TOTAL 230 HRS**

COURSE DESCRIPTION

This course is based on Anatomical, Physiological & related Kinesiological principles for normal human movement and for the efficacy in the assessment methods for mobility, muscle strength. Students have the opportunity to develop and acquire understanding of physiological responses to various types of training and develop skills of exercise programs (on models). Exercise components of muscle strength, flexibility, balance, breathing and various functional activities are examined. Evidence of appropriate, safe and effective exercise design and proper exercise biomechanics and prescription parameters are addressed with all interventions.

the candidate will be able to:

1. Understand and describe the structural and biophysical properties of connective and non-connective tissues and their application to soft tissue manoeuvres of stretching.
2. Discuss and apply the principles of Manual Muscle testing.
3. Enumerate the factors which influence the muscle strength and the principles of strength training.
4. Describe the physiological effects, therapeutic uses, merits and demerits of various exercise modes including Hydrotherapy
5. Gain knowledge about the types of breathing exercises and techniques of bronchial hygiene and the adjuncts used.
6. Understand the physiological basis of methods used for improving Neuromuscular Coordination and Balance.
7. Get initiated into the understanding of Motor Control and Motor Strategies.
8. Discuss the Principles of & enumerate the indications for re-education of Functional Activities.
9. Discuss the Principles of planning a Home Program
10. Apply the biomechanical principles for the efficacious assessment of mobility, muscle extensibility and muscle strength.

11. Acquire the skill of subjective and objective assessment of individual & group muscle strength
12. Acquire the skills of subjective and objective methods of muscle strengthening
13. Display various therapeutic exercises on self & acquire the skill of application of the same on models along with planning Home Programs.
14. Demonstrate the skill of functional re-education techniques on models.
15. Demonstrate the skill of training Balance and Coordination Exercises.
16. Demonstrate breathing exercises and retraining on self and others
17. Acquire the skill of demonstrating Postural Drainage along with the adjunct manoeuvres and ACBT on models
18. Demonstrate empathetic behaviour towards peers, teachers and models / subjects during interaction and demonstration of therapeutic techniques through appropriate speech, handling and body language.

Sr. No.	Topics	Didactic Hours	Practical/ Laboratory Hours	Total Hours	Subject integration
1	**BIOPHYSICAL PROPERTIES OF SOFT TISSUES, THERAPEUTIC IMPLICATIONS AND APPLICATION TO STRETCHING**	25	15	**40**	Anatomy Physiology Kinesiology
2	**MANUAL MUSCLE TESTING**	10	35	**45**	
3	**VICARIOUS MOVEMENTS**	05	-	**05**	
4	**STRENGTHENING OF MUSCLES**	10	30	**40**	
5	**BRONCHIAL HYGIENE THERAPY**	15	20	**35**	Anatomy Physiology Kinesiology
6	**HYDROTHERAPY**	05	-	**05**	
7	**NEUROMUSCULAR COORDINATION & BALANCE**	05	10	**15**	
8	**MOTOR CONTROL THEORIES**	05	-	**05**	
9	**FUNCTIONAL REHABILITATION**	05	10	**15**	
10	**HOME EXERCISE PROGRAM**	05	10	**15**	
11	**THERAPEUTIC TRACTION**	05	05	**10**	
TOTAL		**95**	**135**	**230**	

Sr. No.	Topic: The students will be able to in	Domain	Level	T/L	Assessment
	BIOPHYSICAL PROPERTIES OF SOFT TISSUES, THERAPEUTIC IMPLICATIONS AND APPLICATION TO STRETCHING				
	a. Biophysical Principles: i. Gain knowledge about the Structures & Biophysical Properties of connective and non-connective tissues	K	K	Lecture	LAQ SAQ
	b. Stretching: i. Define Stretching ii. Describe the different types of methods of Stretching iii. Demonstrate the assessment of length of muscle and fascia around the joints. iv. Enumerate the principles of stretching v. Demonstrate techniques for all joints and polyarticular muscles vi. Demonstrate stretching of individual muscles and fascia	**K** **K** **S** **K** **S** **K** **S**	K KH SH KH SH KH SH	Lect Lect Practs Lect Pract	SAQ LAQ, SAQ Practs Lect Pract

Sr. No.	Topic	Domain	Level	T/L	Assessment
	MANUAL MUSCLE TESTING				
	i. Define Manual Muscle Testing	**K**	**K**	Lect	SAQ
	ii. Discuss the principles of Manual Muscle testing iii. Discuss the concept of Group and Individual Muscletesting iv. Describe the methods of grading of muscle strength iv. Discuss the therapeutic applications of Manual Muscle testing v. Demonstrate Group and individual muscle testing for upper and lower extremity, trunk and face	**K** **K** **K** **K** **S**	**K** **KH** **KH** **KH** **SH**	Lect Lect Demo Lect Demo Pract Demo	LAQ SAQ Practs LAQ Pract
	VICARIOUS MOVEMENTS				
	I. Define vicarious movements	**K**	**K**	Lect	SAQ
	ii. Discuss the types of vicarious movements	**K**	**KH**	Lect Pract	Pract SAQ
	iii. Explain and identify vicarious movements during manual muscle testing	**K** **S**	**KH** **SH**	Demo	Pract

Sr. No.	Topic	Domain	Level	T/L	Assessment
	STRENGTHENING OF MUSCLES				
	i. Discuss the Concepts- Strength, Power, Endurance	**K**	**K**	Lecture	SAQ LAQ
	ii. Discuss the factorsinfluencing the Strength of normal muscle/ hypertrophy, recruitment of motor units, anatomical and physiological changes after strength training	**K**	**KH**	Lect	LAQ SAQ
	iii. Gain knowledge about the different types of strength-training with isometric, isotonic & isokinetic muscle contractions	**K**	**KH**	Lect	LAQ SAQ
	iv. Enumerate and apply the principles of strengthening - Overload, Intensity, Motivation, Learning, Duration, Frequency, Reversibility, Specificity	**K** **S**	**KH** **SH**	Lecture Pract demo	SAQ LAQ Practical
	v. Discuss and compare the Subjective & Objective Methods of Strengthening	**K**	**KH**	Lecture	SAQ LAQ
	vi. Design and demonstrate Individual joint Strengthening Exercises for Upper Limb, Lower Limb & Spine	**S**	**KH** **S** **SH**	Practicals Lecture	SAQ LAQ
	vii. Discuss and apply the Concepts of 1RM,10RM & Dynamometry	**K** **S**	**KH** **SH**	Lecture Pract	SAQ LAQ Practical

Sr. No.	Topic	Domain	Level	T/L	Assessment
	viii. Describe and apply the different regimes of Progressive Resisted Exercise-Delorme, Oxford, MacQueen protocols with necessary precautions	**K** **S**	**KH** **SH**	Lecture Pract	SAQ LAQ Practical
	ix. Describe the use of gymnasium equipments for strength training	**K** **S**	**KH** **SH**	Lecture Pract	SAQ LAQ Practical
	BRONCHIAL HYGIENE THERAPY				
	Humidification & Nebulisation - i. Define Humidification & Nebulisation ii. Discuss the types iii. Demonstrate the method of delivery of Humidification & Nebulisation i. Discuss the indications and contraindications	**K** **K** **S** **K**	**K** **KH** **SH** **KH**	Lect Demo	LAQ SAQ
	Breathing Exercise– i. Discuss the types of breathing exercises– Inspiratory, Expiratory (including forced expiratory technique) – e.g.- Apical, Lateral costal, Diaphragmatic, Posterior basal, Pursed lip breathing, Huffing, Coughing ii. Discuss the Goals &Uses iii. Demonstrate the techniques of various types of breathing exercises	**K** **K** **S**	**KH** **KH** **SH**	Lect Demo Pract	LAQ SAQ Practical

Sr. No.	Topic	Domain	Level	T/L	Assessment
	Describe and show the **Active Cycle Breathing Technique (ACBT)** and explain its therapeutic application	**S** **K**	**SH** **KH**	Lect Demo Practs	LAQ SAQ Practical
	Demonstrate the technique of **Autogenic drainage** and explain its therapeutic application	**S** **K**	**SH** **KH**	Lect Demo Practs	LAQ SAQ Practicals
	Postural Drainage – i. Define Postural Drainage ii. Enumerate the indications & Contraindications for postural drainage iii. Demonstrate the technique and positions of postural drainage of various lung segments with reasoning iv. Demonstrate the techniques of percussion, vibration and cupping during postural drainage. v. Gain knowledge about the Termination criteria	 **K** **K** **S** **K**	 **KH** **KH** **SH** **KH**	Lect Demo Practical	LAQ SAQ Practical
	HYDROTHERAPY				
	i. Define and explain the physical properties of water	**K**	**K**	Lect	SAQ
	ii. Enumerate the indications and contra-indications of Hydrotherapy	**K**	**KH**	Lect	SAQ Viva
	iii. Describe the use of Hydrotherapy in muscle strengthening for Upper Limb and Lower Limb	**K**	**KH**	Lect	SAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
	NEUROMUSCULAR COORDINATION & BALANCE				
	i. Define Coordination and Balance	**K**	**K**	Lecture	LAQ SAQ
	ii. Understand the physiology related to coordination & balance	**K**	**KH**	Lecture	LAQ SAQ
	ii. Discuss and apply the principles of Frenkel's exercises	**K S**	**KH SH**	Lecture	LAQ SAQ
	iii. Demonstrate the technique of Frenkel's exercises	**S**	**K SH**	Pract Demo	Pract
	iv. Demonstrate the exercises for improving balance	**S**	**K SH**	Pract Demo	Pract
	MOTOR CONTROL THEORIES				
	i. Define Motor Control	**K**	**K**	Lecture	SAQ
	ii. Describe the concept ofPostural Alignment & Weight Distribution	**K**	**K**	Lecture	SAQ
	iii. Describe the concept of Sensory Organisation	**K**	**K**	Lecture	SAQ
	iv. Describe the concept of C.N.S. Integration	**K**	**K**	Lecture	SAQ
	v. Gain knowledge about the concept of Motor Strategies and Theories of Motor Control	**K**	**K**	Lecture	SAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
	FUNCTIONAL REHABILITATION				
	a. Enumerate the Principles of & indications for re-education of Functional Activities	**K**	**K**	Practical	Practical
	b. Demonstrate Mat exercises for achieving -mobility, strength and balance training (Progression from supine/ prone to sitting, standing and walking) and Transfer activities	**K S**	**KH SH**	Practical	Practical
	HOME EXERCISE PROGRAM				
	i. Discuss the Principles of planning a Home Program	**K**	**K**	**Lecture**	**SAQ**
	ii. Enumerate the principles of planning ergonomic advice for Activities of Daily Living	**K**	**K**	**Lecture**	**SAQ**
	iii. Demonstrate a Home-based exercise program	**K**	**KH**	**Lecture**	**SAQ**
	THERAPEUTIC TRACTION				
	i. Discuss the various types of Traction and observe the technique - Cervical & Lumbar - Intermittent & Continuous - Mechanical/Electrical, Techniques	**K**	**K**	**Lecture Demo**	**SAQ**
	ii. Discuss the Indications and Contraindications for traction	**K**	**K**	**Lecture Demo**	**SAQ**
	iii. Describe the Therapeutic Effects and Uses of traction	**K**	**K**	**Lecture Demo**	**SAQ**

Sr. No.	PRACTICAL TOPICS
1	Demonstrate the assessment of length of polyarticular muscles and fascia of uppe quarter and lower quarter on models.Demonstrate stretching of individual muscle and fascia.
2	Demonstrate Group and individual muscle testing for upper and lower extremity, trunk and face on models. Observe the same on patients.
3	Design and demonstrate Individual joint Strengthening Exercises Upper Limb, Lower Limb & Spine on models.
4	Demonstrate the use of gymnasium equipment's on models with assessment of 1 RM and 10 RM.
5	Observe the method of delivery of Humidification & Nebulisation on patients.
6	Demonstrate the techniques of various types of breathing exercises on models.
7	Demonstrate the technique of ACBT on models.
8	Demonstrate the technique of Autogenic Drainage on models.
9	Demonstrate the technique and positions of postural drainage of various lung segments along with percussion, vibration and cupping on models.
10	Demonstrate the technique of Frenkel's exercises on models.
11	Demonstrate the exercises for improving balance on models.
12	Demonstrate Mat exercises for mobility, strength and balance training (Progression from supine/ prone to sitting, standing and walking) and Transfer activities, on models.
13	Demonstrate a Home-based exercise program on models.
14	Observe the application of therapeutic traction on patients.

10. III B. P.T

SYLLABUS

Transcript Hours- 1526

Sr. No.	SUBJECTS	Theory Hours	Laboratory / Clinical Hours	Total Hours
1	*COMPEL MODULE III* *Refer sectionon COMPEL module)*			20
	MEDICAL SCIENCES			
2	Surgery-I (Cardiovascular & Thoracic Surgery, General Surgery & Plastic/Reconstructive Surgery)	030	025	055
3	Surgery-II (Orthopaedics)	040	020	060
4	Medicine-I (Cardiovascular Respiratory Medicine, General Medicine, Rheumatology & Gerontology, dermatology)	055	010	065
5	Medicine-II (Neurology & Paediatrics)	045	020	065
6	Community Medicine & Sociology	050	010	060
7	Obstetrics & Gynaecology *(College Examination)*	020	010	030
	PHYSIOTHERAPY			
8	Physiotherapy Diagnosis	85	145	230
	Physiotherapy Paper V (physiotherapeutic skills)	70	160	230
10	Seminar (including ICF)			90
11	Supervised clinical practice			621
TOTAL		**395**	**400**	**1526**

SURGERY-I

(General Surgery, Cardiovascular & Thoracic Surgery &Plastic/ Reconstructive Surgery)

(Didactic-35 hrs + Clinical -20 hrs) **TOTAL =55 HRS**

COURSE DESCRIPTION:

This course intends to familiarise students with principles of General surgery including various specialties like cardiovascular, thoracic, neurology and plastic surgery. It also familiarises the students with terminology and abbreviations for efficient and effective chart reviewing and documentation. It explores various conditions needing attention, focusing on epidemiology, pathology, primary and secondary clinical characteristics, and their surgical and medical management. The purpose of this course is to make physiotherapy students aware of various surgical conditions, general surgery, and specialty surgeries so these can be physically managed effectively both pre as well as postoperatively. Students will be able to

1. **Describe the effects of surgical trauma & Anaesthesia in general**
2. **Clinically evaluate & describe the surgical management in brief of**
   a) General Surgery
   b) Neuro Surgery
   c) Cardiovascular and Thoracic Surgery
   d) ENT & Ophthalmic Surgery
   e) Plastic & Reconstructive Surgery
3. **Describe preoperative evaluation, surgical indications in various surgical approaches, management, and post-operative care in above mentioned areas with possible complications.**
4. **Be able to read & interpret findings of the relevant investigations**

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours	Subject Integration
1.	**GENERAL SURGERY**	20	10	30	Pre, Paraclinical and clinical sciences
2.	**CARDIOVASCULAR AND THORACIC SURGERY**	10	5	15	
3.	**PLASTIC SURGERY / RECONSTRUCTIVE SURGERY**	5	5	10	
	TOTAL	**35**	**20**	**55**	

Sr. No.	Topic The student will be able to in:	Domain	Level	T/L	Assessment
	a. GENERAL SURGERY: i. Types and effects of Anaesthesia. Indications and contraindications of Anaesthesia. Common postoperative complications ii. Classify and describe Haemorrhage and Shock. Explain the treatment for Haemorrhage Shock. iii. Describe Water & Electrolyte imbalance iv. Explain signs, symptoms, complications & management of acute & chronic Inflammation. v. Classify Wounds & Ulcers, Cellulitis, and Explain the healing process, management and bandaging. Describe Dressing solutions and their uses. Explain the debridement Procedure, hand washing and universal precautions. vi. Enumerate and classify Common abdominal surgical incisions. Explain the indications, opening–closure, advantages and disadvantages, and complications (including burst abdomen and faecal fistula). vii. Describe minimally invasive surgery and its advantages. vii. Explain the approach, complications & management of Mastectomy, radical and modified and abdominal oncosurgery.	K	K	IL	SAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
	viii. Describe types of Amputation. Explain causes, sites, complications & management of Amputation. ix. Classify Burns. Explain the causes, complications, & management of Burns. x. Discuss Varicose veins and peripheral vascular diseases, clinical features, evaluation, and management xi. Define Hernia , explain surgery, precautions, and complications of Hernias. xii. Explain the transplantation approach. Describe risk problems related to donor and recipient and explain its precautions.				
	b. NEUROSURGERY i. Explain the management of Head Injury ii. Describe Intra cranial & Spinal tumours iii. Describe Intracranial Aneurysm and AV malformation iv. Explain Postoperative Neurosurgical care	K	K	IL	SAQ
	c. E.N.T. Surgery i. Explain indications, surgical approach & management of Tracheostomy ii. Describe surgical procedures in VIIth cranial nerve palsy iii. Describe Vertigo	K	K	IL	SAQ
	d. Ophthalmic Surgery Describe Surgeries for IIIrd, IVth, VIth Cranial Nerve palsy	K	K	IL	SAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
2	**CARDIOVASCULAR AND THORACIC SURGERY**	K	K	IL	SAQ
	a. Introduction to Cardiovascular & Thoracic Surgery. b. Explain Cardiorespiratory resuscitation. c. Describe cardiopulmonary bypass. d. Explain special investigation procedures in cardiac surgery. e e. Describe Basic techniques in cardiac surgery approach & incisions. f. Explain the types of operation and complications of cardiac surgery. g. Describe Lines, drains, and tubes. h. Briefly describe indications, surgery, and complications for the following surgery: i. Surgeries of thorax i. Surgeries of the lung ii. Surgeries of pleura and pericardium iii. Surgery for coronary artery disease iv. Valvular surgeries v. Surgery for Congenital Heart Disease vi. Peripheral arterial disorder, Buerger's disease, Raynaud's disease, and Aneurysm vii. Gangrene, Amputation, DVT				

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Sr. No.	Topic	Domain	Level	T/L	Assessment
3	**PLASTIC SURGERY / RECONSTRUCTIVE SURGERY**	K	K	IL	SAQ
	a. Explain types of Skin grafts & flaps. b. Explain the indications for skin grafts & flaps with special emphasis on burns, and wounds. c. Explain complications and postoperative care of Ulcers. d. Describe Tendon transfers, with special emphasis on hand, foot & facial paralysis. e. Describe the repair of Flexor & Extensor Tendon Injuries. f. Explain the management of Keloid & Hypertrophic scars. g. Explain Reconstructive surgery of peripheral nerves h. Explain reimplantation & revascularization in Microvascular surgery				
4.	Demonstrate Evaluation and presentation and recording of one case each in a) Burns b) Wound & ulcer c) Head injury d) Peripheral vascular condition e) Post radical mastectomy f) Post thoracic surgery g) Post abdominal surgery h) Plastic surgery	S	SH	CASE	CBL
5.	Observe various incisions , identify the muscles, fascia cut and discuss healing of incisions	S	SH	CASE	CBL

SURGERY-II

(ORTHOPAEDICS)

(Didactic-40hrs + Clinical -20hrs) **TOTAL =60 HRS**

COURSE DESCRIPTION:

This course intends to familiarise students with principles of orthopaedic surgery along with familiarisation with terminology and abbreviations for efficient and effective chart reviewing and documentation. It also explores various orthopaedic conditions needing attention, focusing on epidemiology, pathology, primary and secondary clinical characteristics and their surgical and medical management. The purpose of this course is to make physiotherapy students aware of various orthopaedic surgical conditions so these can be physically managed effectively both pre as well as postoperatively.

Students will be able to

a) Discuss the aetiology, Pathophysiology, clinical manifestations & conservative / Surgicalmanagement of various traumatic & cold cases of the Musculoskeletal Conditions.

b) Gain the skill of clinical examination; apply special tests & interpretation of the preoperative old cases & all the post-operative cases.

c) Be able to read & interpret salient features of the X-ray of the Spine & Extremities and correlate the radiological findings with the clinical findings.

d) Be able to interpret Pathological / Biochemical studies pertaining to Orthopaedic conditions.

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours	Subject Integration
1	**Fracture**	6	3	9	Preclinical Paraclinical Clinical sciences
2	**DISLOCATIONS & SUBLUXATIONS**	4	2	6	
3	**SOFT TISSUE AND TRAUMATIC INJURIES**	4	2	6	
4	**DEFORMITIES AND ANOMALIES**	11	3	14	
5	**DEGENERATIVE AND INFLAMMATORY CONDITIONS**	6	3	9	
6	**MANAGEMENT OF METABOLIC DISORDERS**	2	2	4	
7	**GENERAL ORTHOPAEDIC DISORDERS**	5	3	8	
8	**TUMOURS**	2	2	4	
	TOTAL	**40**	**20**	**60**	

Sr. No.	Topic The student will be able to in	Domain	Level	T/L	Assessment
1	**FRACTURES**	**K**	**K**	**Didactic**	**LAQ, SAQ**
	a. Define and classify types of fractures b. Describe the Causes, Clinical features of fractures c. Describe the process of fracture healing & Complications. d. Describe the Principles of general management for Fracture of the Upper Extremity, Lower Extremity, vertebral column, thorax, and pelvis. e. Understand the importance of Emergency care and first aid.				
2	**DISLOCATIONS & SUBLUXATIONS**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Define dislocations and subluxations, b. General description of dislocations and subluxations c. Describe the Principles of general description and management oftraumatic dislocation and subluxation of common joints. i. Shoulder joint ii. Acromioclavicular joint iii. Elbow joint iv. Hip joint v. Knee joint				
3	**SOFT TISSUE AND TRAUMATIC INJURIES**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Describe soft tissue and traumatic injuries b. Describe the Anatomy & physiology of the grade of injury				

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Sr. No.	Topic	Domain	Level	T/L	Assessment
	c. Describe and understand the management of the following soft tissue injuries i. Ligaments, Bursae, Fascia ii. Muscles & Tendons iii. Muscles and tendons injuries of upper and lower limb d. Define and describe Cervico lumbar injuries and Whiplash injuries of the cervical spine e. Define and describe Crush injuries of hand & foot				
4	**DEFORMITIES AND ANOMALIES**	**K**	**K**	**Didactic PBL**	**LAQ, SAQ**
	a. Define and classify deformities and anomalies. State its Causes b. Discuss the difference between Congenital and acquired deformities. c. Describe its Physical clinical and radiological features and its Complications d. Discuss the Principles of medical and surgical management of the deformities e. Describe the following deformities: Deformities of the spine: i. Scoliosis ii. Kyphosis iii. Lordosis iv. Flat back v. Torticollis				

Sr. No.	Topic	Domain	Level	T/L	Assessment
	f. Deformities of the lower limb: C.D.H., coxa Vara, coxa valga, anteversion, Retroversion, Genu valgum, Genu varum, Genu recurvatum, C.D.K., Talipes calcaneus equinus, varus & valgus, Pes cavus, Pes planus, Hallux valgus & varus, Hallux rigidus and hammer toe g. Deformities of Shoulder & Upper limb Sprengel's shoulder, Cubitus varus, Cubitus valgus, Dupuytren's contracture				
5	**DEGENERATIVE AND INFLAMMATORY CONDITIONS**	**K**	**K**	**IL, PBL**	**LAQ, SAQ**
	Define, Describe, clinical features and management of a. Osteo-orthosis/Arthritis b. Spondylosis c. Spondylolysis and listhesis d. Pyogenic arthritis e. Rheumatoid arthritis f. Juvenile arthritis g. Tuberculous arthritis h. Gouty arthritis i. Haemophilic arthritis j. Neuropathic arthritis k. Ankylosing spondylitis l. Psoriatic arthritis				
6	**Discuss the MANAGEMENT OF METABOLIC DISORDERS:**	**K**	**K**		**LAQ, SAQ**
	a. Osteoporosis **b.** Osteomalacia & Rickets				

Sr. No.	Topic	Domain	Level	T/L	Assessment
7	**Discuss the management of GENERAL ORTHOPAEDIC DISORDERS related to**	**K**	**K**	**IL**	**LAQ, SAQ**
	a. Carpal tunnel syndrome /Entrapment nerve injuries b. Compartment syndrome, Ischemic contracture c. Avascular necrosis of bone in adults and children i. Gangrene ii. Backache /P.I.D				
8	**TUMOURS**	K	K	IL	SAQ
	i. Discuss Classification, Principles of general management ii. Describe the General description of benign and malignant tumours of the musculoskeletal system				
9.	Demonstrate clinical orthopaedic evaluation presentation & recording of a) One acute soft tissue lesion (including nerve injury) b) Two cases of degenerative arthritis of extremity joint (One each in UpperExtremity and One Lower Extremity) c) Two cases of spine (one P.I.D., one traumatic) d) One post-operative case of fractures of extremities with fixation/ replacement knee / Hip e) One paraplegia/quadriplegia	S	SH	CASE	CBL

MEDICINE-I

(Cardiovascular Respiratory Medicine, General Medicine & Gerontology)

(Didactic-55 hrs + Clinical-10 hrs) **TOTAL-65 HRS**

COURSE DESCRIPTION:

This course intends to familiarise students with medical terminology & abbreviations for efficient & effective chart reviewing & documentation. It also explores selected systemic diseases, focusing on epidemiology, pathology, histology, and aetiology as well as primary & secondary clinical characteristics & their management. Discusses & integrates subsequent medical management of General, Rheumatology, Gerontology, Cardiovascular & Respiratory systems, to formulate appropriate interventions, indications, precautions & contraindications.
The student will be able to

1. Describe the aetiology, Pathophysiology, Signs & Symptoms & Management of the various Endocrine, Metabolic, Geriatric & Nutrition Deficiency conditions.
2. Describe Aetiology, Pathophysiology, Signs & Symptoms, Clinical Evaluation & Management of the various Rheumatologic Cardiovascular & Respiratory Conditions.
3. Elicit history taking and clinical examination of Musculoskeletal, Respiratory, Cardio-vascular & Neurological Systems as a part of clinical teaching.
4. Interpret auscultation findings with special emphasis on the pulmonary system.
5. Interpret Chest X-ray, Blood gas analysis, P.F.T. findings & Haematological studies, for Cardiovascular, Respiratory, Neurological & Rheumatological conditions.
6. Describe the principles of Management at the Intensive Care Unit.
7. Acquire the skills of Basic Life Support.
8. Acquire knowledge of various drugs used for each medical condition to understand their effects and their use during therapy.

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours	Subject Integration
1	**CARDIO-VASCULAR & RESPIRATORY MEDICINE**	**30**	**05**	**35**	**Preclinical Paraclinical Clinical sciences**
2	**GENERAL MEDICINE, RHEUMATOLOGY & GERONTOLOGY**	**15**	**05**	**20**	
3.	**DERMATOLOGY**	**10**		**10**	
	TOTAL	**55**	**10**	**65**	

Sr. No.	Topics The students will be able to in:	Domain	Level	TL method	Assessment
1	**CARDIO-VASCULAR & RESPIRATORY MEDICINE:**	**K,S**	**KH,SH**	**IL** **case**	**SAQ/**
	a. Cardio-vascular diseases i. Describe and discuss the aetiopathogenesis, clinical features, investigations and management of Hypertension – systemic. ii. Cardiac Conditions- a) Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of I.H.D (Angina, Myocardial Infarction) b) Describe and discuss the aetiopathogenesis, clinical features, investigations and management of Rheumatic Heart Disease. c) Describe and discuss the aetiopathogenesis, clinical features, investigations and management of Infective Endocarditis. d) Describe and discuss the aetiopathogenesis, clinical features, investigations and management of Cardiomyopathy.				

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Sr. No.	Topic	Domain	Level	T/L	Assessment
	e) Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Heart Failure.				
	iii. Describe and discuss the aetiopathogenesis, clinical features, investigations and management of ValvularHeart Disease - a) Congenital b) Acquired				
	iv. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of congenital heart disease.				
	v. Investigations a) Discuss the Basics of E.C.G. [Normal & Abnormal (Ischaemia, Infarction & Arrhythmias)] b) Discuss the Observation of conduction of stress test on patient c) Discuss the 2D Echo (Ejection Fraction & Wall motion Abnormality)				
	b. Diseases of the Respiratory System:	**K,S**	**KH**		
	i. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Common Infectious diseases like Tuberculosis, Pneumonia, Lung Abscess, and Bronchiectasis.				

Sr. No.	Topic	Domain	Level	T/L	Assessment
	ii. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of diseases of Pleura like Pleural Effusion, Pneumothorax, Hydropneumothorax, and Empyema.				
	iii. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of ILD & Occupational lung diseases like Silicosis, Asbestosis, Pneumoconiosis, Brucellosis, and Farmer's Lung.				
	iv. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Obstructive Airway Diseases (C.O.P.D. with Cor Pulmonale, Pulmonary Hypertension, Bronchial Asthma & Cystic Fibrosis)				
	v. Discuss the basics of Intensive Care Unit in view of a) Infrastructure b) Instrumentation. c) Mechanical Ventilation (settings & monitoring) d) Assessment, monitoring & management of patients in I.C.U.				

	vi. Describe and discuss Basic Life Support: Introduction & Demonstration			IL,CBL	CBL

Sr. No.	Topic	Domain	Level	T/L	Assessment
	vii. Describe and discuss the basics of Investigation: Normal & Abnormal 1. Chest X-ray 2. Blood Gas Analysis 3. PFT (Observation of conduction on the patient)	K.S,	KH,SH		
2	**GENERAL MEDICINE, RHEUMATOLOGY & GERONTOLOGY:**	**K**	**K**	**IL**	**SAQ/**
	a. General Medicine i. Describe and discuss Disorders of the Endocrine system (Diabetes) Introduction, pathophysiology, types, role of physical activity, complications of diabetes (autonomic neuropathy, myopathy, weakness) & medications. ii. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of diseases of Thyroid, Pituitary & Adrenal conditions Cushing's syndrome iii. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Obesity iv. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Nutrition Deficiency Disease (Rickets, Vit. E, Vit. D, Vit. B, micronutrients, (Zn, Se)				

Sr. No.	Topic	Domain	Level	T/L	Assessment
	v. Describe and discuss the clinical features, investigations, and management of Intoxication (Drug abuse; Alcohol, smoking, cocaine dependence)				
	b. Rheumatological Conditions i. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Rheumatoid Arthritis ii. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of S L E iii. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of S S A iv. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Gout v. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Polymyositis vi. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Fibromyalgia vii. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Ankylosing spondylitis	K	KH,SH	IL Case	SAQ

Sr. No.	Topic	Domain	Level	T/L	Assessment
	c. Geriatric Conditions i. Describe and discuss the Aging Process (physiological changes due to ageing) ii. Describe and discuss the clinical features, investigations, and management of CVS & RS complications. iii. Describe and discuss the aetiopathogenesis, clinical features, investigations, and management of Osteoporosis.	K	KH		
3	**DERMATOLOGY**	**K**	**K**	**Theory**	**SAQ/**
	a. Understand introduction to Dermatology, basic skin lesions & History taking				
	b. Describe Skin infections (Part I) – Scabies / Pediculosis / Bacterial infections and their management c. Describe Skin infection (Part II) Viral / Fungal / Cutaneous T.B and its management				
	a. Describe Connective tissue disorder-Scleroderma, S.L.E., b. Dermatomyositis, Morphia				
	a. Discuss and describe Hand eczema, Psoriasis, Psoriatic arthritis, and Reiter's Syndrome b. Discuss and describe Cutaneous Hyperplasia-Keloid, Hypertrophic scar, Corn, and Callosity				

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Sr. No.	Topic	Domain	Level	T/L	Assessment
	Discuss the manifestation of Leprosy & its Deformity with management				
	a. Describe the Cutaneous Manifestation of HIV b. Discuss Hyperhidrosis				
	a. Discuss Drug reaction b. Discuss Urticaria c. Genodermatosis - Epidermolysis bullosa d. Discuss Sexually Transmitted skin lesions PUVA Treatment				
4.	1 Demonstrate History taking, Evaluation –General Examination & Systemic examination (Inspection, Palpation, Percussion & Auscultation) 2. Presentation and recording of Two cases Each in: a. Muscular disorders b. Respiratory Conditions c. Cardiovascular Conditions d. Degenerative / Rheumatological Condition e. Obesity f. Nutritional disorders g. Diabetes Mellitus & Metabolic bone disorders.	Skills	SH	Case Clinics	Case Presentation in clinics

MEDICINE-II

(Neurology & Paediatrics)

(Didactic – 45 hrs + Clinical – 20 hrs) **TOTAL – 65 HRS**

COURSE DESCRIPTION:

This course intends to familiarise students with medical terminology & abbreviations for efficient & effective chart reviewing & documentation, it also explores select systemic diseases, focusing on epidemiology, aetiology, pathology, histology as well as primary & secondary clinical characteristics & their management. It discusses & integrates subsequent medical management of Neurological & Paediatric conditions to formulate appropriate interventions, indications, precautions & contraindications. Students will be able to

1. Describe Aetiology, Pathophysiology, signs & Symptoms & Management of the various Neurological Paediatric conditions.
2. Acquire skills in history taking and clinical examination of Neurological Paediatric conditions as a part of clinical teaching.
3. Acquire knowledge of various drugs used for each medical condition to understand their effects and their use during therapy.
4. Acquire knowledge in brief about the intrauterine development of the foetus.
5. Describe the normal development & growth of a child, the importance of Immunization, breastfeeding & psychological aspects of development.
6. Describe neuromuscular, musculoskeletal, cardiovascular & respiratory conditions related to immunological conditions, nutritional deficiencies, infectious diseases, & genetically transmitted conditions.
7. Acquire the skill of clinical examination of a neonate/child with respect to neurological,musculoskeletal & respiratory function.

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours	Subject Integration
1	**NEUROLOGY**	25	10	**35**	**Preclinical Paraclinical Clinical Sciences**
2	**PAEDIATRICS**	20	10	**30**	
	TOTAL	**45**	**20**	**65**	

Sr. No.	Topics: The students will be able to in	Domain	Level	TL method	Assessment
1	**NEUROLOGY**	K	K	IL	SAQ
	a. Introduction to Nervous System i. Describe and discuss its applied anatomy ii. Describe and discuss its applied physiology				
	b. Describe Cerebrovascular Accidents i. Explain Thrombosis, Embolism and Haemorrhage ii. Discuss the Level of Lesion & symptoms iii. Describe and discuss the management of cerebrovascular accidents				
	c. Describe and discuss the following ExtraPyramidal lesions – Basal Ganglia i. Parkinsonism ii. Athetosis, Chorea and Dystonia				
	d. Describe the differential diagnosis of musclewasting i. Explain the approaches to neuropathies ii. Describe and discuss myopathies and neuromuscular junction disorders.				

Sr. No.	Topic	Domain	Level	T/L	Assessment
	e. Describe and discuss the disorders of Anterior Horn cells with differential diagnosis of: Motor Neuron Disease, S.M.A., Syringomyelia, Peroneal Muscular Atrophy, and Poliomyelitis.				
	f. Describe and discuss Multiple Sclerosis				
	g. Describe and discuss the following Infections of the nervous system: i. Encephalitis, Neurosyphilis, H.I.V. infection, Herpes, Meningitis and Tabes Dorsalis				
	h. Describe and discuss Tetanus				
	i. Describe and discuss Epilepsy				
	j. Describe and discuss Alzheimer's Disease and Dementia				
	k. Describe and discuss the Disorders of cerebellar function				
	l. Describe and discuss the disorders of Cranial nerves & Special Senses				
	m. Describe and discuss the following Disorders of the Spinal cord i. Syndromes ii. Bladder dysfunction iii. Autonomic dysfunction				

Sr. No.	Topic	Domain	Level	T/L	Assessment
2	**PAEDIATRICS**	K	K	IL	SAQ
	a. Describe and discuss the normal intrauterine development of the foetuswith particular reference to; a) Central Nervous System b) Neuromuscular System c) Cardiovascular Respiratory System				
	b. Describe and discuss the Normal development & growth				
	c. Describe and discuss Immunization and breastfeeding				
	d. Describe and discuss Sepsis, Prematurity, Asphyxia Hyperbilirubinemia, and birth injuries				
	e. Explain Cerebral Palsy i. Describe and discuss its MedicalManagement including early intervention				
	f. Describe and discuss the developmental disorders associated with the spinal cord: Spinal Dysraphism, Spina Bifida, Meningocele, Myelomeningocele, and hydrocephalus				

Sr. No.	Topic	Domain	Level	T/L	Assessment
	g. Describe and discuss the following Common infections a) C.N.S.& Peripheral Nervous System b) Typhoid, Rubella, Mumps, Measles, Diphtheria, Chikungunya, and Malaria				
	h. Describe and discuss Epilepsy				
	i. Describe and discuss Mental Retardation and Down's Syndrome				
	j. Describe and discuss Genetically transmitted neuro-muscular conditions				
	k. Describe and discuss Malnutrition and Vitamin deficiency conditions				
	l. Describe and discuss Juvenile R. A. & other Rheumatologic conditions of the Musculoskeletal system				
	m. Discuss Common diseases of the Respiratory system: Asthma, Bronchitis, Bronchiectasis, T.B., Pneumonia, Lung collapse, Pleural effusion.				
	n. Discuss Respiratory distress in neonate				
	o. Discuss Rheumatic & Congenital Heart disease				

Sr. No.	Topic	Domain	Level	T/L	Assessment
	Demonstrate the skills in 1. History taking and general examination in neonate and child 2. Examination of neonate and neonatal reflexes. 3. Examination of the nervous system 4. Examination of respiratory system 5. Examination of cardiovascular system 6. Examination of musculoskeletal system 7. Ventilatory care in neonates and children.	**Skills**	**SH**	**Case clinic**	**Case Presentation**

COMMUNITY HEALTH & SOCIOLOGY

(Didactic : Community Health : 30 Sociology : 20, Clinical 10 hrs**) TOTAL 60 HRS**

COURSE DESCRIPTION:

The course is organised to introduce the concept of health care and management issues in Health Services. It will help them in assuming a leadership role in their profession and assume the responsibility of guidance. It will help them assume wider responsibilities at all levels of health services. It will help them in improving their performance through a better understanding of the health services at all levels of the community.

Sr. No.	Topics	Didactic Hours	Clinical Hours	Total Hours	Subject Integration
A	**Community Health**	**30**	**10**	**40**	Preclinical Paraclinical Clinical sciences
B	**Sociology**	**20**	**-**	**20**	
	TOTAL	**50**	**10**	**60**	

Sr. No.	Topics: The student will be able to in	Domain	Level	TL method	Assessment
1	**GENERAL concept & DETERMINANTS OF HEALTH & DISEASES:**	**K**	**K**	**IL**	**SAQ, LAQ**
	a. Discuss National & International Definition of Health, Role of Socio-Economic & CulturalEnvironment in Health & Disease. b. Define and discuss the scope and uses of Epidemiology with its relevance to physiotherapy c. Describe and discuss Environmental Hygiene including man & hissurrounding, Occupational& Industrial hygiene, Village & Town Sanitation,and Bacteriology of Water, Milk, & Food Hygiene.				
2	**NATIONAL PUBLIC HEALTH ADMINISTRATION**	**K**	**K**	**IL**	**SAQ, LAQ**
3	**HEALTHCARE DELIVERY SYSTEM:**	**K**	**K**	**IL**	**SAQ, LAQ**
	a. Describe and discuss the Healthcare Delivery Systemof India b. Describe and discuss the National HealthProgrammes c. Describe and discuss the Role of W.H.O. d. Describe and discuss the Millennium DevelopmentGoals for All				

Sr. No.	Topic	Domain	Level	T/L	Assessment
4	**PRIMARY HEALTHCARE:**	**K**	**K**	**IL**	**SAQ, LAQ**
	a. Define Primary Health Care b. Define and discuss the Principles of Primary Health Care, c. Define and discuss the Elements & their application to Primary Healthcare				

5	**EPIDEMIOLOGY OF SOCIO-ECONOMICAL & CULTURAL** ISSUES - related to morbidity in relation to the following vulnerable groups	**K**	**K**	**Theory**	**SAQ, LAQ**
	a. Women: i. Describe and discuss Pregnant and lactating women, maternal health (ANC, PNC, INC) ii. Describe and discussPerimenopausal women's health in relation to physical & psychological b. Describe and discuss Low Birth Weight, Breastfeeding, Complementary feeding, IYCN, IMNCI, Vaccine preventable diseases,Immunization programmes ofInfants along with Infant and childhood mortality				
	c. Children: Describe and discuss Child health, Growth monitoring under five clinics, ICDS, PEM				

Sr. No.	Topic	Domain	Level	T/L	Assessment
	d. Describe and discuss thehealth of School aged population through Early detection and prevention of disabilities, and behavioural problems				
6	**DEMOGRAPHY AND OBJECTIVES OF NATIONAL FAMILY WELFARE PROGRAMMES AND NATIONAL POPULATION POLICY**	**K**	**K**	**IL**	**SAQ, LAQ**
7	**COMMUNICABLE DISEASES**	K	K	IL	SAQ
	Describe and discuss the overview [including prevention & control] ofT.B., H.I.V., Leprosy, Vector- borne diseases- Malaria / Filariasis / Dengue/ Chikungunya/ Japanese encephalitis.				
8	**NON-COMMUNICABLE DISEASES:**	K	KH	IL	**SAQ, LAQ**
	Describe and discuss Diabetes Mellitus, Hypertension, CoronaryHeart Disease / Obesity /Blindness/Accidents /Stroke/ Cancer.				
9	**NUTRITIONAL DISEASES:**	K	KH	IL	SAQ
	Describe and discuss Malnutrition, Nutritionaldisorders and National nutrition programmes, Osteomalacia,Rickets, Neuropathies due to Vitamin - deficiency, SkeletalDeformities.				

Sr. No.	Topic	Domain	Level	T/L	Assessment
10	**MENTAL HEALTH:**	K	KH	IL	**SAQ, LAQ**
	a. Describe and discuss Socio-economic & cultural aspects of Mental Health b. Describe and discuss the Substance abuse and addiction –tobacco, alcohol and others in relation to Mental Health				
11	**OCCUPATIONAL HEALTH:**	K	KH	IL	**SAQ, LAQ**
	Define scope, prevention & Legislation of Occupational diseases & hazards along with Occupational lung diseases & Physical injuries/pains.				
12	**GERIATRIC HEALTH:**	K	KH	IL	**SAQ, LAQ**
	a. Describe and discuss the Physical, social, and economic aspects of geriatric health b. Describe and discuss Osteoporosis, Malnutrition, Alzheimer's disease, and Parkinson's disease				
13	**HOSPITAL WASTE MANAGEMENT:**	K	KH	IL	**SAQ, LAQ**
	Describe and discuss the UniversalSafety Precautions, Immunisation of healthcare providers including their vaccination.				
COMMUNITY VISITS: **Community health centres: Urban & Rural – 10 Hours**					

B	SOCIOLOGY (Total 20 hrs) Syllabus				
Sr. No	**Topics**	**Domain**	**Level**	**TL method**	**Assessment**
1	**INTRODUCTION:**	K	KH	IL	SAQ/LAQ
	Describe and discuss the Relevance of Physiotherapy and social factors affecting Health status, Decision Making in takingtreatment.				
2	**SOCIALIZATION:**	K	KH	IL	SAQ/LAQ
	Describe and discuss the Definition, Influence, of SocialFactors, on Personality, Socialization in the Hospital & Rehabilitation of the patients.				
3	**SOCIAL GROUPS:**	K	KH	IL	SAQ/LAQ
	Describe and discuss the Concepts, Influence of formal & informal groups of Health & Diseases, Role of Primary & Secondary Groups in the Hospital& Rehabilitation Setting.				
4	**FAMILY:**	K	KH	IL	SAQ/LAQ
	Describe and discuss the Influence on human personality, Role of family in health and disease				

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Sr. No.	Topic	Domain	Level	T/L	Assessment
5	**COMMUNITY ROLE:**	K	KH	IL	SAQ/LAQ
	Describe and discuss the Rural & Urban communities in Public Health, Role of community in determining Beliefs, Practices &Home Remedies in Treatment.				
6	**CULTURE:**	K	KH	IL	SAQ/LAQ
	Describe and discuss the Component's impact on human behaviour, the Role of community in determining beliefs, practices,and health-seeking behaviour and home remedies				
7	**SOCIAL CHANGE FACTORS:**	K	KH	IL	SAQ/LAQ
	Describe and discuss the Human Adaptation, Stress, Deviance,Health Programme Role of Social Planning in the improvement of Health & in Rehabilitation.				
8	**SOCIAL CONTROL:**	K	KH	IL	SAQ/LAQ
	Describe and discuss the Definition, Role of norms, Folkways, Customs, Morals, Religion, Law & other means of social controls in the regulation of Human Behaviour, SocialDeviance & Disease				

Sr. No.	Topic	Domain	Level	T/L	Assessment
9	**POPULATION GROUPS:**	K	KH	IL	SAQ/LAQ
	a. Describe and discuss the Population group of Children,Street children, Child labour, and Juvenile delinquency b. Describe and discuss the Population group of Women: Victims of domestic violence and addiction, C.S.W., physically and /or mentally challenged Describe and discuss the Roleof NGOs, Social support systems				
10	Describe and discuss the **Social Security & Social Legislation in relation to the Disabled**				
11	Describe and discuss the **Role of aMedical Social Worker**				
12	Describe and discuss the **Sociologyof Brain Death and/ or Organdonation.**				
13	**SOCIAL PROBLEMS:**	K	KH	IL	SAQ/LAQ
	Describe and discuss the social problems related to Populationexplosion, Poverty, Dowry, and Illiteracy- Causes, prevention & Control measures.				

GYNAECOLOGY & OBSTETRICS
(COLLEGE EXAMINATION)
(Didactic - 20 hrs + Clinical – 10 hrs) **TOTAL 30 HRS**

COURSE DESCRIPTION:

This course intends to provide an introduction to women's health which includes problems related to pregnancy, osteoporosis, and other disorders specific to women. Topics will focus on medical terminology, clinical examination, evaluation, comparing contemporary, and traditional interventions and the impact of evolving technology in this area. It also emphasises on evaluation & medical treatment of pelvic floor dysfunctions.

The students will be able to

a) Discuss Normal & abnormal physiological events, complications and management during Puberty.

b) Discuss Normal and abnormal physiological events, complications and management of pregnancy (Pregnancy, Labour, Puerperium)

c) Discuss Normal and abnormal physiological events, complications and management of menopause.

d) Discuss Normal and abnormal physiological events, complications and management of uro-genital dysfunction. (Antenatal, Postnatal, during menopause)

e) Acquire the cognitive skill of clinical examination of the pelvic floor

Sr. No.	Topics	Didactic Hours	Practical/ Lab Hours	Total Hours	Subject Integration
1	**PHYSIOLOGY OF PUBERTY & MENSTRUATION**	2		2	Preclinical Paraclinical Clinical Sciences
2	**PHYSIOLOGY OF PREGNANCY**	3		3	
3	**PHYSIOLOGY OF LABOUR**	4		4	
4	**POSTNATAL PERIOD**	2	5	7	
5	**INFERTILITY**	1		1	
6	**URO-GENITAL DYSFUNCTION**	3	1	4	
7	**GYNAECOLOGICAL SURGERIES**	2	1	3	
8	**PRE, PERI & POST MENOPAUSE**	2	1	3	
9	**PELVIC INFLAMMATORY DISEASES**	1	2	3	
	TOTAL	**20**	**10**	**30**	

Sr. No.	Topics The student will be able to	Domain	Level	TL method	Assessment
1	**DISCUSS THE PHYSIOLOGY OF PUBERTY & MENSTRUATION** Enumerate Abnormalities & commonproblems of Menstruation	K	KH	IL	SAQ
2	**PHYSIOLOGY OF PREGNANCY:**	K	KH	IL	**SAQ**
	a. Discuss Development of thefoetus, Normal/Abnormal/multiple gestations, b. Enumerate and describe Common Complications during pregnancy: i. Anaemia, ii. P I H iii. Eclampsia iv. Diabetes, v. Hepatitis, TORCH infection or HIV				
3	**PHYSIOLOGY OF LABOUR**	K	KH	IL	**SAQ**
	a. Describe Normal – Events of Ist, IInd & IIIrd stages of labour b. Discuss Complications duringlabour & management c. Discuss approaches to Caesarean section- elective/ emergency & post-operative care				

Sr. No.	Topic	Domain	Level	T/L	Assessment
4	**DESCRIBE POSTNATAL PERIOD**	K	KH	IL	**SAQ**
	a. Discuss puerperium &lactation b. Enumerate complications of repeated childbearing with small gaps c. Methods of contraception				
5	**INFERTILITY**	K	KH	IL	**SAQ**
	A.Discuss management withemphasis on PCOS/PCOD				
6	**URO-GENITAL DYSFUNCTION**	K	KH	IL	**SAQ**
	a. Discuss Uterine prolapse – Classification & Management (Conservative / Surgical) b. Discuss Cystocele, Rectocele,Enterocoele, and Urethrocele				
7	**DISCUSS PRINCIPLES OF GYNAECOLOGICAL SURGERIES, approach, its indication and contraindications** (Pre- and post-surgical management)	K	KH	IL	
8	**UNDERSTAND PRE, PERI & POST MENOPAUSE** a. Physiology b. Complications & **c.** Management	K	KH	IL	**SAQ**

Sr. No.	Topic	Domain	Level	T/L	Assessment
9	**PELVIC INFLAMMATORY DISEASES:** Discuss aetiology, and clinical features with special emphasis on backache due to Gynaecological / Obstetrical conditions	K	KH	IL	**SAQ**
10	**DEMONSTRATE EVALUATION & PRESENTATION OF** One case Each in a) Uro-genital dysfunction b) Antenatal care c) Postnatal care d) Following normal labour e) Following Caesarean section f) Pelvic Inflammatory Diseases 2. **Observation of** One Normal & One Caesarean delivery & One Hysterectomy / Repair of the Uro-genital Prolapse	S	SH	IL/CBL/ SIMULATION/OBSERVATION	**CBL**

Physiotherapy Diagnosis (including Electrodiagnosis)

(Didactic – 85 hrs + Clinical –145 hrs) **TOTAL 230 HRS**

COURSE DESCRIPTION:

1. Physical Therapy Diagnosis & Physiotherapeutic Skills is a stepping stone to introduce students to actual concepts of PT assessment and later to the treatment concepts
2. Physical Therapy Diagnosis focuses on the assessment of all the body systems i.e., Musculoskeletal, Neurological and Cardiovascular-Respiratory in order to study the various impairments and their impact on activity and participation of the individual taking into consideration the contextual factors as well.
3. It also emphasises the clinical reasoning of the underlying components of a universal evaluation tool (ICF) for a better understanding of the patient in a holistic manner.
4. The student will also gain a sound knowledge of electro-diagnosis, which is an integral part of Functional Diagnosis.

The students will be able to

- Understand the components, use, and application of the International Classification of Functioning, Disability and Health (ICF).
- Acquire the knowledge of human growth and development from new life to birth and adulthood
- Understand the structure and function of nerves and muscles as a base for understanding the electro-diagnostic assessment.
- Understand the use of appropriate tools or instruments of assessment in Musculoskeletal, Neurological, and Cardiovascular conditions.
- Analyse system dysfunction
- Document the results of the assessment to evaluate the patient from time to time.
- Perform assessment of measures of body structures and functions related to tissue mechanics.
- Perform assessment of measures of body structures and functions related to motor control affecting activity and participation, quality of life, and independence.
- Perform the skill of electro-diagnosis (SD Curve) and observe skills of EMG and NCV studies and documentation-related findings.
- Interpret and analyse various investigations with relevance to physiotherapy

- Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention, and health promotion and functioning
- Demonstrate ability to assess facilitators and barriers contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values, and environment.
- Demonstrate ability to perform a physical examination that is complete and relevant within the framework of ICF
- Demonstrate effective clinical problem-solving, judgement, and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualised therapeutic goals that include preventive, promotive, restorative, and rehabilitative.
- Maintain an accurate, clear, and appropriate record of the patient in conformation with legal and administrative frameworks.
- Demonstrate the ability to choose the appropriate tests and interpret these tests based on scientific validity, cost-effectiveness, and clinical context.
- Select appropriate assessment techniques to facilitate safety, sensitive practices in patient comfort, and effectiveness.
- Demonstrate the safe, respectful, and effective performance of physical therapy handling techniques taking into account the patient's clinical condition, need for privacy, resources available, and the environment.
- Communicate with patients and their families/caregivers regarding the need and uses of various assessment techniques.

Sr. No.	Topic	Theory Hours	Practical / Laboratory Skills Hours	Total Hours	Subject Integration
A	INTERNATIONAL CLASSIFICATION OF FUNCTION, DISABILITY & HEALTH (ICF)	05		5	Integrated with anatomy, physiology biochemistry, pathology, pharmacology & microbiology orthopaedics, medicine and allied, surgery and allied and community medicine Physiotherapy integration with kinesiology & Movement Science I & II electrotherapy II /Physiotherapy Paper I-IV
B	MUSCULOSKELETAL EVALUATION	20	40	60	
C	CARDIOVASCULAR & RESPIRATORY EVALUATION	20	35	55	
D	NEURO EVALUATION	20	40	60	
E	ELECTRO DIAGNOSIS	10	20	30	
F	EVALUATION RELATED TO WOMEN'S HEALTH, GERIATRIC HEALTH, AND OCCUPATIONAL HEALTH	10	10	20	
TOTAL		**85**	**145**	**230**	

Sr No.	Topic	Domain	Level	TL method	Assessment
	Functional Diagnosis using International Classification of Function, Disability & Health (I.C.F.)				
	1. Define various terminologies within the framework of ICF	K	K	IL	SAQ
	2. Describes the basic concept of ICF	K	K	IL	SAQ
	3. Describe the concept of Functioning	K	K	IL, CB	SAQ
	4. Enlist various structural and functional impairments related to various systems of the body	K	KH	Group	Case/LAQ
	5. Elicit contextual factors as facilitators and barriers	K	KH	CB	Case
	6. Evaluate ADL and Instrumental ADL using FIM, Barthel Index	K,S	KH,SH	IL, CBL	Practical
	7. Generate a Physical Therapy diagnosis based on Impairments, contextual factors, activity and participation	S	SH	Case	LAQ, Case
	B. MUSCULOSKELETAL EVALUATION				
	1. ASSESSMENT OF MUSCULOSKELETAL SYSTEM:				
	i. Describe and discuss methods of assessment of soft tissue flexibility	K, S	KH	IL, Demo	SAQ
	ii. Demonstrate methods to assess soft tissue flexibility	K, S	SH	DOAP	DOP
	iii. Describe and discuss methods of assessment of joint mobility	K, S	KH	IL	SAQ
	iv. Demonstrate assessment of joint mobility for all Peripheral joints including spine	K, S	SH	DOAP	DOP

Sr No.	Topic	Domain	Level	TL method	Assessment
	v. Describe and discuss methods of assessment of Muscle strength & Endurance	K	KH	IL	SAQ
	vi. Demonstrate assessment of muscle strength and muscle endurance.	S	SH	Case	Case
	vii. Describe and analyse various Trick Movements	K, S	SH	IL	SAQ
	viii. Identify and demonstrate limb length discrepancy	S	SH	Case	Case
	ix. Describe postural deviations and their pathology	K	K	IL	SAQ
	x. Assess and analyse postural abnormalities	S	S	Case	Case
	xi. Identify gait deviations due to musculoskeletal dysfunction	K,S	S,SH	Case	Case
	xii. Assess Gait abnormality	S	S	Case	Case
	xiii. Elicit document and present an appropriate history that identifies the Functioning and impairment using the ICF Framework	S	P	CBL	Case
	xiv. Document and present comorbid illnesses and risk factors	S	KH	CBL	Case
	xv. Perform, demonstrate and document a physical examination based on the history that includes general and specific objective evaluation	S	SH	CBL	Case
	xvi. Choose and interpret diagnostic tests based on the clinical diagnosis including radiography	S	S	PBL	Case Base
	2. Assessment of Joints with special tests:				
	I. Discuss, demonstrate and perform the following tests for assessment of the Cervical Spine: Foraminal compression, Distraction, Shoulder depression, vertebral artery, and Dizziness tests.	S	SH	Tutorial Demo	Case-based

Sr No.	Topic	Domain	Level	TL method	Assessment
	II. Discuss, demonstrate, and perform the following tests for assessment of Shoulder: Yergason's, Speed's, Drop-Arm, Supraspinatus, Impingement, Anterior & Posterior Apprehension, Allen, Adson	S	SH	Tutorial Demo	Case Based
	iii. Discuss, demonstrate and perform the following tests for assessment of Elbow: Cozen's, Miller's, Tinel's sign	S	SH	Tutorial Demo	Case-based
	iv. Discuss, demonstrate and perform the following tests for assessment of Forearm, Wrist & Hand: Phalen's, Bunnell-Littler, Froment's sign	S	SH	Tutorial Demo	Case-based
	v. Discuss, demonstrate and perform the following tests for assessment of Lumbar Spine: Schober's, SLR, Prone Knee Bending, Slump.	S	SH	Tutorial Demo	Case-based
	vi. Discuss, demonstrate and perform the following tests for assessment of SacroIliac joint: Faber- Patrick's, Gaenslen, Gillet, March	S	SH	Tutorial Demo	Case-based
	vii.Discuss, demonstrate, and perform the following tests for assessment of Hip: Nelaton's line, Bryant's triangle, Thomas, Ober's, Tripod sign, Trendelenburg sign,	S	SH	Tutorial Demo	Case-based
	viii. Discuss, demonstrate and perform the following tests for assessment of the Knee: Tests for collateral & cruciate ligaments (valgus, varus, Lachman, Sag, Drawer's, McMurray's, Fluctuation, Patellar tap, Q- angle, Clarke)	S	SH	Tutorial	Case-based

Sr No.	Topic	Domain	Level	TL method	Assessment
	ix. Discuss, demonstrate and perform the following tests for assessment of Ankle & Foot: Anterior Drawer, Talar Tilt, Homan's & Moses (for D.V.T.)	S	SH	Tutorial Demo	Case-based
	3. Response of soft tissues to trauma:				
	Define a trigger point	K	K	lecture	SAQ
	Identify various soft tissue responses to trauma including spasms, ligament sprains, and muscle strains.	K	K	Lect, Pract	Pract case
	Describe various soft tissue injuries	K, S	KH	Lecture	
	4. Examination of musculoskeletal function:	**Supervised CLINICAL PRACTICE**			
	I. Elicit history, Assess, demonstrate, analyse and document structural and functional impairment	S	SH	CBL	CASE
	Evaluate functioning, activities, and participation in society using the framework of ICF	S	SH	CBL	CASE
	5. Assessment of Pain:	K	KH	IL CBL	SAQ
	i. Discuss Pain and integrate it into the ICF model to assess factors that interact to create an experience of pain	K	KH	IL	SAQ
	ii. Describe various components of pain including Somatic, Somatic referred, Neurogenic, Visceral	K	KH, S	SDL	SAQ
	iii. Rationalise and choose appropriate pain impairment measurement tools for patients with various levels of literacy, culture, and age settings	K,S	KH, SH	CBL	PB

	iv. Perform subjective and objective assessment of pain and documentation with reference to	S	SH	Case	DOAP
	a) Location, duration, progression, distribution, quality, diurnal variations, and modifying factors.				
	b) Severity, nature of pain, tissue irritability				
	ii. Objective Measurement & Documentation-				
	a) Visual Analogue Scale (V.A.S).				
	b) Numerical Rating Scale (N.R.S.)				
	McGill's modified questionnaire (including Body charts)				
	v. Demonstrate empathetic and compassionate communication during pain assessment	A	SH	Case Role play	Case/simulation
	C ASSESSMENT OF CARDIOVASCULAR & RESPIRATORY SYSTEM: 1, Assessment related to cardiovascular and respiratory impairment				
	i. Describe and demonstrate assessment of thoracic cage mobility using chest expansion and symmetry	K, S	SH	IL	CASE
	ii. Define dyspnoea and determine potential causes of breathlessness	K, S	KH	IL	SAQ
	iii Describe various methods of measuring dyspnoea and use an appropriate method of grading dyspnoea	K, S	S, SH	IL	SAQ
	iv Describe and identify abnormal breath sounds	K, S	**K, SH**	IL	**SAQ, CASE**
	v. Describe and assess an altered breathing pattern	K, S	**K, SH**	IL	**SAQ, CASE**
	vi. Discuss normal and abnormal parameters of pulmonary function	K, S	**K, SH**	**IL**	**CB**
	vii. Demonstrate measurement of Rate of Perceived exertion, Breath holding time, Single breath count	K, S	**SH**	**DOP**	**PRACTICAL**
	viii. Identify variations in Peripheral pulse	K, S	SH	**IL**	**CASE**

Sr No.	Topic	Domain	Level	TL method	Assessment
	ix. Identify abnormal variations in blood pressure at rest, change with position and with activity	K, S	SH	**CASE**	**PRACTICAL**
	x.. Demonstrate evaluation of peripheral pulses	K, S	SH	**DOP**	
	xi. Discuss various tests for evaluation of peripheral arterial system	K, S	SH	**IL**	
	xii. Demonstrate measurement of Ankle Brachial index	K, S	SH	**DOP**	
	xiii. Demonstrate various tests for assessment of arterial system	K, S	SH	**DOP**	
	xiv. Discuss and demonstrate various tests for assessment of venous dysfunction	K, S	SH	**IL, DOP**	
	xv. Discuss and demonstrate tests for assessment of lymphatic dysfunction	K, S	SH	**IL, DOP**	
	2. Assessment of Exercise capacity	K, S	SH	Practical	SAQ, Practical
	1. Define Functional capacity, submaximal test, and maximal test	K, S	K	**IL**	**SAQ**
	2. Discuss and describe various maximal and submaximal protocols	K, S	KH	**IL**	**SAQ**
	3. Describe theoretical bases of different protocols for maximal exercise testing	K, S	KH	**IL**	**SAQ**
	4. e.g.: Bruce Protocol, Modified Bruce Protocol, Balke Protocol.				
	5. Demonstrate evaluation of functional capacity using six-minute walk test	K, S	SH	**PRACT**	**PRACT**
	6. Demonstrate evaluation of exercise capacity using incremental shuttle test	K, S	SH	**PRACT**	**PRACT**
	7. Demonstrate evaluation of exercise capacity using step test	K, S	SH	**PRACT**	**PRACT**
	3. Assessment of Fitness & Health				
	1. Discuss and demonstrate the use of ACSM Screening for risk factors for cardiovascular disease	**K, S**	**SH**	**CBL**	**PRACTICAL**
	2. Apply Physical Activity Readiness Questionnaire before exercise prescription and testing	**S**	SH	CBL	PRACTICAL

Sr No.	Topic	Domain	Level	TL method	Assessment
	3. Discuss, and demonstrate evaluationof Body composition-B.M.I., use of skinfold callipers, Girth measurement	K, S	SH	CBL	PRACTICAL
	4. Discuss and demonstrate evaluation of Physical fitness: Flexibility, Strength, Endurance, Agility	K, S	SH	CBL	PRACTICAL
	5. Demonstrate use of Screening tools for health and fitness in childhood, adulthood, and geriatric	K, S	SH	CBL	PRACTICAL
	6. Discuss the generic and specific quality of life assessment tools	K, S	KH	IL	**SAQ**
	4. Investigations				
	1. Interpretation of reports – A.B.G., P.F.T., P.E.F.R., E.C.G.- (Normal & Variations due to Ischemia & Infarction), X-ray Chest, Biochemical Reports, cardiac markers	**S**	**KH**	**DL PBL**	**SPOTS CLINICAL EXAM**
	2. Discuss and interpret Pulmonary Function Tests in obstructive, restrictive, and mixed dysfunctions	**S**	KH	DL PBL	
	3. Understand and Describe normal Electrocardiogram and variations in ischemia and infarction	**S**	KH	DL PBL	
	4. Discuss interpretation of normal Chest X-ray and variations	**S**	KH	DLDL	
	5. Discuss and Interpret Abnormal biochemical reports related to lipids, glucose control, thyroid, liver enzymes, renal function, haemoglobin, platelets, and differential blood counts		KH	DL PBL	
	5. Examination of Cardiovascular Respiratory Dysfunction	**Supervised CLINICAL PRACTICE**			
	Elicit history, Assess, demonstrate, analyse and document structural and functional impairment	**SH**		**CBL**	**Practical**

Sr No.	Topic	Domain	Level	TL method	Assessment
	Evaluate functioning, activities, and participation in society using the framework of ICF	**SH**		**CBL**	**Practical**
	D. NEURO EVALUATION				
	1. General principles of Human development & maturation	**Domain**	**Level**	**TL**	**Assessment**
	i. Describe the Physical, motor, Sensory Cognitive & Perceptive, Emotional, and Social aspects of human development and maturation.	K	K	**DL**	**SAQ**
	ii. Describe the Factors influencing human development & growth such as Biological, Environmental, and inherited.	K	K	**DL**	**SAQ**
	iii. Describe the Principles of maturation in iv. general & anatomical directional pattern – a. Cephelo – caudal b. Proximo – distal c. Centero – lateral d. Mass to specific pattern e. Gross to fine motor development	K	K	**DL**	**SAQ**
	v. Describe and demonstrate the Development in specific fields - Oro motor development, sensory development, neurodevelopment of hand function.	K,S	K,SH	**DL**	**SAQ**
	vi.Identify motor, and social milestones achieved	K,S	KH,SH	**DEMO**	**CASE**
	2. Assessment of Movement Dysfunction				
	i.Describe and perform the procedure ofhigher function assessment **including the application of scales MMS, GCS.**	S	SH	CBL	**Case**
	ii.Describe and perform the procedure of Cranial nerves assessment.	S	SH	CBL	**Case**

Sr No.	Topic	Domain	Level	TL method	Assessment
	iii.Describe the concept of Sensory organisation and body image and perform the procedure of sensory assessment	S	SH	CBL	Pract demonstration SAQ PBQ **Case**
	iv.Describe, and discuss the concept of balance	K	KH	IL	
	v.Perform Balance assessment using Berg Balance	S	SH	CBL	
	vi. Describe and perform the procedure of assessment of tone along with its grading using Ashworth and modified Ashworth scale	S	SH	CBL	
	vii. Describe and perform the procedure of sitting and standing balance assessment.	S	SH	CBL	
	viii. Describe and perform the procedure of assessment voluntary control andMMT.	S	SH	CBL	
	ix. Describe and perform the procedure of assessment of superficial and deep tendon reflexes.	S	SH	CBL	
	x. Describe and perform the procedure of Coordination assessment.	S	SH	CBL	
	xi. Describe and perform the procedure of assessment of gait along with its deviations due to neurological impairment	S	SH	CBL	
	xii. Describe and perform the procedure and application, F.I.M., Barthel Index, D.G.I., S.T.R.E.A.M. & A.S.I.A.	S	SH	CBL	
	Xiii. Write functional diagnosis using ICF accurately.	K	KH	CBL	**LAQ Case**
	xiii. Able to Interpret Electro diagnostic Findings and routine Biochemical investigations	K	KH	CBL	**SAQ Case**
	3. Examination of neuromusculoskeletalDysfunction	K, S	KH,SH	CBL	SAQ,PBQ

Sr No.	Topic	Domain	Level	TL method	Assessment
	Elicit history, Assess, demonstrate, analyse and document structural and functional impairment	K, S	KH,SH	CBL	SAQ,PBQ
	Evaluate functioning, activities, and participation in society using a framework of ICF	K, S	KH,SH	CBL	SAQ,PBQ
	ELECTRO DIAGNOSIS				
	i. Describe the Physiology of resting membrane potential, action potential, and Propagation of Action Potential	K	K	SDL	**SAQ**
	ii. Describe the Physiology of muscle contraction Motor unit & Recruitment pattern of the motor unit – Size principle	K	K	SDL	
	iii. Describe Electrophysiology of muscle & nerve	K	K	SDL	
	iv. Perform the procedure of Faradic Galvanic test	S	SH	Case	**Case**
	v. Perform the procedure motor point location and plot SDC for a given muscle.	S	SH	Case	
	vi.v) Perform Test for Sensory & Pain Threshold/ Pain Tolerance – technique only	S	SH	Practical	
	vii. Define EMG and describe the instrumentation and Basic components like C.R.O., Filter, Amplifier & Preamplifier, and Types of Electrodes	K	K	DL	**SAQ**
	viii. Describe the Normal & Abnormal E.M.G. pattern a. at rest b. on minimal contraction c. on maximal contraction	K	KH	Case Spots	
	ix. Describe the procedure, Principles & Technique of Motor and Sensory Nerve Conduction Studies, F wave, and H reflex.	K	KH	IL	

Sr No.	Topic	Domain	Level	TL method	Assessment
	x. Interpret EMG/NCV Reports	K,S	KH,SH	IL	SPOTS
	F.EVALUATION IN WOMEN'SHEALTH, OCCUPATIONAL HEALTH AND ELDERLY				
	WOMEN'S HEALTH				
	i. Discuss the approach to clinical evaluation of pelvic floor	K	KH	CASE BASE	**VIVA**
	ii. Obtain skills for pelvic floor evaluation on pelvic models with musculature attachments.	S	KH		
	iii. Understand evaluation for pelvic floor dysfunction including the PERFECT scheme, Pad test etc.	K	KH		
	iv. Obtain skills of evaluation of posture and muscular evaluation in ANC and PNC cases.	S	SH		
	OCCUPATIONAL HEALTH				
	i. Evaluate functional aspects for a client in the workplace including work posture, repetitions, duration and break timings, and any additional factors	S	KH	CASE BASE	**PRACTICAL**
	ELDERLY HEALTH				
	i. Identify system impairment related to ageing	S	KH	DEMO	**PRACTICAL**
	ii. Discuss and Perform Time Get up and go test	S	S		
	iii. Discuss and perform senior fitness test	S	S		
	G.ASSESSMENT OF SOFT SKILLS				
	Able to communicate effectively, sensitively, and adequately with patients and caretakers	A,S	SH	CASE	**PRACTICAL**
	Protects patients' privacy and maintains confidentiality	A,S	SH	CASE	
	Avoids use of medical jargon while giving instruction	A,S	SH	CSE	
	Ensures patient safety at all times	A,S	SH	CASE	

Sr No.	Topic	Domain	Level	TL method	Assessment
	Documents patient parameters and test results in a comprehensive legible manner	A,S	SH	CASE	
	Maintains holistic approach while evaluation of patient problem	S	SH	CASE	

DOCUMENTATION:	
A	Documentation & Interpretation of the following investigations: i.Electro diagnosis: 2 each a)S.D.C. b)Faradic Galvanic Test c)E.M.G. & N.C. Studies ii. Cardiovascular & Pulmonary: (1 each) – A.B.G., P.F.T., E.C.G., X-ray Chest, Exercise Tolerance Test. iii. Neurological Scales (1 each)– Modified Ashworth, Berg's Balance, D.G.I., Glasgow iv. Coma, Barthel Index, F.I.M. v. Components of Senior Fitness Tests: Flexibility (chair sit and reach test and back scratch test), Aerobic Capacity (2 min step test), Endurance (Chair sit to stand test, arm curl test) and Balance (Get up and go test)
B	Case presentation with Functional diagnosis: Total 12 cases i.Three cases each in – a)Musculoskeletal (Upper extremity/lower extremity/spine) b)Neurological (adult/Paediatric/extrapyramidal) c) Cardiovascular & Respiratory (Respiratory/cardiac/ general surgical) d)General & Community Health (Including Fitness & Health, Elderly Health, Women & Child Health, Occupation Health)
To maintain the Record/ Journal of the term work & to get each assignment duly signed by respective Head of the Dept.	

PHYSIOTHERAPY V (PHYSIOTHERAPEUTIC SKILLS)

COURSE DESCRIPTION:

1. Functional Diagnosis & Physiotherapeutic Skills is a stepping stone to introduce students to actual concepts of PT assessment and later to the treatment concepts

2. The student is also subjected to learning basics of manipulative, cardiovascular-respiratory, and neuro-therapeutic skills on models so that he/she will be able to apply these principles eventually on patients.

3. The student will also gain a sound knowledge of electro-diagnosis, which is an integral part of Functional Diagnosis.

The Student will be able to

- Understand the theoretical basis and principles of manipulative skills, neurotherapeutic skills, and skills of cardiopulmonary care and resuscitation
- Demonstrate skills of manual therapy musculoskeletal, neurotherapeutics and cardiovascular and respiratory skills on models (Laboratory work)
- Demonstrate the safe, respectful, and effective performance of physical therapy handling techniques taking into account the patient's clinical condition, need for privacy, resources available, and the environment.
- Follow the principles of appropriate handling technique that is draping, hand placement, body part positioning, manual techniques, and lifting and transfer techniques.
- Communicate with patients and their families/caregivers regarding the need and uses of various assessment techniques

Sr. No.	Topic	Didactic Hours	Practical / Laboratory Skills Hours	Total Hours	Subject Integaration
1.	**Soft Tissue Mobilization and Manipulative skills**	**20**	**60**	**80**	Integrated with anatomy, physiology biochemistry, pathology, pharmacology & microbiology orthopaedics, medicine and allied, surgery and allied and community medicine Physiotherapy integration with kinesiology & Movement Science I & II electrotherapy II /Physiotherapy Paper I-IV
2.	**Neurotherapeutic skills**	**20**	**50**	**70**	
3.	**CARDIOVASCULAR RESPIRATORY therapeutic RELATED SKILLS**	**20**	**40**	**60**	
4.	**Women's health & sports**	**10**	**10**	**20**	
TOTAL		**70**	**160**	**230**	

Sr No.	Topic: The student will be able to in	Domain	Level	TL	Assessment
	SOFT TISSUE MOBILIZATION AND MANIPULATIVE SKILLS				
1	Discuss Basics in Manual Therapy andApplications with Clinical Reasoning:	K	KH	IL. PRCT	SAQ
2	Perform Assessment of Articular and extra-articular soft tissue status a) Contractile tissues b) Non-contractile tissues	S	SH	PRACT DEMO	PRACT
3	Examine joint integrity, Accessory movement End feel	S	SH	PRACT	PRACTICAL
4	Discuss and enumerate Basic principles, indications, contraindications of mobilisation skills for joints	K	KH	IL/ DEMO	SAQ
5	Discuss and enumerate Basic principles, indications, contraindications of mobilisation skills for soft tissues	S	KH	IL	SAQ
6	Discuss the principles of manual therapy a)Maitland b)Mulligan c)Kaltenborn d)Cyriax	K	KH	IL	SAQ

Sr No.	Topic	Domain	Level	TL	Assessment
7	Discuss the principles of soft tissue mobilisation techniques i.e. a) Myofascial Release Technique b) Muscle Energy Technique	K	KH	IL	SAQ
8	Describe nerve course and discuss Neural Tissue Mobilization (Neuro Dynamic Testing) for upper extremity, lower extremity	K	KH	IL	SAQ
9	Perform Manual Therapy in Kaltenborn, Maitland's for all peripheral joints on models	S	SH	DEMO	PRACT
10	Discuss the concept of NAGS and Snags	K	K	IL	-
11	Perform Neuro dynamic testing on models	S	SH	DEMO	PRACT
12	Perform Muscle energy techniques, trigger point release on models	S	SH	LECT	PRACT
13	Discuss principles of Mc Kenzie techniques	K	SH	LECT	SAQ
14	Demonstrate Mc Kenzie exercises on models	S	SH	DEMO	PRACT
15	Discuss dysfunctions of SI Joint	K	SH	LECT	SAQ
16	Demonstrate exercises for postural correction on models	S	SH	DEMO	PRACT
17	Discuss the concept of kinetic control	K	K	LECT	VIVA
18	Discuss the concept of Kinesiotaping	K	K	LECT	VIVA
19	Analyse and demonstrate the choice of electrotherapeutic modality for pain relief on patients	S	KH	CBL	CASE
20	Analyse and demonstrate the choice of electrotherapeutic modality improving muscle strength on patients	S	KH	CASE	CASE

Sr No.	Topic	Domain	Level	TL	Assessment
21	Analyse and demonstrate the exercises for improving muscle performance in patients	S	KH	CBL	CASE
	NEUROTHERAPEUTIC SKILLS				
22	Basis of neurotherapeutic skills and its application with clinical reasoning	K	KH	IL	SAQ
23	Discuss Principles, Technique & Indications for Application of Bobath and Brunnstrom,	K	KH	IL	SAQ
24	Discuss Principles, Technique & Indications for Application of Roods	K	KH	IL	SAQ
25	Discuss Principles, Technique & Indications for Application of PNF techniques	K	KH	IL	SAQ
26	Discuss Principles, Technique & Indications and approach for Application of Neurodevelopmental technique	K	KH	IL	SAQ
27	Demonstrate approach for developing head holding in models	S	SH	PRACT	PRACT
28	Demonstrate approach for developing sit to stand in models	S	SH	PRACT	PRACT
29	Demonstrate approach for developing kneel standing in Models	S	SH	PRACT	PRACT
30	Demonstrate approach for developing kneel walking in Models	S	SH	PRACT	PRACT
31	Demonstrate Frenkel exercises in patients	S	SH	PRACT	PRACT
32	Discuss Motor Relearning Program	K	SH	PRACT	PRACT

Sr No.	Topic	Domain	Level	TL	Assessment
33	Demonstrate Therapeutic Skills of N.D.T., P.N.F., Bobath, Rood's Technique &Brunnstrom, M.R.P. on models only	S	SH	PRACT	PRACT
34	**Cardiovascular and respiratory therapeutic skills**				
35	Discuss principles of exercise prescription of healthy adults	K	KH	CBL	SAQ
36	Discuss principles of exercise prescription for adolescent and school going children	K	KH	CBL	SAQ
37	Discuss principles of exercise prescription for elderly	K	KH	CBL	SAQ
38	Develop an exercise plan for health-related fitness on basis of exercise tolerance test	S	SH	CBL	SAQ
39	Demonstrate breathing retraining techniques	S	SH	PRACT	PRACT
40	Discuss and demonstrate PNF techniques for respiratory muscles	K	SH	PRACT	PRACT
41	Discuss and demonstrate exercises for thoracic cage mobilization	S	SH	PRACT	PRACT
42	Discuss concepts in thoracic spine mobilization	K	K	LECT	SAQ
43	Discuss and demonstrate the use of assistive devices for airway clearance e.g., flutter	S	KH	SIM CASE	PRACT
44	Discuss and demonstrate bagging and suctioning techniques on simulation-based model	S	KH	SIM CASE	PRACT
45	Analyse vital parameter change with posture and movement	S	S	SIM CASE	PRACT
46	Demonstrate Warm up and cool down exercises	S	S	SIM CASE	PRACT

Sr No.	Topic	Domain	Level	TL	Assessment
47	Demonstrate Patient education class for risk factor modification using motivational interview	S	S	SIM CASE	PRACT
	WOMEN'S HEALTH				
48	Discuss the role of diaphragm breathing exercise in women with incontinence	K	K	IL	SAQ
49	Discuss and demonstrate Kegel exercise on simulation-based pelvic model	K,S	S	IL	SAQ, demo
50	Discuss exercise prescription in postnatal care	K	S	IL	SAQ
	SPORTS				
51	Enumerate aerobic and anaerobic work in sports with Example	K,S	K	IL	SAQ
52	Discuss fitness from perspective of sports	K	K	IL	SAQ
53	Discuss agility testing	K	K	IL	SAQ

DOCUMENTATION:
Documentation : All skills in Musculoskeletal, Neuro, cardiovascular and womens health to be documented after practice on models
To maintain the Record/ Journal of the term work & to get each assignment duly signed by respective Head of the Dept.

11. IV B.P.Th.

SYLLABUS

Transcript Hrs-1592

Sr. No.	Subjects	Theory Hours	Practical /Clinical Hours	Total Hours
	COMPEL MODULE IV			
1	Communication skills, Professional Practice & Ethics *(College Examination)*			16
2	Leadership, Administration, Management, Marketing *(College Examination)*			19
3	Research Methodology, Biostatistics, Evidence-based practice (College Examination)			40
	PHYSIOTHERAPY			
3	Musculoskeletal Physiotherapy	60	140	200
4	Neuro Physiotherapy	65	135	200
5	Cardiovascular-Respiratory Physiotherapy (Including Critical Care)	60	140	200
6	Community Physiotherapy	89	111	200
7	Principles of Bio-engineering *(College Examination)*	30	-	030
8	Seminar (including I.C.F.)	-	060	060
9	Supervised clinical practice -During each clinical assignment, the student shall evaluate, functionally diagnose, plan & practice clinical skills on Patients in consultation with the qualified physiotherapist staff	-	627	627
TOTAL		**300**	**1217**	**1592**

MUSCULOSKELETAL PHYSIOTHERAPY

TOTAL : 200 HOURS

COURSE DESCRIPTION:

This course includes a study of applied anatomy and physiology of the musculoskeletal system along with pathological changes and patho-mechanics of the system. It discusses relevant tests and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related topatients with disorders of the musculoskeletal system.

Musculoskeletal Physiotherapy focuses on maximizing functional independence and well-being. The course uses a patient-centered model of care with multi-system assessment, evidence based interventions and a significant patient education component to promote a healthy, active lifestyle and community-based living.

The candidate will have a sound understanding of theory, scientific evidence and best practices in the areas of the Musculoskeletal system including Movement Sciences, Psychosocial Sciences and Physiotherapy.

Musculo-skeletal Physiotherapy focuses on maximizing functional independence and well-being. The course uses a patient-centred model of care with multi- system assessment, evidence-based interventions and a significant patient education component to promote a healthy, active lifestyle and community-based living thus enabling an improved function and participation of the patient.

The candidate will have a sound understanding of theory, scientific evidence and best practices in the areas of the Musculo-skeletal system enabling an integration of understanding and application of Kinesiology and Movement Sciences, Kinesiotherapy and Electrotherapy, Physical diagnosis and therapeutics, Orthopaedic surgery, Psychosocial Sciences and Physiotherapy enabling a Vertical and horizontal integration of syllabus

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

a) Identify, evaluate, analyze & discuss primary and secondary musculo-skeletal dysfunction, based on biomechanical, kinesiological & patho-physiological principles.

b) Correlate the same with radiological, electrophysiological, biochemical/haematological investigations as applicable & arrive at the appropriate Physiotherapy diagnosis with skillful evaluation of structure and function with clinical reasoning.

c) Understand the pharmaco-therapeutics, its interaction with physiotherapeutic measures and modify physiotherapeutic intervention appropriately.

d) Apply knowledge of psychosocial factors (personal and environmental factors in thecontext of disability associated with the musculo-skeletal system or multiple body systems) for behavioral and lifestyle modification and use appropriate training and coping strategies.

e) Apply theoretical basis of physiological effects, indications, contraindications; and best available evidence on the effectiveness, efficacy and safe application guidelines for a full range of physiotherapeutic strategies and interventions, including appropriate modes of soft tissue & joint mobilization, electrotherapy, therapeutic exercise, and appropriate ergonomic advise that can be employed to manage problems of the individual's structures, functions, activities and participation, capacity and performance levels associated with the musculo-skeletal system, for relief of pain & prevention, restoration and rehabilitation measures for maximum possible functional independence at home, work place and in community.

f) Prescribe and train for appropriate orthoses, prostheses and walking aids based on musculoskeletal dysfunction.

g) Acquire ethical skills by demonstrating safe, respectful and effective performance of physical handling techniques taking into account the patient's clinical condition, the need for privacy, the physiotherapist, there sources available and the environment.

Sr.No.	Topics	Didactic Hours	Clinical Hours	Subject integration
1.	Use of ICF model in physiotherapy management of health condition of musculoskeletal system	02	00	Vertical integration with Anatomy, Physiology, Pathology, Surgery II, Physiotherapy diagnosis
2.	Outcome measures–and Evidence-Based Practice	02	00	
3.	Biomechanical/Physiological basis of Physiotherapy intervention skills	04	05	
4.	Physiotherapy interventions with goal setting for dysfunctions due to Musculoskeletal health conditions secondary to conservative or surgical management of:			
	Manifestations of trauma and their Complications	22	50	
	Degenerative Arthritis	07	45	
	Inflammatory conditions	04	05	
	Infectious Diseases of bones & joints	02	05	
	Metabolic & Hormonal Disorders	02	05	
	Congenital & Acquired Deformities	06	10	
	Peripheral Nerve Injuries &Plexus Injuries	03	05	
	Tumours of bone, Vascular disorders and Traumatic Amputations, Miscellaneous	06	10	
TOTAL		**60**	**140**	

	Theory				
Sr. No.	**The student will be able to**	**Domain**	**Level**	**TL Method**	**Assessment suggested**
1	**Use of ICF model**(Bio, Psycho and Social)				
	a. Identify patient goals (short-term and long-term) and expectations based on Capacity and Performance related to activities and participation to enhance functioning and Personal and Environment factors as facilitators and barriers that affect disablement and functioning. b. Design a Plan of Care with measurable functional goals (short-term and long-term) that are prioritized and time bound. c. Documentation of disability and functioning d. Identify Red flags-Recognizing signs and symptom	K, S	K /KH/ SH/ Does	CBL/ Seminars	LAQs OSCE DOPS
2	**Introduction to functional scales as outcome measures -Generic and Disease specific.**				
	a. Able to measure function using appropriate outcome measures and scales b. Able to use Evidence-base practice in musculoskeletal health conditions-levels of evidence, clinical application	K, S	K/KH SH Does	CBL/ Interactive discussion	SAQ/ OSCE/ Case-based
3.	**Biomechanical / Physiological basis of physiotherapy interventions**				
	Able to describe use of biomechanical / Physiological basis of physiotherapy interventions implemented during all 3 stages of tissue healing-	K	K/ KH	IL/ Seminar	
	a. Uses Electrotherapeutic modes for pain- acute and chronic pain syndromes, swelling, wound healing, re-education	K, S	K/KH/ SH	Interactive discussion/ Seminar	LAQs OSCE DOPS
	b. Able to demonstrate use of therapeutic exercise, mobilization techniques, to alleviate pain, increase mobility, muscle performance (strength) endurance, motorcontrol, muscle length, posture and gait training	K, S	SH/ Does	Case-based, Interactive discussion	LAQs OSCE DOPS

Sr. No.	Competency statements	Domain	Level	TL Method	Assessment suggested
	c. Able to demonstrate Tapingtechniques for pain relief, support and posture correction i) Principles ii) Indications/Contraindications iii) Types of tapes and terminologies used iv) Techniques	K, S	KH/ SH/ Does	Practical demonstration	SAQ/ OSCE
	The following topics are applicable to all conditions related to musculo-skeletal dysfunction throughout lifespan in acute care setting hospital, chronic conditions at home and in community on the basis of:				
4	**Physiotherapy interventions with goal setting for dysfunctions due to impairments of Pain, Mobility, Muscle performance (Strength), Endurance, Motor Control, Muscle length, Posture and Movement Balance and Gait for common health conditions secondary to conservative or surgical management of the following regions, with appropriate consideration of red flags:**				
i)	**Manifestations of trauma and their complications:**				
a b	Develop an appropriate Physiotherapeutic treatment plan for management of fractures & fracture-dislocations of extremities & spine, their post-operative careand their complications, Develop an appropriate Physiotherapeutic treatment plan for management of pre and post Joint Arthroplasty	K, S	KH/ SH/ Does	Case-based, Interactive discussion	SAQ/ LAQs OSCE DOPS
c	Develop an appropriate plan and discuss Soft tissues injuries of extremities & spine and their complications & Management	K, S	KH/ SH/ Does	Case-based, Interactive discussion	SAQ/ LAQs OSCE DOPS
ii)	**Degenerative Arthritis of extremity and spine**				
	Discuss, Describe and Plan the physiotherapeutic management for a. Osteoarthritis of knee b. Peri-arthritis of shoulder c. Spondylosis, Spondylolysis, Spondylolisthesis, and Spinal Canal Stenosis	K, S	KH/ SH/ Does	Case-based, Interactive discussion	SAQ/ LAQs OSCE DOPS

Sr. No.	Competency statements	Domain	Level	TL Method	Assessment suggested
iii)	**Inflammatory conditions**				
	Discuss, Describe and Plan the physiotherapeutic management for a. Rheumatoid, Gouty, b. Septic arthritis c. Spondylo arthropathies e.g. Ankylosing Spondylitis d. Myositis ossificans and traumatica. e. Avascular necrosis	K, S	KH/ SH/ Does	Case-based, Interactive discussion	SAQ/ LAQs OSCE DOPS
iv)	**Infectious Diseases of bones & joints of extremities & spine**				
	Discuss, Describe and Plan the Physiotherapeutic management for a. Tuberculosis b. Osteomyelitis	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE DOPS
v)	**Metabolic & Hormonal Disorders**				
	Discuss, Describe and Plan the Physiotherapeutic management for a. Osteoporosis b. Osteomalacia	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE DOPS
vi)	**Congenital & Acquired Deformities of extremities & spine**				
	Assess, discuss, describe and able to plan Physiotherapeutic management of:				
	a. CTEV b. DDH c. Kyphosis and.Scoliosis d. Genu valgus/ varus e. Cubitus varus/ valgus f. Coxavara/ valga etc. g. Deformities of the foot	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE
vii)	**Neuro Musculoskeletal Disorders**				
a)	Describe Causes, Clinical Features of Peripheral Nerve lnjuries & PlexusInjuries, their complications & plan physiotherapy management	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs
b)	Understand and describe the Musculo-skeletal complications in Cerebral Palsy & Poliomyelitis and reconstructive surgeries.	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE
c)	Describe Causes, Clinical Features of CRPS and plan an intervention	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE

Sr. No.	Competency statements	Domain	Level	TL Method	Assessment suggested
viii)	**Soft tissue injuries during sports and as a result of Over-use:** conservative and operative management				
a)	Describe Causes, Clinical Features of various soft tissue injuries incurred during Sports	K	K / KH	Interactive discussion/ PBL	SAQ/ LAQs
b)	Assess using appropriate functional outcomes	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE
c)	Plan a physiotherapeutic management	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE
ix)	**Tumours of bone tissue.**				
a)	Describe Causes, Clinical Features of various bone tumours	K, S	K / KH	Interactive discussion/ PBL	SAQ/ LAQs
b)	Plan a physiotherapeutic management, aware of all red/ yellow flags	K, S	K / KH	Interactive discussion/ PBL	SAQ/ LAQs
x)	**Vascular disorders affecting musculoskeletal system**				
a	Describe Causes, Clinical Features of V.I.C and plan appropriate management	K,S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE
b	Describe Causes, Clinical Features of Compartment syndrome and plan appropriate management	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE
xi)	**Traumatic Amputation**				
	Describe Causes, Clinical Features of Different Types of amputations	K	K / KH	Interactive discussion/ PBL	SAQ/ LAQs
	Discuss, Describe and Plan the Physiotherapeutic management for Amputations	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE
	Understand Complications and management inclusive of prosthetic prescription & training	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE
xii)	**Miscellaneous**				
A	Contused lacerated wounds (CLWs) Burns complications and management, Crush injuries and its conservative and post surgical management.	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE

B	Cellulitis and its complications.	K, S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE
c	Post incisional inflammation and infection.	K,S	KH/ SH/ Does	Case-based, Interactive discussion/ PBL	SAQ/ LAQs OSCE

Clinical

A) COMPETENCY IN ASSESMENT AND CLINICAL REASONING:

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

i. Perform Risk factor screening (Red flags & Yellow flags) indications, contraindications
ii. Perform Assessment of Musculo-skeletal and identify dysfunction
iii. Apply best available evidence to support a clinical decision, on the effectiveness, efficacy and safe application guidelines with appropriate documentation of the same
iv. Interpret abnormal response of the procedures / investigations done for musculoskeletal conditions
v. Perform evaluation / screening of other systems and functional performance testing as appropriate
vi. Identify and prioritize impairments in body functions, structures and activity limitations, participation restrictions to determine the specific direction of intervention.
vii. Identify and quantify environmental and home barriers (that may impact the achievement of optimal functioning within a predicted time frame and ways to overcome them when possible) and facilitators (to use them optimally in intervention)
viii. Identify and analyse body mechanics during self-care, home management, work, community, tasks, or leisure activities and ergonomic performance during work (job/school/play)
ix. Assess Quality of Life through use of appropriate questionnaire and generic or disease-specific scales (nice to know)
x. Determine the predicted level of optimal functioning and the time required to achieve that level

B) COMPETENCY IN DEVELOPING PLAN OF CARE:

i. Identify patient goals (short-term and long-term) and expectations based on Capacity and Performance related to activities and participation to enhance functioning and Personal and Environment factors as facilitators and barriers that affect disablement and functioning.
ii. Design a Plan of Care with measurable functional goals (short-term and long-term) that are prioritized and time bound.
iii. Consult patient and/or caregivers to develop a mutual agreement regarding the plan of care.

iv. Identify indications/ additional needs for consultation with other professionals & appropriate referrals.
v. Select the interventions that are safe, realistic and meet the specified functional goals and: (a) identify precautions and contraindications, (b) provide evidence for patient-centered interventions that are identified and selected, (c) define the specificity of the intervention (time, intensity, duration, and frequency).
vi. Measure and monitor patient response to intervention and modify elements of the plan of care and goals in response to changing patient/ client status, as needed.
vii. Establish criteria for discharge based on patient goals and current functioning and disability
viii. Documentation of disability and functioning

C) COMPETENCY IN PHYSIOTHERAPEUTIC INTERVENTION:

Important influences on Musculoskeletal physiotherapy management choices may include but not limited to:

- Diverse settings of care including critical, acute, long term, rehabilitation, and community care;
- Lifespan issues ranging from the neonatal stage to those associated with aging

i. Apply appropriate modes of soft tissue & joint mobilization, electrotherapy, therapeutic exercise, and appropriate ergonomic advice for the management of pain, correction of postural / mobility and strength affections
ii. Prescribe and train for appropriate orthoses, prostheses and walking aids based on musculoskeletal dysfunction
iii. Demonstrates the skill of application of appropriate physical and electrical agents for relief of acute & chronic pain, swelling and wound healing, muscle / movement re-education with clinical reasoning.
iv. Apply appropriate therapeutic exercise modes with appropriate therapeutic gymnasium equipment to facilitate, re-educate and train posture, gait, joint mobility, muscle strength, endurance and motor control and employ preventive measures for the same Apply advanced therapeutic modes of manual mobilization techniques (non-thrust techniques to be applied on extremities only), Friction Massage, Myofascial Release, Muscle Energy Techniques and Neuro Dynamic Techniques to improve joint mobility and soft tissue flexibility.
v. Prescribe appropriate orthotic & prosthetic devices.
vi. Perform taping techniques for support & pain relief; principles, indications, contra-indications, types of tapes used & relevant terminology.
vii. Prescribe lifestyle modification for diseases and for prevention
viii. Prescribe an appropriate Home Program & Ergonomic advise for preventive measures & functional efficiency for self-care, at home, work (job, school and play), community and leisure activities and during recreation.
ix. Provide advice to parents & care givers.

D) COMPETENCY IN AFFECTIVE DOMAIN

i. Communicate with patients in a clear concise manner.
ii. Develop a critical understanding of their musculoskeletal physiotherapy practice
iii. Organise their thoughts and share with / report to others as a part of a multi-disciplinary team

iv. Demonstrate safe, respectful behaviour and effective performance of physical handlingtechniques taking into account the patient's clinical condition, the need for privacy, the resources available and the environment.
DOCUMENTATION: **Presentation & Documentation of 8 Cases (4 trauma + 4 cold) for patient management using ICF model as following:** (Assessment, Evaluation, Diagnosis, Prognosis, Intervention, Outcome) 1. Soft tissue lesion 2. Fractures of upper Limb (Including Hand Injury), 3. Fractures of lower limb, 4. Fractures of spine with/without Neurological condition 5. Degenerative/ Inflammatory arthritis of peripheral skeletal joint 6. Degenerative /inflammatory arthritis of Spine 7. Musculoskeletal condition of Hand & Foot 8. Amputation

NEUROPHYSIOTHERAPY

TOTAL 200 HRS

COURSE DESCRIPTION:

This course includes a study of applied anatomy and physiology of the neuromuscular system along with the pathological changes and patho-mechanics of the system. It discusses relevant tests and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related to patients with disorders of the neuromuscular system.

Neurophysiotherapy curriculum emphasizes the selection and use of measurement tools and management techniques based on the best available evidence. Physiotherapy strategies for assessment and treatment address structural & functional impairments and activity limitations of individuals and population (both adults & paediatric) in the context of their personal needs/goals including participation restrictions and the environment they live in. The permanence of many neurological impairments mandates that, where possible, emphasis is placed on prognosis and criterion – referenced outcomes to establish realistic goals.
The therapeutic approach is patient and family focused with a bio-psychosocial emphasis that embraces inter professional collaboration and requires ongoing communication, education and negotiation with the client, family, care giver and healthcare team.

The student will be able to:

1. Identify and analyze movement dysfunction due to neuromuscular skeletal disorders in terms of biomechanical and biophysical basis, correlate the same with the health condition, routine electrophysiological, radiological and biochemical investigations, and arrive at appropriate physical therapy diagnosis using WHO-ICF with clinical reasoning.
2. Plan realistic goals based on the knowledge of prognosis of the disease of the nervous system and prescribe appropriate, safe evidence based physiotherapy interventions with clinical reasoning.
3. Understand infection control principles, best practices and techniques applicable to a range of setting where clients with neurological conditions would receive physiotherapy services.
4. Know determinacy of health (environmental, nutritional, self-management/ behavioral factors) and chronic disease management principles related to neurological health.
5. Develop psychomotor skills to implement timely and appropriate physiotherapy assessment tools/techniques to ensure a holistic approach to patient evaluation in order to prioritize patients' problems.

6. Select timely physiotherapeutic interventions to reduce morbidity and physiotherapy management strategies, suitable for the patients‟ problems and indicator conditions based on the best available evidence.
7. Implement appropriate neuro-physiotherapeutic approaches, electrotherapeutic modalities, joint and soft tissue mobilizations and ergonomic advice for neuromuscular skeletal systems, contextual factors to enhance performance of activities and participation in society.
8. Develop behavioral skills and humanitarian approach while communicating with patients, relatives, society and co-professionals, to promote individual and community health.

Sr. No	Topic	Theory hours	Practical/ Clinical hours	Total hours	Subject integration
1	Application of ICF Model	02	-	02	Physiotherapy Diagnosis
2	Theoretical basis of motor control and learning	02		02	Physiotherapy Diagnosis
3	Neuroplasticity	05		05	Neuro-Medicine
4	Quality of life scales and independence measure	02		02	
5	Physiotherapy management				
A	Adult:	40	92	132	Anatomy, Physiology, Pathology, Medicine, Physiotherapy diagnosis
B	Paediatric:	17	40	57	Anatomy, Physiology, Pathology, Paediatric medicine, Physiotherapy diagnosis
Total hours :		**68**	**132**	**200**	

Sr. No	Competency	Domain	Level	TL Method	Assessment
I.	**ICF Model**				
1	Able to use Features of ICF model (bio, psycho and social) to plan efficient, effective and cost-contained short term and longterm goals to enhance functioning in a patient with health condition of nervous system.	K	Knows How	Lecture + Case discussion	SAQ
2	Describe Clinical utility of bi-directional relationships among the ICF model's domain	K	Knows How	Lecture + Case discussion	SAQ
3	Describe Environment and Personal factors- Facilitators and Barriers that affect disablement and functioning	K	Knows How	Lecture + Case discussion	SAQ
4	Describe Capacity and Performance related Activities and Participation to enhance Functioning	K	Knows How	Lecture + Case discussion	SAQ
5	Set patient specific goals and expected outcome with clinical reasoning	K	Knows How	Lecture + Case discussion	SAQ
6	Documentation of disability and functioning Red flags-recognizing signs and symptoms	K	Knows How	Tutorial	SAQ
II	**Theories of Motor Control and Learning**				
1	Describe Theoretical basis of motor control to understand various neurophysiotherapeutic approaches	K	Knows	LECTURE	SAQ
2	Describe Theoretical basis of motor learning to understand various neurophysiotherapeutic approaches	K	Knows	LECTURE	SAQ

Sr. No	Competency	Domain	Level	TL Method	Assessment
III	**Neuroplasticity**				
1	Describe Plasticity of the intact brain with respect to motor learning, training and plasticity.	K	Knows	LECTURE	SAQ
2	Describe Plasticity following brain lesion and nature of spontaneous recovery	K	Knows	LECTURE	SAQ
3	Describe effect of environment on behavior and Recovery	K	Knows	LECTURE	SAQ
4	Describe the concept of adaptation of motor performance muscle adaptation.	K	Knows	LECTURE	SAQ
5	Describe Strength training and physical conditioning in neuro rehabilitation to optimize functional Performance	K	Knows	LECTURE	SAQ
6	Describe skill acquisition in restoration of functional Performance information, instruction, demonstration Feedback and practice.	K	Knows	LECTURE	SAQ
IV	**Quality of Life scales**				
1	Describe Quality of Life scales & Independence Measures	K	Knows	LECTURE	SAQ
		K			
IVa	**Basics of Neuro Physiotherapy**	K			
1	Describe Evaluation, interpretation of investigations and appropriate clinical reasoning for Functional diagnosis (I.C.F.) for patients with various neurological dysfunctions.	K	Knows	LECTURE	SAQ

Sr. No	Competency	Domain	Level	TL Method	Assessment
2	Analyse tools and techniques, (including Quality of Life questionnaires), and planning, prescription & implementation of short term & long term goals of Physiotherapy with appropriate documentation of the same, using evidence based system.	K	Knows how	LECTURE CBL	SAQ
3	Describe and assess Manifestation of movement dysfunction following disease or trauma of the central or peripheral nervous system in terms of ● Bed mobility ● lying to sitting ● standing up and sitting down ● walking ● balance ● reaching ● manipulation	K, S	Knows, Knows how and shows how	LECTURE CBL	SAQ Case presentation
4	Able to Select appropriate assessment/evaluation tools and techniques suitable for the patients health condition and key indicators and interpret information obtained demonstrating evidence based decision making-use of biomechanical measures, generic scales/instruments to measure arousal, cognition, sensation, tone, strength, locomotion and balance, upper extremity function, anxiety and depression, quality of life and independence, Self assessment and self efficacy scales and common disease specific scales.	K, S	Knows, Knows how and shows how	LECTURE CBL	SAQ Case presentation

Sr. No	Competency	Domain	Level	TL Method	Assessment
	● GCS - Galssgow Coma Scale ● MMSE- Mini Mental Status Examination ● Modified Ashworth Scale. ● DGI – Dynamic Gait Index ● Berg Balance Scale ● Functional Independence Scale ● TUG- Timed Up and Go test ● Barthel Index ● SF – 36 ● STREAM ● FuglMayr Scale ● ASIA Scale. ● UPDRS				
V	**PHYSIOTHERAPY MANAGEMENT –**				
A	**ADULT**				
i)	Stroke				
1	Define Stroke	K	Knows	Lecture Seminar	SAQ
2	Enumerate various risk factors of stroke	K	Knows	Lecture Seminar	SAQ
3	Describe circulation of Brain	K	Knows	Lecture Seminar	SAQ
4	Describe various types of stroke	K	Knows how	Lecture	SAQ
5	Understand and perform assessment of various body structures and body functions affected	K, S, A	Knows how Shows how	Lecture/ Practical Demonstration/ Case based learning	SAQ/ LAQ/ Practical
6	Understand the sensory perceptual disorders associated with stroke	K	Knows how	Lecture/ Practical Demonstration/ Case based learning	SAQ/ LAQ/ Practical

Sr. No	Competency	Domain	Level	TL Method	Assessment
7	Formulate patient specific goals	K, S, A	Knows how Shows how	Lecture/ Practical Demonstration/ Case based learning	SAQ/ LAQ/ Practical
8	Describe and perform the appropriate neurophysiotherapeutic skills for management of stroke patient	K, S,A	Knows how Shows how	Lecture/ Practical Demonstration/ Case based learning	SAQ/ LAQ/ Practical
ii	**Acquired brain injury; trauma and pathology (S.O.L.)**				
1	Discuss the Functional anatomy and physiology of normal human brain	K	Knows	Lecture Seminar	SAQ
2	Describe the Types, causes and pathophysiology of various brain injuries	K	Knows	Lecture Seminar	SAQ
3	Describe impairments associated with traumatic brain injury	K	Knows	Lecture Seminar	SAQ
4	Perform physical examination of patients with brain injury with emphasis on neurological evaluation	K	Knows how	Lecture Seminar	SAQ
5	Assessment using different clinical rating scales	K	Knows Shows how	Lecture Seminar	SAQ
6	Analyse and interpret patient data, formulate goals and expected outcomes, and develop a plan of care when presented with simulated case or patient.	K	Knows how Shows how	Case based learning/ Demonstration on patient	Practical

Sr. No	Competency	Domain	Level	TL Method	Assessment
7	Demonstrate the various treatment technique.	S,A	Does	Demonstration on patient/ videos	Practical/ DOPS
iii)	**Spinal cord disorders**				
1.	Describe classification of Spinal cord disorders.	K	Knows	Lecture	SAQ
2	Describe neuroanatomical organization and structure of spinal cord.	K	Knows	Lecture	SAQ
3	Describe the clinical presentation following damage to spinal cord.	K	Knows how	Lecture	SAQ
4	Identify the motor and sensory level of injury and American spinal injury Association Impairment Scale classification from a given set of simulated case or spinal cord injury patient.	S	Shows	Demonstration on patient / video	OSCE, Practical
5	Describe the body structure and body function impairment following spinal cord affection	K	Knows how	Case based learning / Lecture	LAQ
6	Analyse the impact of complications associated with spinal cord injury on physiotherapy plan of care and outcome.	K	Knows how	Case based learning/ Demonstration on patient	Practical
7.	Demonstrate the evaluation of patient with spinal cord injury	S	Shows how	DOPS, Demonstration on patient	OSCE/ Practical
8.	Analyse and interpret patient data, formulate goals and expected outcomes, and develop a plan of care when presented with simulated case or patient.	K	Knows how	case based learning/ Demonstration on patient	Practical
9	Justify the selection of different interventions.	K	Knows how	Demonstration on patient	Practical

Sr. No	Competency	Domain	Level	TL Method	Assessment
10	Demonstrate the various treatment technique.	S, A	Does	Demonstration on patient/ videos	Practical/ DOPS
11	Educate the patient and relatives when presented with simulated case or patient.	K, S, A	Does	Demonstration on patient/ videos	Practical
12.	Demonstrate understanding about the patient's condition and expectancy.	A	Does	Demonstration on patient/ videos	Practical
iv)	**Peripheral neuropathies – traumatic & non traumatic**				
1	Describe Causes, Clinical Features of Peripheral Neuropathy	K	Knows	Lecture	SAQ
2	Prepare a treatment plan and administer treatment interventions for the peripheral Neuropathy of Upper Limb, Lower Limb, Nerve root lesions, Endocrine and Metabolic disorders.	S	Shows how	DOPS, Demonstration on patient	OSCE/ Practical
v)	**Vestibular disorders – central and peripheral**				
1	Describe anatomical organization and structure of Peripheral and Central Vestibular system	K	Knows	Lecture	SAQ
2	Describe Physiology of peripheral Vestibular system	K	Knows	Lecture	SAQ
3	Understand and describe various vestibular dysfunctions along with clinical features	K	Knows	Lecture	SAQ
4	Assess and evaluate various various dysfunction	K, S	Knows how/ shows	Lecture and practicals	SAQ/LAQ

Sr. No	Competency	Domain	Level	TL Method	Assessment
5	Short Term and Long-Term Goal Setting	K,S	Knows how/ shows how	Didactic Lecture / Practical	LAQ / Practical
6	Perform relevant Neurotherapeutic Techniques for management of varios vestibular disorders	K, S	Knows how/ shows how	Didactic Lecture / Practical	LAQ / Practical
vi)	**VIIthcranial nerve**				
1	Describe Functional anatomy of cranial nerve	K	Knows	Lecture	
2	Describe the clinical features and differential diagnosis of 7th cranial nerve palsy (emphasis on differentiating in between UMN and LMN lesions)	K	Knows	Lecture	SAQ
3	Sensorimotor Assessment of 7th cranial nerve	K S	Knows/ shows how	Lecture/ seminar	SAQ
4	Perform relevant Neuro-therapeutic Techniques for management of Facial nerve palsy	K, S	how/shows how	Didactic Lecture / Practical	LAQ / Practical
vii)	**Demyelinating diseases - Multiple Sclerosis, G.B. syndrome**				
1	Define Multiple Sclerosis Define G B Syndrome	K	Knows	Didactic Lecture	SAQ
2	Describe the aetiology of Multiple Sclerosis	K	Knows	Didactic Lecture	SAQ
3	Explain the Cardinal features of MS Explain the Cardinal features of GBS	K	Knows	Didactic Lecture	SAQ
4	Enumerate/ Describe the Clinical Features of MS and GBS	K	Knows	Didactic Lecture	SAQ/ LAQ
5	Perform the assessment on Multiple Sclerosis/ GBS patient and apply required outcome measure scale	K, S	Knows/ Knows how/shows how	Didactic Lecture / Practical	LAQ / Practical

Sr. No	Competency	Domain	Level	TL Method	Assessment
6	ICF of the Multiple Sclerosis Case ICF of the GBS Case	K, S	Knows/ Knows how/ shows how	Didactic Lecture / Practical	LAQ / Practical
7	Discuss the Differential Diagnosis	K, S	Knows/ Knows how/shows how	Didactic Lecture / Practical	LAQ / Practical
8	Short Term and Long-Term Goal Setting	K, S	how/ shows how	Didactic Lecture / Practical	LAQ / Practical
9	Perform relevant Neurotherapeutic Techniques for management of Multiple Sclerosis/ GBS patient	K, S	how/ shows how	Didactic Lecture / Practical	LAQ / Practical
viii)	**Cerebellar diseases and Ataxia**				
1	Describe the Functional anatomy of Cerebellum	K, S	Knows	Lecture/ Seminar	SAQ
2	Describe and elaborate Functions of Cerebellum	K, S	Knows	Lecture/ Seminar	SAQ
3	Ennumerate and describe different types of ataxia	K, S	Knows	Lecture/ Seminar	SAQ
4	Describe Clinical features of Different Ataxia	K, S	Knows	Lecture	SAQ/LAQ
5	Describe and Perform Assessment of impairments using different scales and clinical tools emphasis on balance and coordination	K,S,A	Knows how Shows how	CBL	SAQ Practicals
6	Set Goals according to ICF	K,S	Knows how Shows how	CBL	LAQ
ix)	**Extrapyramidal diseases, with emphasis on Parkinson‟s disease**				
1	Describe the Functional anatomy of Basal Ganglia	K	Knows	Lecture/ Seminar	SAQ
2	Describe and elaborate Functions of Basal ganglia with pathways	K	Knows how	Lecture/ Seminar	SAQ

Sr. No	Competency	Domain	Level	TL Method	Assessment
3	Enumerate the Different Disorders of Basal ganglia	K	Knows how	Lecture/ Seminar	SAQ
4	Describe various Clinical features of Different Disorders	K	Knows how	Lecture	SAQ/LAQ
5	Describe Clinical features of Parkinson's disease in detail with emphasis on gait and posture	K	Knows how	Lecture/ Practical Case Based Learning	SAQ/LAQ
6	Describe and Perform Assessment of impairments using different scales and clinical tools	K,S,A	Knows how Shows how	CBL	SAQ Practicals
7	Set Goals according to ICF	K,A	Knows how Shows how	CBL	LAQ
8	Describe and perform various neuro physio therapeutic techniques according to impairments to manage Parkinson's	K,S	Knows how Shows how	CBL	LAQ Practicals
x)	**Anterior Horn Cell diseases – hereditary and acquired e.g. M.N.D., P.M.A., S.M.A., Poliomyelitis**				
1	Discuss the Functional anatomy of Anterior horn cell diseases with emphasis on MND	K	Knows	Lecture/ Seminar	SAQ
2	Describe various disorders of Anterior horn cell with emphasis on MND				
3	Describe differential diagnosis of various disorders				
4	Describe various Clinical features of Different Disorders	K	Knows how	Lecture	SAQ/LAQ
5	Describe and Perform Assessment of impairments using different scales and clinical tools	K, S, A	Knows how Shows how	CBL	SAQ Practicals

Sr. No	Competency	Domain	Level	TL Method	Assessment
6	Describe and perform various neuro physio therapeutic techniques according to impairments	K,S	Knows how Shows how	CBL	LAQ Practicals
xi)	**Myopathies**				
1	Define Myopathy	K	Knows	Lecture Seminar	SAQ
2	Enumerate various types of Myopathies	K	Knows	Lecture Seminar	SAQ
3	Describe Pathophysiology of different Muscular Dystrophy	K	Knows	Lecture Seminar	SAQ
4	Understand and perform assessment of impairments	K,S,A	Knows how Shows how	Lecture/ Practical Demonstration/ Case based learning	SAQ/ LAQ/ Practical
5	Describe and perform various neuro physio therapeutic techniques according to impairments	K,S	Knows how Shows how	CBL	LAQ Practicals
xii)	**Disorders of A.N.S. – Horner‟s syndrome, Hypo/Hypertension, Autonomic Dysreflexia**				
1	Describe Causes, Clinical Features of ANS disorders	K	Knows	Lecture	SAQ
2	Prepare treatment plan and administer treatment interventions for patients with ANS	S	Shows how	DOPS, Demonstration on patient	OSCE/ Practical
	Treatment programme includes: 1. Application of appropriate electro-therapeutic modes for relief of pain and functional re-education with clinical reasoning. 2. Application of skills as Neurotherapeutic approaches (Brunnstrom, Roods, Bobath, N.D.T, and M.R.P, mental imagery, Constraint induced movement therapy, learning transfers), co-ordination and balancing exercise by using techniques based on neurophysiological principles. 3. Tools and adaptive equipments used for neuro-rehabilitation like Vestibular balls, Tilt boards, Bolsters, Wedges, Graded Benches, Therapeutic mats etc.				

	4. Application of transfer and functional re-education exercise, postural exercise and gait training. 5. Bladder and bowel training 6. Developing a philosophy for caring 7. Prescription for appropriate orthotic devices and fabrication of temporary splints 8. Lifting techniques, wheel chair modifications, adaptive devices 9. Ergonomic advice for prevention/rehabilitation for the patients as well as for parents/care givers education about handling of patients
B	**PHYSIOTHERAPY MANAGEMENT – PAEDIATRIC** Knowledge of developmental neurology, plasticity in development, Etiology, Pathophysiology of common neuropaediatric conditions, impairment, clinical reasoning, goal setting & P.T. management. More emphasis should be given on physiotherapy management skills

Sr No	Competency	Domain	Level	TL Method	Assessment
i)	Cerebral Palsy				
1	Define Cerebral palsy	K	K	Lecture	SAQ
2	Describe the etiology of cerebral palsy	K	K	Lecture	SAQ
3	Enumerate the types of cerebral palsy	K	K	Lecture	SAQ
4	Describe various clinical features of cerebral palsy	K/S	K/KH/ SH	Lecture	SAQ/ LAQ
6	Set Patient specific goals	K/S	K	Lecture	SAQ/LAQ/P RATICALS
7	Describe and perform different neuro therapeutic techniques for management of cerebral palsy patient	K/S/A	K/KH/ SH	Lecture/ Practicals	SAQ/LAQ/P RACTICALS
ii)	**Down's Syndrome**				
1	Define Downs syndrome	K	K	Lecture	SAQ
2	Describe etiology of the downs syndrome	K	K		
3	Describe Clinical presentation and symptoms of the downs syndrome	K	K		
4	Perform assessment techniques. Use different outcome measures	K/S	KH/SH	Lecture/ practicals	CLINICALS
5	Set goals for management	K	K	Lecture	SAQ/LAQ
6	Perform neurotherapeutic skills for treatment of the downs syndrome	C/S/A	K/KH/ SH	Lecture/ practicals	LAQ/PRACT ICALS
iii)	**Neural tube defects: Spina Bifida and Hydrocephalus**				
1	Describe formation of neural tube	K	Knows	Lecture	SAQ
2	Enumerate various type of neural tube defect.	K	Knows	Lecture	SAQ
3	Describe the etiology of neural tube defect.	K	Knows	Lecture	SAQ
4	Describe and Differentiate the clinical presentation of various (spina bifida, hydrocephalus anencephaly, meningocele, myelomeningocele and tethered spinal cord syndrome) neural tube defect.	K	Knows how	Lecture	SAQ

Sr. No	Competency	Domain	Level	TL Method	Assessment
5	Describe the body structure and body function impairment following neural tube defect.	K	Knows how	Case based learning / Lecture	LAQ
6	Analyse the impact of complications associated with neural tube defect on physiotherapy plan of care and outcome.	K	Knows how	Case based learning/ Demonstration on patient	Practical
7	Demonstrate the evaluation of patient with neural tube defect.	Sr	Shows how	DOPS, Demonstration on patient	OSCE/ Practical
8	Analyse and interpret patient data, formulate goals and expected outcomes, and develop a plan of care when presented with simulated case or patient.	K	Knows how	case based learning/ Demonstration on patient	Practical
9	Justify the selection of different interventions.	K	Knows how	Demonstration on patient	Practical
10	Demonstrate the various treatment technique.	S, A	Does	Demonstration on patient/ videos	Practical/ DOPS
11	Educate the patient and relatives when presented with simulated case or patient.	K, A	Does	Demonstration on patient/ videos	Practical
12	Demonstrate understanding about the patient's condition and expectancy.	A	Does	Demonstration patient/ videos	Practical
iv)	**Brachial plexus injuries**				
1	Describe Causes, Clinical Features of Brachial PlexusInjuries	K	Knows	Lecture	SAQ
2	Prepare treatment plan and administer treatment interventions for patients with Brachial Plexus Injuries	S	Shows how	DOPS, Demonstration on patient	OSCE/ Practical

Sr. No	Competency	Domain	Level	TL Method	Assessment
vi)	**Post Poliomyelitis Residual Paralysis**				
v)	**Infectious disorders**				
1	Describe Causes, Clinical Features of Infectious Disorders	K	Knows	Lecture	SAQ
2	Prepare treatment plan and administer treatment interventions for patients with Infectious disorders	S	Shows how	DOPS, Demonstration on patient	OSCE/ Practical
1	Describe Causes, Clinical Features of Post Polio Residual Paralysis	Cognitive	Knows	Lecture	SAQ
2	Prepare treatment plan and administer treatment interventions for patients with Post Polio Residual Paralysis	Psycho motor	Shows how	DOPS, Demonstration on patient	OSCE/ Practical
vii)	**D.M.D. & other Myopathies**				
1	Define Myopathy	K	Knows	Lecture Seminar	SAQ
2	Enumerate various types of Myopathies	K	Knows	Lecture Seminar	SAQ
3	Describe Pathophysiology of Duchene's Muscular Dystrophy	K	Knows	Lecture Seminar	SAQ
4	Understand and perform assessment of impairments	K, S, A	Knows how Shows how	Lecture/ Practical Demonstration/ Case based learning	SAQ/ LAQ/ Practical
5	Identify the non-motor impairments affecting mobility and function	K,S	Knows how	Lecture/ Practical Demonstration/ Case based learning	SAQ/ LAQ/ Practical
6	Formulate patient specific goals	K	Knows how	Lecture/ Practical Demonstration/ Case based learning	SAQ/ LAQ/ Practical
7	Describe and perform the appropriate Neurophysiotherapeutic skills for management of patient	K, S,A	Knows how Shows how	Lecture/ Practical Demonstration/ Case based learning	SAQ/ LAQ/ Practical

Sr. No	Competency	Domain	Level	TL Method	Assessment
viii)	**S.M.A. / H.S.M.N.**				
1	Describe Causes, Clinical Features of SMA/ HSMN	K	Knows	Lecture	SAQ
2	Prepare treatment plan and administer treatment interventions for patients with SMA/ HSMN	S	Shows how	DOPS, Demonstration on patient	OSCE/ Practical
ix)	**Pediatric extra pyramidal disorders**				
1	Describe Causes, Clinical Features of paediatric extra pyramidal disorders	K	Knows	Lecture	SAQ
2	Prepare treatment plan and administer treatment interventions for paediatric extra pyramidal disorders	S	Shows how	DOPS, Demonstration on patient	OSCE/ Practical

CARDIO-VASCULAR & RESPIRATORY PHYSIOTHERAPY

(INCLUDING CRITICAL CARE)

TOTAL 200 HRS

Course Description:

At the end of BPT program, a graduate student should have a thorough knowledge of cardiac, vascular, pulmonary systems and possess the clinical skills of identifying the pathological deviations using appropriate assessment and diagnostic tools with clinical reasoning and should incorporate various physiotherapeutic treatment techniques safely and rationally with ethical principles, and core values like compassion, humanity to critically ill, institutionalised and community based or OPD patients

The student will be able to:

1. Identify and analyze cardio-vascular & pulmonary dysfunction and arrive at appropriate Physical therapy diagnosis using WHO-ICF tool (Disability, Functioning and contextual factors) with clinical reasoning.
2. Plan, prescribe appropriate, safe physiotherapy interventions with clinical reasoning for and prevention of impairments, activity limitations, participation restrictions and environmental barriers related to cardio-vascular & pulmonary dysfunction in acute care settings, at home, work place, in society & in leisure activities.
3. Utilise skills such as executing exercise tests, PFT, Ankle brachial index, arterial & venous insufficiency tests.
4. Utilise psychomotor skills to implement appropriate bronchial hygiene therapy, therapeutic exercise, electrotherapeutic modalities, CPCR, Intensive (critical) care, joint and soft tissue mobilisations, offering ergonomic & energy conservation advice for patients with cardio-vascular & pulmonary dysfunction.
5. Utilise the knowledge about contextual factors to enhance capacity and performance of activities and participation in society
6. Utilise the skill to deliver cardiac, pulmonary & vascular rehabilitation
7. Develop behavioral skills and humanitarian approach while communicating with patients, relatives, society at large and co-professionals
8. Develop bed side behavior, respect & maintain patients confidentiality.
9. Be culturally competent while communicating and prescribing physical therapy
10. Respect team members

Sr. No	Topic	Didactic Hours	Practical/ Clinical hours	Total hours	Subject integration
1	**REVIEW OF BASIC APPLIED ANATOMY & PHYSIOLOGY**	3	-	3	Vertical integration with – Anatomy Physiology Pharmacology, Pathology General Medicine
2	**INVESTIGATION AND EXERCISE TESTING**	4	10	14	
3	**EXERCISE PHYSIOLOGY**	5	10	15	
4	**PHYSIOTHERAPY SKILLS**	8	34	42	
5	**APPLICATION OF ICF MODEL**	2		2	
6	**PHYSIOTHERAPY MANAGEMENT**	20	53	73	Vertical Integration with Physiotherapy diagnosis, General Medicine
7	**CARDIAC REHABILITATION**	4	10	14	
8	**PULMONARY REHABILITATION**	2	05	7	
9	**ICU EVALUATION & MANAGEMENT**	8	12	20	
10	**INTRODUCTION TO FUNCTIONAL SCALES**	2	01	3	
11	**BASIC LIFE SUPPORT (C.P.C.R.)**	2	05	7	Vertical Integration with Anatomy, Physiology, Medicine
	TOTAL	**60**	**140**	**200**	

SYLLABUS

Sr. No.	Topic:The student will be able to	Domain	Level	TL Method	Assessment
1.	**Review of basic applied Cardiovascular and Respiratory anatomy & physiology** i. Recall and apply the functions and dysfunctions related to structure and function of the Pulmonary system ii. Recall and apply the functions and dysfunctions related to structure and function of Cardiac and vascular system iii. Recall and apply the relevance of pharmacotherapeutics and its effect with physiotherapy related to Cardiovascular and Pulmonary System	K	KH,SH	IL,SDL	SAQ
2.	Investigation and exercise testing	K, S	Knows How, Shows How, Does	IL, Pract demo	Practical, CB
a.	Investigation & Clinical Implication – i. Interpret, discuss and apply the relevance of the findings based on clinical presentation of pulmonary and Cardiac markers in chest X-ray ii. Interpret, discuss and apply the relevance of the findings based on clinical presentation of PFT iii. Interpret, discuss and apply the relevance of the findings based on clinical presentation of ABG iv. Interpret, discuss and apply the relevance of the findings based on clinical presentation of ECG and stress testing v. Perform and determine the severity of peripheral arterial disease using ankle brachial index and various other clinical and radiological evaluation paramaters	K, S K, S K, S K, S K, S	KH, SH SH, Does SH KH, SH SH, Does	IL, SGD, PBL DOAP DOAP DOAP DOAP DOAP	SAQ, OSPE OSCE OSPE OSCE OSPE OSCE OSPE OSCE OSPE OSCE

Sr. No.	Topic	Domain	Level	TL Method	Assessment
	vi. Perform and determine the functional and structural impairments that limit functioning due to pulmonary system using detailed subjective, objective evaluation and relevant investigations	K,S	S	DOAP	
	vii. Identify reasons of abnormal variation in blood pressure with posture and perform the test for postural hypotension	K,S	S	DOAP	OSCE
b.	**Exercise testing** Perform, interpret and apply the results of exercise tolerance testing to determine fitness, to carry out work, exercise prescription for patients and analyse morbidity with 1) 6 Minute Walk test 2) Harward Step test Shuttle Walk Test Interpret the results of maximal exercise testing and apply it while prescription of exercise	K,S	Does	DOAP	OSCE
3.	**Exercise Physiology**				
a.	Discuss nutrition and nutritional value of food in health and disease (Bioenergetics)	K	K	IL, SDL	SAQ
b.	i. Discuss Total energy expenditure (MET)		K	IL, SDL	SAQ
	ii. Evaluate physical activity levels		S	DOAP	OSCE
	iii. Demonstrate ability to rationalise and prescribe an effecive exercise program using principles of Exercise prescription for HIIT.		KH,SH SH	CBL DOAP	Viva OSPE
	iv. Prescribe recreational activities to enhance health within safety domains			DOAP	OSCE

Sr. No.	Topic	Domain	Level	TL Method	Assessment
c.	Discuss effects of acute and chronic adaptation to exercise	K	Knows how	IL, SDL	SAQ
d.	Describe Complication of bed rest/ Immobilization prescribe the implementation of strategies for prevention	K,S S	Knows how Knows how	IL, SGD Lecture DOAP	SAQ/LAQ LAQ OSPE
e.	Prescribe Aerobic & Anaerobic Training as applied in health and Disease	K,S	Shows	DOAP	OSCE
4	**Physiotherapy Skills**				
a.	Rationalize the use of airway clearance techniques Adjunct Therapy – Perform and analyse the use of Flutter & PEP Therapy based on clinical presentation on simulated patient/under observation	K,S	Knows, KH,SH	IL, DOAP	Viva, OSCE
b.	Perform Therapeutic positioning to improve ventilation & perfusion matching and alleviate dyspnoea	S	Does Shows	CBL DOAP	OSCE
c.	Explains patients regarding Therapeutic positioning	A,S	Does	DOAP SDL	OSCE
d.	Perform Lung Expansion Therapy	S	Shows	CBL	OSCE
e.	Perform Neurophysiologic facilitation of respiration	S	Shows how	DOAP	OSCE
f.	Select, describe, prescribe and rationalise based on most likely aetiology an appropriate Electrotherapeutic modalities for pain, swelling, &wound healing.	K, S	Knows how, Does	PBL DOAP	LAQ OSCE

Sr. No.	Topic	Domain	Level	TL Method	Assessment
g.	Select, describe, prescribe and rationalise based on most likely aetiology an appropriate Therapeutic exercise program to alleviate pain, to achieve mobility, to correct posture and improve peripheral circulation	K, S	Knows how Does	PBL DOAP	LAQ OSCE
h.	Select, describe, prescribe and rationalise based on most likely aetiology an appropriate Therapeutic exercise program to strengthen respiratory muscles	K, S	Knows how Does	IL, SDL, DOAP	SAQ/LAQ OSCE
i.	Select, describe, prescribe and rationalise based on most likely aetiology an appropriate Ergonomic advice, energy conservation advice, Home exercise Program, & modifications of contextual factors.	K, S	Knows, KH, Does	IL, SDL, DOAP	SAQ/LAQ OSCE
j.	Select, describe, prescribe and rationalise based on most likely aetiology an appropriate Applied Yoga program in Cardio-respiratory conditions	K,S	Knows how Does	IL, SDL, DOAP	SAQ/LAQ OSCE
5	**Application of ICF model**				
a.	Plan effective short term and long term goals to enhance functioning of Cardiovascular & Respiratory Dysfunction	S	Knows how	IL,SGD, PBL	LAQ, SAQ,OSCE
b.	Set patient specific goals and expected outcome within time frame with clinical reasoning		Does		
c.	Documentation of Cardiovascular and Pulmonary case using ICF model				
d.	Evaluate the context of biopsycho social model of functioning and patient related barriers and facilitators to achieve the desired treatment goal				

Sr. No.	Topic	Domain	Level	TL Method	Assessment
6.	**Physiotherapy Management**				
a.	**Medical & Surgical Cardiovascular Diseases** i. Develop an appropriate Physiotherapeutic treatment plan for Hypertension	K	Knows how	IL,CBL, PBL	LAQ, SAQ, OSCE
	ii. Develop and communicate to the patient lifestyle modification including weight reduction, moderation of alcohol intake, physical activity and sodium intake.	S	Knows, Shows, Shows how Does	Il, CBL, DOAP	LAQ, SAQ, OSCE
	iii. Demonstrate understanding of the impact of Hypertension on quality of life, well being, work and family		Knows, Shows,	Il, CBL, DOAP	LAQ, SAQ, OSCE
	iv. Discuss, Describe and Plan the physiotherapeutic management for I.H.D. , Myocardial Infarction		Shows how		
	v. Discuss, Describe and Plan the pre and post surgical Physiotherapeutic management for - a. Valvular Heart Disease b. Congenital Heart Disease c. Acquired Heart Heart Disease d. Thrombosis, Phlebitis and Phlebothrombosis e. Varicose Veins and ulcers f. Other Arterial disorders		Knows, Shows,S hows how Does	Il,, CBL, DOAP	LAQ, SAQ, OSCE
	vi. Perform, demonstrate and document a physical examination including a vascular and cardiac examination that is appropriate for the clinical presentation		Knows, Shows, Shows how Does	Il, CBL, DOAP	
	vii. Counsel and communicate to patients with empathy lifestyle changes in atherosclerosis / post coronary syndromes				

Sr. No.	Topic	Domain	Level	TL Method	Assessment
b.	**Obstructive & Restrictive Respiratory disorders** i. Discuss, Describe and Plan the Physiotherapeutic management for Bronchitis ii. Discuss, Describe and Plan the Physiotherapeutic management forEmphysema iii. Discuss, Describe and plan the Physiotherapeutic management for Bronchial Asthma iv. Discuss, Describe and plan the Physiotherapeutic management for Cystic Fibrosis v. Discuss, Describe and Plan the Physiotherapeutic management forOccupational lung diseases vi. Discuss, Describe and plan the Physiotherapeutic management for Interstitial lung diseases.	K, S	Knows how Shows Does	IL,CBL, PBL	SAQ,LAQ, OSCE
c.	**General Respiratory Infection** i. Discuss, Describe and Plan the Physiotherapeutic management for Tuberculosis ii. Discuss, Describe and Plan the Physiotherapeutic management for Pneumonia iii. Discuss, Describe and Plan the Physiotherapeutic management for Lung Abscess iv. Discuss, Describe and Plan the Physiotherapeutic management for Bronchiectasis v. Discuss, Describe and Plan the Physiotherapeutic management for Pneumothorax vi. Discuss, Describe and Plan the Physiotherapeutic management for Hydropneumothorax vii. Discuss, Describe and Plan the Physiotherapeutic management for Atelectasis	K, S	Knows how, Shows how Does	IL, CBL, PBL	SAQ, LAQ, OSCE

Sr. No.	Topic	Domain	Level	TL Method	Assessment
	viii. Discuss, Describe and Plan the Physiotherapeutic management for Pleuritis ix. Discuss, Describe and Plan the Physiotherapeutic management for Pleural Effusion x. Discuss, Describe and Plan the Physiotherapeutic management for Empyema & other Pleural Disorders				
d.	**Neonatal & Paediatric Respiratory Infection** i. Discuss, Describe and Plan the Physiotherapeutic management for ARDS ii. Discuss, Describe and Plan the Physiotherapeutic management for Meconium aspiration iii. Discuss, Describe and Plan the Physiotherapeutic management for Pneumonitis iv. Discuss, Describe and Plan the Physiotherapeutic management for Pneumonia in a paediatric patient v. Discuss, Describe and Plan the Physiotherapeutic management for Childhood Asthma vi. Discuss, Describe and Plan the Physiotherapeutic management for Cystic fibrosis and chronic lung disease	K, S	Knows how Shows, Shows how	IL, CBL, DOAP	SAQ LAQ, OSPE
e.	**Pulmonary Surgeries** Discuss, Describe and Plan the pre and post surgical Physiotherapeutic management for Traumatic and Surgical conditions of Chest, Lung, Pleura and Mediastinum	K, S	Knows how Shows, Shows how, Does	IL, CBL, DOAP	SAQ, LAQ, OSCE

Sr. No.	Topic	Domain	Level	TL Method	Assessment
f.	**General abdominal &Oncological Surgeries** 1. Discuss, Describe and Plan the Physiotherapeutic management for Pre and Post Operative care in General abdominal and Oncological Surgeries Discuss 2. Describe and Plan the Physiotherapeutic management for Complications of abdominal and Oncological Surgeries..	K, S	Knows how Shows, Shows how, Does	IL, CBL, DOAP	SAQ, LAQ, OSCE
g.	**Burns** Discuss, Describe and Plan the Physiotherapeutic management for (Head Face neck & thoracic, inhalation burns)	K, S	Knows how Shows Shows how Does	IL,CBL, PBL	SAQ,LAQ, OSCE
h.	**Diabetic & Vascular Ulcers/ Amputations (Stump care only)** Discuss, Describe and Plan the Physiotherapeutic management for Diabetic & Vascular Ulcers/ Amputations	K, S	Knows how Does	IL, CBL, DOAP	SAQ, LAQ, OSCE
i.	**Metabolic Syndrome** i. Discuss, Describe and Plan the Physiotherapeutic management for Diabetes (Mellitus & Insipidus) ii. Discuss, Describe and Plan the Physiotherapeutic management for Obesity	K, S	Knows how Does	IL, CBL, SGD	SAQ, LAQ OSCE
j.	**Musculoskeletal dysfunction** i. Discuss, Describe and Plan Physiotherapeutic management for Flail chest ii. Discuss, Describe and Plan the Physiotherapeutic management for thoracicScoliosis iii. Discuss, Describe and Plan the Physiotherapeutic management for Kyphosis iv. Evaluate effect of thoracic khyphoscoliosis on respiratory system	K, S	Knows how Shows how	IL, SDL, SGD	SAQ OSPE

Sr. No.	Topic	Domain	Level	TL Method	Assessment
7	**CARDIAC REHABILITATION (A.H.A./A.C.S.M. guidelines)** Define, Discuss and describe the indications, contraindications and Phases of cardiac Rehabilitation with outcome measures Risk stratification Plan exercise program in various settings and diagnoses Educate the patients enrolled for CR	K, S, A	Knows how Does	IL, CBL, DOAP Role play	SAQ, LAQ, OSCE
8	**PULMONARY REHABILITATION (A.A.C.V.P.R. /A.T.S. guidelines**				
	i. Define, Discuss and describe the indications, contraindications and Phases of cardiac pulmonary ii. Rehabilitation with outcome measures. iii. Plan exercise program in various settings iv. Use motivational interview for patients education and lifestyle changes v. Apply principles of CBT vi. Communicate within interprofessional team for PR vii. Define and measure various outcomes measures in cardiac and pulmonary rehab viii. Demonstrate use of telerehab for CR and PR	K, S, A	Knows how Does	IL,CBL, DOAP Role plays	SAQ,LAQ, OSCE
9	**I.C.U. EVALUATION & MANAGEMENT**	K, S	Knows how Shows how	IL , CBL	SAQ, LAQ, OSCE
	a. Describe the basic evaluation of a patient admitted in ICCU. b. Identify the Principles of ICU Monitoring c. Enumerate the modes of Mechanical Ventilator d. Describe and Perform the mechanism of Suctioning & Humidification				

Sr. No.	Topic	Domain	Level	TL Method	Assessment
	e. Discuss, Describe and Plan Therapeutic intervention with respect to chest involvement in i. Tetanus, ii. Head Injury iii. Pulmonary Oedema, iv. Multiple Organ Failure, v. Neuromuscular Disease, vi. Smoke Inhalation, vii. Poisoning, viii. Aspiration near Drowning, ix. A.R.D.S. x. Shock xi. Guillan Barre Syndrome xii. Spinal Cord Injury & Other Acute respiratory Disorders				
10	**INTRODUCTION TO FUNCTIONAL SCALES**	K	Knows how	IL, CBL	SAQ
	a. Identify and Demonstrate the functional scales used in generic and disease specific cardiovascular and respiratory conditions. b. Document Patient's perception of his disability and functioning and correlate the same with therapist evaluation	S	Shows	DOAP	OSCE
11	**BASIC LIFE SUPPORT (C.P.C.R.)** Perform and demonstrate in a mannequin BLS	S	Shows		OSPE, WPBA

Sr. No	Practicals
1	Positioning, breathing control strategies (e.g. Pursed Lip Breathing, Sustained Maximal Inspiration, deep breathing), ventilator muscle training. Relaxation training, positioning, early mobilization.
2	Airway clearance techniques, Suctioning, use of mechanical assistive devices (e.g. Positive Expiratory Pressure, Flutter, Vest, etc.),postural drainage and percussions, Coughing maneuvers , medication delivery e.g. Nebulization, oxygen
3	Physical handling Techniques (e.g. positioning and donning, doffing, fitting and Adjusting Stockings for vascular disorders, bandaging, dressing, taping, splints and orthotics pertaining to cardiovascular and pulmonary impairments)
4	PNF for breathing facilitation and inhibition.
5	Ability to use a variety of exercise/movement equipment (e.g. treadmill, heart rate monitor, Oximeter, pressure biofeedback unit, free weights, balance boards, theraballs, etc)
6	Prescription and education: aerobic, endurance and interval exercise training, resistance (strength, Endurance and power) training, flexibility training. Formulating cardiac, pulmonary rehabilitation programme
7	Develop skills to monitor compliance of the client in executing rehabilitation program & identifying comorbid & contextual factors affecting it.
8	Familiarity and skill of use of various monitoring and treatment equipments in ICU.
9	Use of physical and electrical agents for pain relief and wound care
10	Skill of administering basic life support

Clinical Competencies

A] COMPETENCY IN ASSESMENT AND CLINICAL REASONING:

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

1. Risk factor screening (Red flags & Yellow flags).
2. Assessment of Cardiovascular & Respiratory dysfunction.
3. Interpretation of Radiological, Haematological and Biochemical investigations.
4. Aerobic fitness and Functional performance testing as appropriate
5. Identification and quantification of environmental and home barriers and facilitators
6. Identification and analysis of body mechanics during self-care, home management, work, community, tasks, or leisure activities.
7. Identification and analysis of ergonomic performance during work (job/school/play)
8. Assessment of Quality of Life through use of appropriate questionnaire and generic or disease-specific scales (nice to know)
9. Identification and prioritization of impairments in body functions and structures, and activity limitations and participation restrictions to determine specific body function and structure, and activities and participation towards which the intervention will be directed.
10. State the evidence (patient/client history, lab diagnostics, tests and measures and scientific literature) to support a clinical decision.
11. Determine the predicted level of optimal functioning and the time required to achieve that level.
12. Recognize barriers that may influence the achievement of optimal functioning within a predicted period and devise ways to overcome them when possible.

B] COMPETENCY IN DEVELOPING PLAN OF CARE:

Student should be able to:

Identify patient goals and expectations.

1. Design a Plan of Care with measurable, prioritized and time bound functional goals(short-term and long-term)
2. Consult patient and/or caregivers to develop a mutual agreement regarding the plan of care.
3. Identify indications/additional needs for consultation with other professionals & appropriate referrals.
4. Select the interventions that are safe, realistic and meet the specified functional goals and outcomes in the plan of care:(a) identify precautions and contraindications, (b) provide evidence for identified and selected patient-centered interventions that are identified and selected, (c) define the specificity of the intervention (time, intensity, duration, and frequency).

5. Measure and monitor patient response to intervention and modify elements of the plan of care and goals in response to changing patient/client status, as needed.
6. Establish criteria for discharge based on patient goals and current functioning and disability

C] COMPETENCY IN PHYSIOTHERAPEUTIC INTERVENTION:

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

1. Diverse settings of care including critical, acute, longterm, rehabilitation, and community care
2. Lifespan issues ranging from the neonatal stage to those associated with aging;
3. Lifestyle modification for diseases and for prevention.
4. Skill of application of physical and electrical agents for relief of acute & chronic pain and swelling.
5. Facilitation, re-education and training of muscle strength, endurance & motor control, posture and gait through skilful use of various therapeutic exercise techniques with appropriate therapeutic gymnasium equipment.
6. Skill of application of therapeutic modes of improving cardiovascular & respiratory performance. Functional training in self care, home, work (job, school and play), community and leisure activities

Documentation:

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

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

1. Medical Respiratory condition
2. Paediatric respiratory condition
3. Thoracic Surgical condition
4. Cardiac Medical condition
5. Cardiac Surgical condition
6. Peripheral vascular disorders
7. Burns of Head, Neck & Face (Acute phase only)
8. Abdominal surgical condition

COMMUNITY PHYSIOTHERAPY

Total: 200 hrs

Course Description:

Community Physiotherapy describes the roles & responsibilities of the Physiotherapist as an efficient member of the society. This component introduces the physiotherapist to a proactive preventive oriented philosophy for optimization & betterment of health.
The applications of community physiotherapy are not limited to conditions & dysfunctions but as attributed to promotion of health & rehabilitation in communities like elderly, Women, and occupational health etc.
Awareness about dysfunctions related to community health, including functional physiology (Obstetrics, geriatrics, sports injuries prevention), pathology, pharmacology, medical and surgical aspects related to women's health, occupational health, Community health, people with disabilities and ability to evaluate, plan and provide Physiotherapeutic treatments for prevention of dysfunctions and enhancement of functioning of athletes and clients.

The student shall be able to:

a) Describe the general concepts about health, disease and physical fitness.
b) Describe physiology of aging process and its influence on physical fitness.
c) Describe national policies for the rehabilitation of disabled–role of PT.
d) Describe the strategies to access prevalence and incidence of various conditions responsible for increasing morbidity in the specific community – role of PT in reducing morbidity, expected clinical and functional recovery, reasons for non-compliance in specific community environment & solution for the same.
e) Describe the evaluation of disability and planning for prevention and rehabilitation.
f) Describe rehabilitation in urban and rural setup.
g) Be a part of decision-making team regarding the policies for the welfare of special communities &on issues of disability
h) Be able to identify with clinical reasoning the prevailing contextual {e.g., environmental and psycho-social cultural} factors, causing high risk responsible for various dysfunctions and morbidity related to sedentary life style and specific community like women, children, aged as well as industrial workers and describe planning strategies of interventional policies to combat such problems at community level.
i) Be able to gain the ability to collaborate with other health professionals for effective service delivery & community satisfaction
j) Utilize the research methodology knowledge for formulation of a research question(synopsis)
k) Be an empathetic health professional, especially for those in the community, who is away from the health institutions and having difficulty in health care access

Sr. No.	Topic	Didactic Hours	Clinical Hours	Total Hours	Subject integration
1	**REHABILITATION**	11	20	**31**	Anatomy
2	**WOMEN'SHEALTH**	20	20	**40**	Physiology
3	**GERIATRIC HEALTH**	20	20	**40**	Kinesiology
4	**INDUSTRIAL HEALTH REHABILITATION**	20	20	**40**	Physiotherapeutics I & II, III, IV Pathology
5	**HEALTH PROMOTION**	10	20	**30**	Pharmacology Surgery I
6	**BASICS OF SPORTS PHYSIOTHERAPY**	05	06	**11**	Surgery II Medicine I
7	**BASICS OF DISASTER MANAGEMENT**	03	05	**08**	Medicine II Obstetrics and Gynaecology
TOTAL		**89**	**111**	**200**	Community Medicine, Physiotherapy Diagnosis and Physiotherapy Skills

Sr No	Competency	Domain	Level	TL Method	Assessment
A	**Topic: Rehabilitation**				
I	**Chapter: Health, Disease and Disability**				
1.	Define Health, including determinants and dimensions	K	Knows		SAQ
2	Describe factors affecting health of individual and society	K	Knows how		SAQ
3	Define diseases and describe factors associated with it.	K	Knows how		SAQ
4	Define Disability and enumerate types of disabilities	K	Knows how		SAQ
5	Describe the preventive measures for disability in individual and community	K	Knows how	Project	Project report
6	Calculate disability for basic locomotor cases	K, A	Does	CBL	Case
II	**Rehabilitation**				
1	Define Rehabilitation	K	Knows		SAQ
2	Describe types of rehabilitation	K	Knows how		SAQ
III	**National Policies for rehabilitation of Persons with disabilities (PWDs)**				
1	Understand the healthcare delivery systems in India	K	Knows		SAQ
2	Describe the policies and provisions for benefit of PWDs	K	Knows how		SAQ
IV	**Rehabilitation Team**				
1	Describe the constitution of a rehabilitation team	K	Knows		SAQ
2	Describe the roles and responsibilities of various team members in rehab	K	Knows how		SAQ, LAQ
V	**Role of Physiotherapy in CBR**				
1	Describes and demonstrated the role of physiotherapy and physiotherapists in CBR	K	Knows how		SAQ, LAQ
VI	**CBR Strategies**				
1	Describe the CBR strategies in Urban region, including UHC, Community centres, schools, industries, sports centres	K	Knows how	Visit to UHC, Community centre	Portfolio / Project report
2	Describe the CBR strategies in Rural region, including PHC, rural hospital, district hospitals	K	Knows how	Visit to PHC, rural hospital	Portfolio / Project report

Sr No	Competency	Domain	Level	TL Method	Assessment
3	Prescribe Locomotor aids and assistive devices to PWDs (in available setup)	S	Shows	Simulated Patient	Portfolio
4	Council a patient who is PWD for enhancement of functioning and quality of life	A	Does	Case	DOPS, Journal document
5	Survey neighbouring area for PWDs, beneficiaries, risky behaviours etc	S	Does	Community Survey group project	Portfolio / Project report
B	**Topic: Women's Health**				
I	**Women in India**				
1	Appreciate the importance of Women's health across the life spectrum in a developing country like India	A	Knows	Role play/ Film on Women in society	
II	**Chapter: Social Issues having impact on Physical Function**				
1	Describe the social and cultural norms, including myths and taboos pertaining to Physical functioning in women	K	Knows	Group discussion/ Buzz groups	Report submission
2	Describe various strategies for enhancement of functioning and participation of women in society.	K	Knows	Group discussion/ Buzz groups	Report submission
III	**Chapter: Legal rights and benefits related to health**				
1	Understand various laws and policies pertaining to women's health in India	K	Knows	Group discussion/ Buzz groups	Report submission
2	Describe various schemes and policies concerning women's health in India, including maternity, childbirth, destitute women etc	K	Knows	Group discussion/ Buzz groups	Report submission
IV	**Anatomical and Physiological variations associated with pregnancy and menopause**				
1	Describe the anatomy of the reproductive organs, pelvic organs and pelvic floor musculature	K	Knows how	Lecture, Pelvis models	SAQ, LAQ

Sr No	Competency	Domain	Level	TL Method	Assessment
2	Describe the physiology of the reproductive system, uro-genital system, and pelvic floor functioning.	K	Knows how	Lecture, pelvis models	SAQ, LAQ
3	Describe menarche, menstrual cycle, menstrual health and hygiene and menopause, including hormonal functioning	K	Knows how	Lecture, video	SAQ, LAQ
4	Explain pregnancy as a physiological process including stages of labour	K	Knows how	Lecture, video	SAQ, LAQ
5	Explain the process of menopause and the physiological changes associated with it.	K	Knows how	Lecture, video	SAQ, LAQ
V	**Antenatal, labour and post-natal care and Physiotherapy**				
1	Describe the role of PT in ANC, including postural and fitness advice	K	Knows how	Lecture,, roleplays	SAQ, LAQ
2	Describe the role of PT in labour, including painless delivery	K	Knows how	Lecture,, role plays	SAQ, LAQ
3	Describe the role of PT in PNC, including lactation advice and postural advice	K	Knows how	Lecture,, roleplays	SAQ, LAQ
4	Demonstrate the evaluation and corrective measures of complications associated in pregnancy, including postural dysfunctions, diastasis recti, and pain associated with normal and Caesarean delivery.	S	Does	Demo on Std Pts, role plays	DOPS, Portfolio
5	Counsel a new mother for healthcare, functioning and screen for depression	A	Shows	Demo on Std Pts, role plays, movie	DOPS, Portfolio
6	Evaluate a client in ANC and/ or PNC for physiological variations and Physiotherapeutic intervention, including pain management	S	Does	Clinics, OMP	DOPS, Portfolio/ Journal document
7	Survey neighbouring area for ANC cases and promote PT awareness in them.	S	Does	Community Survey	Portfolio / Project report

Sr No	Competency	Domain	Level	TL Method	Assessment
VI	**Uro-genital dysfunctions, incontinence, pelvic organ prolapses (POP), malignancy and their therapeutic intervention**				
1	Describe the various Uro-genital dysfunctions and their PT intervention	K	Knows how	Lecture,, role plays	SAQ, LAQ
2	Describe incontinence, types and its PT intervention	K	Knows how	Lecture,, Role plays	SAQ, LAQ
3	Describe pelvic organ prolapses (POP), types and its PT intervention	K	Knows how	Lecture, role plays	SAQ, LAQ
4	Describe malignancies of the uro-genital systems, types and its PT intervention	K	Knows how	Lecture, role plays	SAQ, LAQ
5	Demonstrate evaluation of pelvic floor and PT management of PF dysfunction.	S	Does	Pelvis Models with muscle attachments, Clinics, OMP	DOPS, Portfolio/ Journal document
6	Evaluate a client with PF dysfunction and prescribe suitable PT intervention for the same.	S	Does	Clinics, OMP	DOPS, Portfolio/ Journal document
C	**Topic: Geriatrics**				
I	**Senior citizens in India**				
1	Appreciate the importance of health of the elderly across the health spectrum in a developing country like India	A	Knows	Role play/ Film on elderly in society	
II	**NGO's and health related legal rights of the elderly**				
1	Describe the social and cultural norms, including myths and taboos pertaining to health of the elderly population	K	Knows	Group discussion/ Buzz groups	Report submission
2	Describe various strategies for enhancement of functioning and participation of the elderly in the society.	K	Knows	Group discussion/ Buzz groups	Report submission
III	**Institutionalised and Community Dwelling elderly**				
1	Describe social and medical attributes for need of institutionalisation of the elderly	K	Knows	Group discussion/ Buzz groups	Report submission

Sr No	Competency	Domain	Level	TL Method	Assessment
2	Rationalised the difference in the health status and physical functioning of the elderly in community or institutions, including the frail elderly.	K	Knows	Group discussion/ Buzz groups	Report submission
IV	**Theories of Aging**				
1	Describe the various theories of aging, especially related to the medical model of aging	K	Knows how	Lecture, role plays	SAQ, LAQ
2	Explain the application of the various theories of aging to the enhancement of fitness and functioning in the elderly.	K	Knows how	Lecture,role plays	SAQ, LAQ
V	**Physiology of aging and changes associated with it**				
1	Describe the process of aging and the changes associated with it in the musculoskeletal system	K	Knows how	Lecture, role plays	SAQ, LAQ
2	Describe the process of aging and the changes associated with it in the neurological system	K	Knows how	Lecture, role plays	SAQ, LAQ
3	Describe the process of aging and the changes associated with it in the cardio vascular and respiratory system	K	Knows how	Lecture,role plays	SAQ, LAQ
4	Describe the process of aging and the changes associated with it in the metabolic system	K	Knows how	Lecture, role plays	SAQ, LAQ
5	Demonstrates the effects of exercise intervention in the functional enhancement of various systems	S	Shows	Demo on Std Pts/ actual patient	DOPS, Portfolio
VI	**Scheme of evaluation and role of PT in Geriatrics**				
1	Explain the common outcome measures used in Geriatrics and their application	K	Knows	Lecture, role plays	SAQ, LAQ
2	Explain the validity and merits/ demerits of the outcome measures for the elderly	K	Knows	Lecture, role plays	SAQ, LAQ
3	Evaluate elderly clients with or without dysfunctions and prescribe suitable PT intervention for the same.	S	Does	Clinics, OMP	DOPS, Portfolio/ Journal document

Sr No	Competency	Domain	Level	TL Method	Assessment
4	Counsel an elderly client for exercises and functional training.	A	Shows	Demo on Std Pts, role plays, movie	DOPS, Portfolio
D	**Topic: Industrial Health**				
I	**Introduction to Industrial Therapy**				
1	Define the concept of Industrial therapy, including organised and non-organised sectors	K	Knows	Lecture,role plays	SAQ, LAQ
2	Describe the models of Industrial therapy (Traditional Medical v/s Proactive Industrial)	K	Knows	Lecture,role plays	SAQ, LAQ
3	Explain the concept of Ergonomics and work/ occupational environment	K	Knows how	Lecture,role plays	SAQ, LAQ
4	Describe the need for an industrial therapy model with the changes in the healthcare systems	K	Knows	Lecture, role plays	SAQ, LAQ
II	Worker Care Spectrum				
1	Understand the ability and disability management component of worker care spectrum.	K	Knows	Lecture, role plays	SAQ, LAQ
2	Describe the ability management component in terms of: a. Job description b. Job Description (Task and site analysis) c. Job demand analysis d. Pre placement assessment e. Injury prevention f. Employee fitness training	K	Knows how	Lecture, role plays	SAQ, LAQ
3	Describe the disability management component in terms of: a. Acute care b. Functional capacity assessment c. Job analysis d. Conditioning e. Work conditioning f. Work Hardening	K	Knows how	Lecture,role plays	SAQ, LAQ

Sr No	Competency	Domain	Level	TL Method	Assessment
4	Evaluate the basics of worker care spectrum on clients in simulated or actual work environment in terms of: work posture, repetitions, duration and break timings, and any additional factors	S	Does	Clinics, OMP	DOPS, Portfolio/ Journal document
5	Evaluate the basics of worker care spectrum on clients in simulated or actual work environment in terms of: work place, work demands (lifts, bends, push, pull, heights etc).	S	Does	Clinics, OMP	DOPS, Portfolio/ Journal document
6	Provide counselling and intervention for a client in simulated or actual work environment in terms of: Injury prevention, Work conditioning and work hardening	S	Shows	Clinics, OMP	DOPS, Portfolio/ Journal document
III	**Environmental Factors in Industrial Therapy**				
1	Describe the various accidents, hazards, injuries that can happen in a working environment, especially related to PT domains	K	Knows	Lecture, role plays	SAQ, LAQ
2	Describe the Physical agents (like temperature, vibrations, noise, radiations etc) which can be a contributing factor for accidents, hazards, injuries that can happen in a working environment, especially related to PT domains and its prevention strategies.	K	Knows how	Lecture, role plays	SAQ, LAQ
3	Describe the Chemical agents which can be a contributing factor for accidents, hazards, injuries that can happen in a working environment, especially related to PT domains and its prevention strategies.	K	Knows how	Lecture, role plays	SAQ, LAQ

Sr No	Competency	Domain	Level	TL Method	Assessment
4	Describe the Mechanical factors (like fatigue, exhaustion, work place barriers etc) which can be a contributing factor for accidents, hazards, injuries that can happen in a working environment, especially related to PT domains and its prevention strategies.	K	Knows how	Lecture, role plays	SAQ, LAQ
5	Describe the work-related factors (like posture, sedentary job, standing job, inappropriate work spaces, monotonous job etc) which can be a contributing factor for accidents, hazards, injuries that can happen in a working environment, especially related to PT domains and its prevention strategies.	K	Knows how	Lecture, role plays	SAQ, LAQ
IV	**Role of PT in Industrial Setup**				
1	Describe the Industrial Therapy team and their roles in Worker care	K	Knows how	Lecture,role plays	SAQ, LAQ
2	Describe the common ergonomic risk factors in Industrial set-up, including mental health factors	K	Knows how	Lecture, role plays	SAQ, LAQ
3	Explain the principles of Ergonomics (especially Physical Principles) and its application in Industrial health	K	Knows how	Lecture, role plays	SAQ, LAQ
4	Explain the common cumulative trauma disorders/ repetitive stress injuries, risk factors for their development and preventive strategies.	K	Knows how	Lecture, role plays	SAQ, LAQ
5	Evaluate and prescribe PT intervention for a client with CTD/ RSI.	K	Knows how	Lecture,role plays	SAQ, LAQ
E	**Health Promotion**				
I	**Health and Disease**				
1	Describe Health and Disease as per universal guidelines (WHO).	K	Knows	Lecture, role plays	SAQ, LAQ

Sr No	Competency	Domain	Level	TL Method	Assessment
2	Discuss and demonstrate use of Screening for risk factors for health and related issues	K	Knows how	Lecture, role plays	SAQ, LAQ
II	**Healthcare Delivery System**				
1	Describe the health care and delivery systems in India	K	Knows	Group discussion/ Buzz groups	Report submission
2	Describe the three-tier healthcare system	K	Knows	Group discussion/ Buzz groups	Report submission
3	Describe the role of government and NGOs in the healthcare systems in India	K	Knows	Group discussion/ Buzz groups	Report submission
III	**Physical Fitness: Definition to Evaluation**				
1	Describe Physical Fitness and its effects in growing age.	K	Knows how	Lecture, role plays	SAQ, LAQ
2	Describe Physical Fitness and its effects in Obesity management.	K	Knows how	Lecture,role plays	SAQ, LAQ
3	Describe Physical Fitness in Women and its applications in pregnancy, menopause and osteoporosis.	K	Knows how	Lecture, role plays	SAQ, LAQ
4	Describe Physical Fitness and its applications in the older age.	K	Knows how	Lecture, role plays	SAQ, LAQ
5	Discuss, and demonstrate evaluation of Body composition- B.M.I., use of skin fold callipers, Girth measurement, BIA, WHR	S	Does	Clinics, OMP	DOPS, Portfolio/ Journal document
6	Discuss and demonstrate evaluation of Physical fitness: Flexibility, Strength, Endurance, Agility	S	Does	Clinics, OMP	DOPS, Portfolio/ Journal document
7	Demonstrate use of Screening tools for health and fitness in childhood, adulthood and geriatric	S	Shows	Clinics, OMP	DOPS, Portfolio/ Journal document
8	Discuss generic and specific quality of life assessment tools	S	Shows	Clinics, OMP	DOPS, Portfolio/ Journal document

Sr No	Competency	Domain	Level	TL Method	Assessment
9	Evaluate a client for fitness with age-appropriate health related fitness measures.	S	Does	Clinics, OMP	DOPS, Portfolio/ Journal document
F	**Basics of Sports Physiotherapy**				
1	Understand the Basic knowledge of various sports, sports gears, basic rules and regulations and regulating bodies	K	Knows	Group discussion/ Buzz groups	Report submission
2	Demonstrate Awareness on medical conditions commonly encountered in the exercising population	K	Knows	Group discussion/ Buzz groups	Report submission
3	Understand the methods to train physical motor qualities (Skills) in sportsmen, including novice athletes. E.g., Agility, reaction time, speed, power etc	K	Knows how	Lecture, role plays	SAQ
4	Demonstrate basic tests for evaluation of the motor abilities, including performance related fitness aspects	S	Shows	Standardise pt/ model	DOPS
5	Prescribe a basic workout routine for athletic training	S	Shows	Standardise pt/ model	DOPS
G	**Basics of Disaster Management**				
1	Define disaster, mitigation, risk, vulnerability	K	Knows how	Lecture, role plays	SAQ
2	Describe disaster management, including aims and recovery process	K	Knows how	Lecture, role plays	SAQ
3	Describe the role of PT in disaster management planning, response and recovery including triage, documentation and referral.	K	Knows how	Lecture,role plays	SAQ

Sr No	Competency	Domain	Level	TL Method	Assessment
4	Demonstrate basic lifesaving (CPR) and acute management and victim evacuation techniques for cases like SCI, TBI, burns, Crush injuries, amputation etc including splinting, first aid, respiratorycare and rescue techniques likeSingle rescuer technique, two persons lift technique etc	S	Shows	Standardise pt/ model	DOPS
	Documentation: **Presentation &** **Documentation of 8 cases,** preferable by DOPS, **for patient management using ICF Model as following:** 1. Two cases each in a) Industrial Health (any occupation-based disorder), b) Women's Health (reproductive phase/ post-menopausal/ POP), and c) Geriatrics (normal healthy or with a dysfunction) 2. One case each of d) Health Promotion (Obesity or preventive fitness) and e) Rehabilitation (chronic disorder/ dysfunction) 3. Documentation of reports as mentioned in respective sections 4. Documentation of visits to either Industry, Geriatric Home, Community assessment etc				

Sr No	Competency	Domain	Level	TL Method	Assessment
	Presentation & Documentation of 8 cases, preferable by DOPS, **for patient management using ICF Model as following:** 1. Two cases each in a) Industrial Health (any occupation-based disorder), b) Women's Health (reproductive phase/ post-menopausal/ POP), and c) Geriatrics (normal healthy or with a dysfunction) 2. One case each of d) Health Promotion (Obesity or preventive fitness) and e) Rehabilitation (chronic disorder/ dysfunction) 3. Documentation of reports as mentioned in respective sections 4. Documentation of visits to either Industry, Geriatric Home, Community assessment etc				

Documentation:
Presentation & Documentation of 8 cases, preferable by DOPS, **for patient management using ICF Model as following:** 1. Two cases each in a) Industrial Health (any occupation-based disorder), b) Women's Health (reproductive phase/ post-menopausal/ POP), and c) Geriatrics (normal healthy or with a dysfunction) 2. One case each of d) Health Promotion (Obesity or preventive fitness) and e) Rehabilitation (chronic disorder/ dysfunction) 3. Documentation of reports as mentioned in respective sections 4. Documentation of visits to either Industry, Geriatric Home, Community assessment etc

PRINCIPLES OF BIOENGINEERING

COLLEGE EXAMINATION)

TOTAL 30 HRS

COURSE DESCRIPTION:

The course is designed to give knowledge & application of biomechanical principles related to Orthotics & Prosthetics. Students will also learn the principles of the prescription & the check out procedures of aids & appliances as per the physical dysfunction of the person. They will learn to fabricate simple splints.

At the end of the course, the candidate shall

a) Acquire knowledge about biomechanical principles of application of variety of aids & appliances used for ambulation, protection & prevention.
b) Acquire in brief knowledge about various material used for splints/ Orthoses & prostheses and their selection criteria
c) Acquire the skill of fabrication of simple splints made out of low-cost material

Sr. No	Topic	Didactic hours	Practical hours	Total	Subject Integration
1	**Introduction to bio-engineering**	**01**	**-**	**01**	Anatomy, Kinesiology and Movement Science I & II, Pathology, Medicine, Surgery I & II
2	**Biomechanical principles in designing of appliances & assessment; Procedures for static & dynamic alignment ofthe Orthoses & Prostheses**	**26**	**-**	**26**	
3	**Project**	**-**	**03**	**03**	
	Total	**27**	**03**	**30**	

SYLLABUS

Sr. No.	TOPIC	Domain	Level	TL method	Assessment
1.	**Introduction to bio-engineering-** Classification of Aids & appliances (Splints/Orthoses for spine, upper & lower limb; Prostheses for Lower limbs & Upper limbs)	K	KH	Theory	SAQ
2.	**Biomechanical principles in designing of appliances & assessment; Procedures for static & dynamic alignment of the Orthoses & Prostheses:**	K	KH	Theory	SAQ
	a. Introduction to Orthotics, Solid Ankle foot Orthoses (AFO)				
	b. Articulated AFO,Various Shoe modifications				
	c. Knee Ankle Foot Orthoses (KAFO)				
	d. Knee Orthoses (KO)				
	e. Hip Knee Ankle Foot orthoses (HKAFO), Hip Orthoses (HO)				
	f. Fracture Bracing and Flexible Lumbo-sacral Orthoses (LSO) and Thoraco-Lumbo-sacral Orthoses (TLSO)	K	KH	IL	SAQ
	g. Rigid TLSOs and Cervical Orthoses (CO)				
	h. Orthotic mgmt. of Scoliosis, Milwaukee and low profile scoliosis orthoses, Scheuermann's Kyphosis & Osteoporosis				
	i. Orthoses for LBP, Introduction to Upper limb Orthotics and Shoulder orthoses (SO)				
	j. Shoulder (SO), Elbow Orthoses (EO) & Wrist Hand Orthoses (WHO)				

Sr. No.	TOPIC	Domain	Level	TL method	Assessment
	k. Introduction to Gait in relation to the use of Orthoses/Prostheses	K	KH	IL	SAQ
	l. Prosthetic management of Forefoot amputees				
	m. Prosthetic management ofSyme's and hindfoot Amputees				
	n. Below Knee Prosthesis & Prosthetic footpieces				
	o. Alignment of Below Knee Prosthesis and gait deviations				
	p. Prosthetic Knees and Knee Disarticulation mgmt.				
	q. Above Knee Prosthesis, alignment, gait deviations				
	r. AK Checkouts, Prosthetic mgmt. of Hip Disarticulation, hemipelvectomy, Bilateral amputees and Congenital cases				
	s. Introduction to Upper Limb Prosthetics, Prosthetic mgmt. of Partial Hand amputees				
	t. Cosmetic Prostheses for all levels of Amputations				
	u. Task Specific Prostheses, Prosthetic mgmt. of Wrist Disarticulation, Myoelectric Below Elbow prosthesis				
	v. Body Powered Below Elbow (BE) Prostheses and it's components				
	w. Harnessing in BE				
	x. Prosthetic mgmt. of Elbow Disarticulation and Above Elbow Amputation.				

Sr. No.	TOPIC	Domain	Level	TL method	Assessment
3.	**Project:** Temporary splints: To fabricate ONE splint each [to use P.O.P, aluminum strips/ sheets/ wires rubber bands, Rexin, Orfit, etc]	K, S	KH, Does	Practical /demonstrate	Make a model
	Splinting-Practical Demonstration of the following a) Cockup (dorsal/volar) b) Outrigger, c) Opponence splint d) Anterior and posterior guard splints for gait training, e) Foot drop splint f) Facial splint g) Mallet Finger Splint h) C-bar for 1st webspace of hand				

COMPEL MODULE

(COLLEGE EXAMINATION IN FINAL YEAR)

TOTAL-135 HRS

COURSE DESCRIPTION:

This subject will be taught in continuum from first year to final year. A college exam will be conducted only in final year on Research Methodology and Ethics and Professionalism. The attitude component will be evaluated throughout the curriculum in the form of observed behaviors and practices. A short research project would be submitted during Internship as apart of internship completion requirements.

The COMPEL Module curriculum content addresses the Knowledge, Skills and Behaviors required of the physiotherapist in a range of practice relationships and roles. The course will discuss the role, responsibility, ethics administration issues and accountability of the physical therapists, lifelong learning strategies, knowledge of research and evidence-based Physiotherapy practiceusing self-directed learning methods. It also aims to develop effective communication skills between physiotherapist-patient/caregiver, peers, interprofessional and interpersonal

The course will also cover the history and change in the profession, responsibilities of the professional to the profession, the public and to the health care team. This includes the application of professional and ethical reasoning, evidence-based decision-making strategies and professional communication.

I[st] BPT: SYLLABUS

Sr. No.	Topics	Total Hrs	Domain/ Level	TL Method	Assessment
	Part A **Communication skills**	05	K/ K, SH	Interactive discussion + role Play + Video	Journal documentation
1	Define and understand what is communication?				
2	Types of communication				
3	Verbal communication				
4	Nonverbal communication				
5	Factors affecting communication: Facilitators and barriers				
	Part B **Professional Ethics**	05			Journal documentation
1. 2. 3. 4.	Introduction to the history of Physiotherapy Orientation to the curriculum, clinical areas and geographical location Concept of morality and ethics Concept of professionalism and Professional dress code, Principles of ethics		K/ KH	Theory Interactive learning (IL)	
	Part C **Research and evidence**	07hrs			
1 **2**	Define Research Why, How, When, Who? Read a story Read a scientific paper Identify tables and graphs Understand pictorial representation of data		K/ K, KH	IL Interactive discussion	SAQ
3	Knowledge of Google Scholar and PubMed		K/ KH, Shows		
	Task/ Tutorial		K, S/ SH	Assignment	Journal Documentation .
To do:	Get familiarized with different terms & concepts related to research Prepare a table, pie chart, histogram, bar diagram		K, S/ SH		
	Part D **Leadership & Life-long learning**	03	K, A/ KH	IL	Journal documentation
1 **2**	Who is a good leader? Leadership qualities. Concept of life-long learner What are reflections? Do we have to be reflective in different roles			IL/ Reflective diaries	
	Total hours	**20**			

2nd BPT: SYLLABUS

Sr. No.	Topics	Total Hrs	Domain/ Level	TL Method	Assessment
	Part A **Communication skills**	05	K, A/ KH, SH		Journal documentation
1	What is being a passive, aggressive and assertive communicator			Interactive discussion+ role Play+ Video	
2	Written, Oral (Verbal) and Non-verbal Communication				
	Task: Write your account of one incident highlighting the usage of either Written, Oral (Verbal) and Non-verbal mode of communication		K, S/ Does	Assignment	Journal Documentation
	Part B **Professional Ethics**	05	K/ KH	Interactive discussion+ role Play+ Video	Journal documentation
1.	Concept of professionalism: Ethical code of conduct as per WCPT & Standards for practice & Professionalism				
2.	Different Roles of physiotherapist				
3.	Principle of Autonomy and consent in research				
	Task: Documentation of Professional and Institutional ethical codes		S/ SH	Assignment	Journal Documentation
	Part C **Research and evidence**	07hrs	K/ KH, S		
1	Introduction to the term database			IL	SAQ
2	How to search scientific articles in a databaseusing Google Scholar and PubMed				
3	Understand the concept of hypothesis				SAQ
	Task/ Tutorial				

Sr. No.	Topics	Total Hrs	Domain/ Level	TL Method	Assessment
To do:	Read 3-4 scientific articles: Focus on various parts of paper. Abstract, key words, hypothesis, the level of interest generated, how is data represented, what tests are used; Write a hypothesis. Conduct a Literature search using keywords in Google scholar and PubMed. Group will be given a different research question. Students are expected to find: 1. Scientific literature using keywords, (2 studies) 2. Comment on Ethical permission and informed consent in atleast two articles		K, S/ SH, Does	Assignment	Journal Documentation
	Part D **Leadership & Life-long learning**	03	K, A/ KH		Journal documentation
1	Concept of a Mentor			IL/ Reflective diaries	
2	What is Reflection? How to reflect on action				
3	Task/Tutorial: WRITE YOUR REFLECTION on any one incident which you remember in your course. What was Good, what could be done better		K, S KH, SH, Does	Assignment (Reflective diaries)	Journal Documentation
	Total hours	**20**			

3rd BPT: SYLLABUS

Sr. No.	Topics	Total Hrs	Domain/ Level	TL Method	Assessment
	Part A **Communication skills**	5	**K, S, A/ KH, SH**		Journal documentation
1	Listening during communication			Interactive discussion+ Role play + Video	OSCE
2	Skills of being an active listener during history taking (Physiotherapist–Patient)				
3	Understanding Empathy				
4	Interprofessionalcommunication: Communicating effectively with the multidisciplinary team				
	Task: Write your account of an interesting history taking episode in this academic year		S, A/ SH, Does	Assignment	Journal Documentation
	Part B **Professional Ethics**	5	K		Journal documentation
1.	Scope of Physiotherapy in Hospital, Community & Industry			IL	clinics
2.	Ethical issues in practice of physiotherapy- Clinical, Research and Academics			Theory + IL	
3.	What is an ethical dilemma? Principle of Benefit and Harm				
4	Time management			Theory + Role play	
	Task: Identify your strengths and weaknesses List professional attributes		K,S/ K, KH, Does	Assignment	Journal Documentation
	Part C **Research and evidence**	5	K/ KH, SH		SAQ
1	Concept of PICOT Types of study designs Types of Descriptive study designs What do you mean byexperimental study? Concept of Randomization			Theory + IL	
2	Scales of measurement: Ordinal, nominal, ratio, interval				
3	Types of variables: Dependent, Independent				

Sr. No.	Topics	Total Hrs	Domain/ Level	TL Method	Assessment
To do:	**Tutorial/ Task** Each group will be given two scientific articles. Students are expected to find:		K, S/ KH, SH	Assignment	Journal Documentation
	1. Identify the type of study design used to answer the research question **(of 2 descriptive studies)** Document: a. Research Question (PICOT) b. Type of study design used **2.** Name the dependent and independent variable **3.** Check and comment on outcome measures that were used.				Journal Documentation
	Part D **Leadership & Life-long learning**	05	K, A/ KH		Journal documentation
1	Physiotherapist as a leader and team member			Theory+ Interactive discussion	
2	Role of Planning in setting up rehab				
3	Time management				
To do:	**Task/Tutorial:** Plan a physiotherapy OPD set up		K, S, A/ KH, SH	Assignment (Reflective diaries)	Journal Documentation
	Identify your role as a team member in a rehab set up Shadow another professional for a day and write your reflections				
	Total hours	**20**			

4th BPT: SYLLABUS

Sr. No.	Topics	Total Hrs	Domain/ Level	TL Method	Assessment
	Part A **Communication skills**	08	K, S/ KH, SH		Journal documentation
1	Presentation skills			Interactive discussion+ Role Play + Video	
2	Preparing PowerPoint presentations				
3	Counselling skills		K, A/ SH		
	Task: Write your account of one incident highlighting a presentation you made and the preparation involved during the same		K, S, A/ SH, Does	Assignment	Journal Documentation
	Part B **Professional Ethics**	08	K, A/ KH, SH		Journal documentation
1.	Code of conduct for safe disciplined practice – legal aspect			Theory	
2.	Importance of documentation of patient information			Theory/ Role play	
3.	Importance of confidentiality of patient information			Theory/Role play	
4	Role of Council				
	Task: Write an account on how patient documentation is maintained in your clinical setup		K, S/ SH	Assignment	Journal Documentation
	Part C **Research and evidence**	40	K, S/ KH		RM exam (college)
1	Reliability, validity, sensitivity: Importance of using reliable, validated and sensitive outcome measures/tools for data collection.			Theory + Interactive discussion	SAQ
2	Tests of Significance Understanding Descriptive statistics Understanding Inferential statistics Data Analysis using Microsoft Excel of descriptive statistics				
3	Writing research synopsis		S/ KH, Does		

Sr. No.	Topics	Total Hrs	Domain/ Level	TL Method	Assessment
To do:	**Task/ Tutorial** Each group will be given two scientific articles (descriptive studies). Students are expected to: Identify and enumerate various parametric/ non-parametric tests used. Calculate: Simple statistics using Microsoft Excel Understand concept of Reliability, validity, sensitivity and specificity		K, S/ Does	Assignment	Journal Documentation
	Selecting a research topic, reviewing literature, writing their own research synopsis (25 hrs)				
	Evidence-based practice 1: (8 Hrs) What is critical inquiry? What is the need to look for evidence? Steps of EBP: Ask, Acquire, Appraise, Apply, Assess Grading Evidence		K/ KH		Not for exam (Sensitise the student about critical appraisal and scientific evidence)
	Research Total hours: (Including EBP) (40)				
	Part D **Leadership & Life-long learning**	19	K/ KH		SAQ
1	Concept of quality assurance			Theory + Interactive discussion	Journal documentation
2	Understanding Hospital Administration-principles, buying equipment, quotations, vendors			Theory	
3	Methodsofmaintainingrecords departmental and hospital: record registers, software,				
4	Budget-planning				
5	Settingupa Physiotherapy department, Maintenance of equipment				
6	Interprofessional collaboration (with other healthcare professionals)			Theory + Interactive discussion	
7	Inter disciplinary collaboration with other agencies / departments for research, practice (engineers/ architects etc)			Theory + Interactive discussion	

Sr. No.	Topics	Total Hrs	Domain/ Level	TL Method	Assessment
8	How to make a good Bio-data / CV			Theory + Interactive discussion	
To do	**Task/Tutorial:** Record maintenance in log book Reflections about ethical dilemma Log of literature reviewed, appraised, applied		K, S/ KH, SH	Assignment	Journal Documentation
	Credentials earned, extra-curricular involvement Personality development				Journal Documentation
	Total hours	**75**			

Internship

Internship (Research Project)	**Hours**	**Domains/ Level**	**T L Method**	**Assessment**
Conduct data collection as per approved study protocol project	250	S/ Does		Project
Perform data analysis, tabulate findings, use graphical representation	50	K, S/ SH		
Documentation and presentation of study: Introduction, Need of the study, Aims and Objectives, Outcome measures used, Methods, Results, Discussion, Conclusion, Limitations, Clinical implications, Acknowledgements, References, Masterchart	50	KH /SH, Does		Presentation before Departmental Review committee
	350			
Evidence-based Physiotherapy 2: How to read a research paper		K/ KH		Not for exam (Group discussion)
1. Steps of performing critical appraisal (Descriptive study)	10		IL	
i. Read the article, use the following leading questions mentioned for each section of the article. ii. Introduction: Have previous studies been done on this topic? If so, what were their results, any gaps or limitations identified? What is the aim of this article? iii. Methods: What type of descriptive study was completed? (Observational, case study, case series, cross sectional etc) How were the patients allocated between control and treatment groups? Did they use reliable and validated outcome measures? Were participants appropriately followed and for how long? Are details of data collection method explained? iv. Results: Were treatment and control groups similar (age matched, gender matched)? Were demographic details of participants tabulated? What were the results? Were appropriate statistical methods used for analysis? Were the results statistically significant? (CI and P value if available)			IL + Interactive discussion	Sensitise the student about critical appraisal and scientific evidence

Internship (Research Project)	**Hours**	**Domains/ Level**	**T L Method**	**Assessment**
v. Conclusions What are the conclusions of the article? Are they supported by the results? Were the results clinically significant? Can I apply the results to my patients and clinical practice? What are the strengths of the article? What are the limitations of the article? What future directions or clinical implications can be derived				
2. Can we apply the found evidence in our practice? Verify applicability of evidence found from Indian context, culture etc **3.** Assess: Self-evaluation/Audit of one's practice (Am I using reliable outcome measures, Am I keeping myself updated, Am I reading scientific evidence before practicing.			IL + Interactive discussion	
Tutorial/ Task				
Demonstration of critical appraisal of one published descriptive research article in each specialty	40	K, S/ SH	Interactive discussion with Faculty + PG	Journal documentation
Total hours: EBP	**50**			

12. INTERNSHIP TRANSCRIPT HOURS: 1092

Sr.No.	SUBJECTS	Hours
	PROJECT	350
	Evidence-Based Practice and Critical appraisal	50
	SUPERVISED CLINICAL PRACTICE	
1	Musculoskeletal Physiotherapy	6 weeks
2	Neuro Physiotherapy	6 weeks
3	Cardiovascular Respiratory Physiotherapy (Including Critical Care)	6 weeks
4	Community Physiotherapy	6 weeks
	ELECTIVE	2 weeks
	TOTAL HRS	1092 hrs

13. RECOMMENDED READING MATERIAL

BPTH Syllabus books

I BPTH

COMPEL – MODULE I

RECOMMENDED TEXT BOOK

1. Methods in Biostatistics-B.K. Mahajan
2. Research for physiotherapist-Hicks
3. Research Methodology for Health Professionals : Including Proposal, Thesis and Article Writing -Goyal, R. C.
4. Research Methodology : Methods & Techniques - Kothari, C. R.
5. Biomedical Ethics - Olinda Timms
6. Communication skills in clinical practice – K. R. Sethuraman

ANATOMY

RECOMMEMDED TEXT BOOKS

1. Human Anatomy –Snell
2. Anatomy-Chaurasia,Volume-I,II &III
3. Neuro anatomy --Inderbir Singh
4. Human Anatomy –Kadasne,Volume-I,II &III
5. Neuroanatomy --Vishram Singh
6. Human Anatomy –Datta
7. Surface and Radiological Anatomy - A.Halim
8. Notes on living anatomy - Jayaben Charania
9. Textbook of Histology - Dr G.P.Pal
10. Textbook of Embryology - Inderbir singh

RECOMMEMDED REFERENCE BOOKS

1. Gray's Anatomy
2. Extremities --Quining Wasb
3. Atlas of Histology --Mariano De Fiore
4. Anatomy & Physiology --Smout and McDowell
5. Kinesiology --Katherine Wells
6. Neuroanatomy --Snell
7. Neuroanatomy –Vishram Singh
8. Cunnigham`s-Practical Anatomy
9. Joint Structure and Function : A Comprehensive Analysis - Levangie P. K, C Norkin

HUMAN PHYSIOLOGY

RECOMMENDED TEXT BOOKS

1. Textbook on Medical Physiology –Guyton
2. Textbook of Physiology –A K Jain (for MBBS students)
3. Human Physiology - C.C. Chatterjee
4. Essentials of Medical Physiology - Sembulingam, K.
5. Comprehensive Textbook of Medical Physiology : Vol - 1 & 2 - Pal, Gopal Krushna
6. Physiology : Prep Manual For Undergraduates - Joshi, Vijaya D.
7. Practical Physiology - Joshi, Vijaya D.

RECOMMENDED REFERENCE BOOKS

1. Review of Medical Physiology –Ganong
2. Samson & Wright's Applied Physiology
3. Textbook of Medical Physiology –Bern and Levy

BIOCHEMISTRY

RECOMMENDED TEXT BOOKS

1. Biochemistry –Dr. Satyanarayan
2. Text book of Biochemistry for Medical students –Dr. Vasudevan / Shri Kumar
3. Biochemistry –Dr.Pankaja Naik

RECOMMENDED REFERENCE BOOK

1. Review of Biochemistry (24thedition) -Harpar

KINESIOLOGY AND MOVEMENT SCIENCE I

RECOMMENDED TEXT BOOKS

1. Joint Structure and Function : A Comprehensive Analysis - Levangie P. K, C Norkin
2. Clinical Kinesiology –Brunnstrom

RECOMMENDED REFERENCE BOOKS

1. Kinesiology of the Human Body –Steindler
2. Kinesiology of the Musculoskeletal system –Neumann & Donald
3. Kinesiology –The mechanics and Pathomechanics of Human motion –Oatis & Carol
4. Biomechanical Basis of Human Motion –Joseph and Hamill
5. Physiology of the Joints –Kapandji Vol.-I,II,&III
6. Kinesiology : The Skeletal System and Muscle Function - Muscolino, Joseph E.

PHYSIOTHERAPY I(ELECTROTHERAPY I)

RECOMMENDED TEXT BOOKS

1. Clayton 1s Electro therapy –8th & 9th edition
2. Electro therapy explained –Low & Reed
3. Electro Therapy – Joseph Kahn
4. Electrotherapy Evidence Based Practice-Sheila Kitchen, 11thedition
5. Basics of Electrotherapy – Subash Khatri

RECOMMENDED REFERENCE BOOK

1. Clinical Electrotherapy --Nelson & Currier
2. Electrotherapy Simplified - Nanda, Basanta Kumar
3. Handbook of Practical Electrotherapy - Mitra, Pushpal Kumar
4. Clayton 1s Electro therapy –3rd & 10th edition
5. Therapeutic Electricity –Sydney Litch
6. Physical Agents in Rehabilitation – Michelle Cameron

PHYSIOTHERAPY II (KINESIOTHERAPY I)

RECOMMENDED TEXT BOOKS

1. Principles of Exercise Therapy –Dena Gardiner
2. Massage for therapists –M. Hollis
3. Practical Exercise therapy–Margaret Hollis
4. Therapeutic Exercise: Foundations and techniques –Carolyn Kisner
5. Measurement of Joint Motion: A guide to goniometry –Cynthia Norkins.
6. Yogic Exercises-Physiologic and Psychic processes--S. Datta Ray
7. Daniels & Worthingham's Muscle Testing : Techniques of Manual Examination & PerformanceTesting - Hislop, Helen J.
8. Muscles Testing and Function With Posture And Pain - Kendall, F.P.
9. Textbook of Therapeutic Exercises - Narayanan, S. Lakshmi

RECOMMENDED REFERENCE BOOKS

1. Therapeutic Exercise – Basmajian & Wolf
2. Asanas-Why & How –Omprakash Tiwari
3. Yoga For Health and Peace - Nimbalkar, Sadashiv
4. Massage, Manipulation & Traction –Sydney Litch
5. Therapeutic Exercise –Sydney Litch

II BPTH

COMPEL MODULE II

RECOMMENDED TEXT BOOK

1. Methods in Biostatistics-B.K. Mahajan
2. Research for physiotherapist-Hicks
3. Research Methodology for Health Professionals : Including Proposal, Thesis and Article Writing -Goyal, R. C.
4. Research Methodology : Methods & Techniques - Kothari, C. R.
5. Biomedical Ethics - Olinda Timms
6. Communication skills in clinical practice – K. R. Sethuraman

PATHOLOGY

RECOMMENDED TEXT BOOKS

1. Text book of Pathology -Harsh Mohan
2. Basic Pathology-Robbins

RECOMMENDED REFERENCE BOOKS

1. Pathologic basis of disease -Cotran, Kumar, Robbins
2. General Pathology –Bhende

MICROBIOLOGY

RECOMMENDEDTEXT BOOKS

1. Concise Textbook of Microbiology -Ananthnarayan
2. Textbook of Microbiology for Physiotherapy -C.P.Baweja
3. Textbook of Microbiology -Nagoba

RECOMMENDED REFERENCE BOOK

1. Text books of Microbiology –R. Ananthnarayan & C.K. Jayram Panikar

PHARMACOLOGY

RECOMMENDEDTEXT BOOKS

1. Pharmacology for Physiotherapy – Padmaja Udaykumar
2. Essentials of Medical Pharmacology – K.D.Tripathi
3. Pharmacology For Medical Graduates - Shanbhag, Tara V.

RECOMMENDED REFERENCE BOOKS

1. Pharmacology for Physiotherapist –H.L.Sharma, K. K. Sharma
2. Pharmacology and Pharmacotherapeutics –Dr. R S Satoskar, Dr. Nirmala N.Rege, Dr S.D Bhandarkar

PSYCHIATRY (INCLUDING PSYCHOLOGY)

RECOMMENDEDTEXT BOOKS:

1. Morgan C.T. & King R.A. Introduction to Psychology –recent edition [Tata McGraw-Hill publication]
2. Munn N.L. Introduction to Psychology [Premium Oxford, I.B.P. publishing Co.]
3. Clinical Psychology –Akolkar
4. Developmental Psychology-Elizabeth B. Hurlock(5thedition, Tata Mc-Graw Hill)
5. A short book of Psychiatry –3rd edn-Ahuja –Jaypee bros –medical publishers
6. Short Textbook of Psychiatry-7thedition -M.S. Bhatia
7. Shah L.P. Handbook of Psychiatry

KINESIOLOGY & MOVEMENT SCIENCE II

RECOMMENDED TEXT BOOKS

1. Joint Structure and Function : A Comprehensive Analysis - Levangie P. K, C Norkin
2. Clinical Kinesiology –Brunnstrom

RECOMMENDED REFERENCE BOOKS

1. Kinesiology of the Human Body –Steindler
2. Kinesiology of the Musculoskeletal system –Neumann & Donald
3. Kinesiology –The mechanics and Pathomechanics of Human motion –Oatis & Carol
4. Biomechanical Basis of Human Motion –Joseph and Hamill
5. Physiology of the Joints –Kapandji Vol.-I,II,&III
6. Kinesiology : The Skeletal System and Muscle Function - Muscolino, Joseph E.

PHYSIOTHERAPY III (ELECTROTHERAPY II)

RECOMMENDED TEXT BOOKS

1. Clayton's Electro Therapy
2. Electro therapy Explained –Low & Reed
3. Electro Therapy –Kahn
5. Electrotherapy Evidence-Based Practice –Sheila Kitchen
6. Basics of Electrotherapy – Subash Khatri
7. Electrotherapy Simplified - Nanda, Basanta Kumar
8. Handbook of Practical Electrotherapy - Mitra, Pushpal Kumar

RECOMMENDED REFERENCE BOOK

1. Clinical Electro Therapy –Nelson & Currier
2. Therapeutic Electricity –Sydney Litch
3. Physical Agents in Rehabilitation – Michelle Cameron

PHYSIOTHERAPY IV (KINESIOTHERAPY II)

RECOMMENDED TEXT BOOKS

1. Progressive Resisted Exercises –Margaret Hollis,
2. Therapeutic Exercise : foundations and techniques-Carolyn Kisner
3. Muscles: Testing and Function with Posture and pain – F.P. Kendall
4. Principles of Exercise Therapy –Dena Gardiner
5. Daniels & Worthingham's Muscle Testing : Techniques of Manual Examination & Performance Testing - Hislop, Helen J.

RECOMMENDED REFERENCE BOOKS

1. Therapeutic Exercise -Basmajian & Wolf.
2. Orthopaedic Physical Assessment–Magee
3. Physical Rehabilitation- Susan O'Sullivan

III BPTH

COMPEL- Module III

RECOMMENDED TEXT BOOK

1. Methods in Biostatistics-B.K. Mahajan
2. Research for physiotherapist-Hicks
3. Research Methodology for Health Professionals : Including Proposal, Thesis and Article Writing -Goyal, R. C.
4. Research Methodology : Methods & Techniques - Kothari, C. R.
5. Biomedical Ethics - Olinda Timms
6. Communication skills in clinical practice – K. R. Sethuraman

SURGERY-I

RECOMMENDED TEXT BOOKS

1. Short practice of surgery-- Bailey and Love
2. Textbook of Surgery – Das
3. Under Graduate Surgery - Nan, A. K.
4. Manipal Manual Of Surgery - Shenoy, K. Rajgopal

SURGERY-II

RECOMMENDEDTEXT BOOKS

1. Outline of Fractures –Adams
2. Outline of Orthopedics.--Adams
3. Apley"s systems of orthopedics and fractures by Louis Solomon, 9th edition
4. Essential Orthopaedics - Maheshwari, J.
5. Essentials of Orthopaedics For Physiotherapists - Ebnezar, John
6. Essentials of Orthopaedics And Applied Physiotherapy - Joshi, Jayant

MEDICINE-I (including Dermatology)

RECOMMENDEDTEXT BOOKS

1. API Text book of Medicine - Sandhya Kamath
2. Medicine--P.J.Mehta
3. Skin diseases and sexually transmitted infections with MCQ's –Dr. Khopkar
4. Medicine: Prep Manual For Undergraduates - Mathew, K. George
5. Golwalla's Medicine For Students : A Reference Book For The Family Physician - Golwalla, Aspi F.

RECOMMENDED REFERENCE BOOK

1. Principles & Practice of Medicine --Davidson

MEDICINE-II

RECOMMENDED TEXT BOOKS:

1. Essentials of Paediatrics –O.P. Ghai-Inter Print publications
2. Clinical Paediatrics- Meherban Singh
3. API Text book of Medicine – Sandhya Kamath
4. Medicine: Prep Manual For Undergraduates - Mathew, K. George
5. Medicine--P.J.Mehta
6. Golwalla's Medicine For Students : A Reference Book For The Family Physician - Golwalla, Aspi F.

RECOMMENDED REFERENCE BOOK

1. Principles & Practice of Medicine –Davidson
2. Brain's Diseases of the nervous system – Michael Donaghy

COMMUNITY HEALTH/MEDICINE & SOCIOLOGY

RECOMMENDED TEXT BOOKS

1. Park's Textbook of Preventive & Social Medicine-K. Park
2. Textbook of Preventive & Social Medicine-P.K. Mahajan &M.C. Gupta
3. Essential of Community Medicine-Baride and Kulkarni
4. Short Notes In Community Medicine - Shetty, P. V. D.

RECOMMENDED TEXT BOOKS

1. An Introduction to Sociology –Sachdeva& Bhushan
2. Indian Social Problems -Madan, Vol-I-Madras
3. Textbook of Sociology for Physiotherapy Students - Neeraja, K.P.
4. Sociology For Physiotherapists and Nurses - Bid, Dibyendunarayan

OBSTETRICS & GYNAECOLOGY

RECOMMENDED TEXT BOOKS

1. Text book of Gynaecology –Datta –New Central Book Agency
2. Text book of Obstetrics --Datta –New Central Book Agency

PHYSIOTHERAPY DIAGNOSIS (INCLUSIVE OF ELECTRODIAGNOSIS)

RECOMMENDED TEXT BOOKS

1. Orthopaedic Physical Examination – D Magee
2. Clinical Electro Therapy –Nelson Currier
3. Clinical Electromyography –Mishra
4. Therapeutic Exercises: foundations and techniques -Colby & Kisner
5. Physical Rehabilitation, Assessment and treatment -Susan O' Sullivan
6. Neurological Examination -John Patten
7. Textbook of Prevention practice and Community Physiotherapy – Bellare Bharati
8. Physiotherapy in Obstetrics and Gynaecology- Jill Mantle
9. Evidence-Based Physical Therapy for the Pelvic Floor – Kari Bo
10. Physiotherapy in Obstetrics and Gynaecology - Polden, Margaret
11. Geriatric Physical Therapy - Guccione, Andrew A.
12. Industrial Therapy - Key, Glenda L.

RECOMMENDED REFERENCE BOOKS

1. Clinical Electromyography –Kimura
2. Orthopaedic Physical therapy –Donnatelli
3. Exercise Physiology –William D Mc'Ardle
4. Movement therapy in Hemiplegia -Brunnstrom
5. Physical Dysfunction -Trombly Scoot
6. Infant Motor Development-Jan Piek

PHYSIOTHERAPY V (PHYSIOTHERAPEUTIC SKILLS)

RECOMMENDED TEXT BOOKS

1. Therapeutic Exercises: foundations and techniques -Colby & Kisner
2. Physical Rehabilitation, Assessment and treatment -Susan B O's Sullivan
3. Maitland's peripheral manipulation – Hengeveld, Elly
4. Mobilisation of Extremities –Kaltenborn
5. Orthopaedic Physical therapy –Donnatelli
6. NAGS, SNAGS and MWMS -Brian Mulligan
7. Principles and practice of physical Rehabilitation -Neeta Vyas

RECOMMENDED REFERENCE BOOKS

1. Exercise & Heart –Wenger
2. Exercise Physiology –William D Mc'Ardle
3. Facilitation techniques based on NDT principles -Lois Bly Allison Whiteside
4. Movement therapy in Hemiplegia -Brunnstrom
5. Physical Dysfunction -Trombly Scoot
6. Infant Motor Development-Jan Piek
7. Neurology & Neurosurgery Illustrated (3rdedition) – Bone & Callander
8. Neuro-developmental Therapy –Janett Howle
9. Joint Mobilization Manipulation : Extremity and Spinal Techniques - Edmond, Susan L.

10. Manual of Mulligan Concept : Step by Step Guide to Deliver Manual Therapy - Kumar, Deepak
11. Steps to Follow: The Comprehensive Treatment of Patients with Hemiplegia -Davies, Patricia M.
12. Right in the Middle : Selective Trunk Activity in the Treatment of Adult Hemiplegia - Davies, Patricia M.
13. Adult Hemiplegia : Evaluation and Treatment - Bobath, Berta
14. The Muscle and Bone Palpation Manual With Trigger Points, Referral Patterns & Stretching -Muscolino, Joseph E.
15. The Development Of The Infant & Young Child : Normal And Abnormal- Illingworth, Ronald S.

IV BPTH

COMPEL – MODULE IV

RECOMMENDED TEXT BOOK

1. Methods in Biostatistics-B.K. Mahajan
2. Research for physiotherapist-Hicks
3. Research Methodology for Health Professionals : Including Proposal, Thesis and Article Writing -Goyal, R.C.
4. Research Methodology : Methods & Techniques - Kothari, C. R.
5. Biomedical Ethics - Olinda Timms
6. Communication skills in clinical practice – K. R. Sethuraman

RECOMMENDED REFERENCE BOOK

1. Administration for Physiotherapists-Pai
2. Principles of Hospital Administration-Sakharkar

MUSCULOSKELETAL PHYSIOTHERAPY

RECOMMENDED TEXT BOOKS

1. Physical Rehabilitation, Assessment and treatment – Susan O'Sullivan
2. Orthopaedic Physical Therapy -Donatelli
3. Cash's Textbook of Orthopedics & Rheumatology for Physiotherapists- P Downie
4. Tidy's Physical Therapy – Stuart Porter
5. Manual Mobilization of Extremity Joints -Kaltenborn
6. Therapeutic Exercise: Foundations and Techniques -Kolby& Carolyn Kisner
7. Physical Rehabilitation - Susan O'sullivan
8. Joshi & Kotwal's Essentials of Orthopaedics and applied Physiotherapy – P Kotwal, K Mittal
9. Essentials of Orthophysiotherapy for upper and lower limb fractures – Saurabh Garg
10. Physiotherapy in Orthopaedic and Rheumatologic conditions – Megha Sheth

RECOMMENDED REFERENCE BOOKS

1. Manual Therapy: Nags, Snags, MWMs, etc - 6th Edition, Brian R Mulligan
2. Maitland's Peripheral Manipulation Elly Hengeveld
3. Neural tissue mobilization –Butler
4. Brukner & Khan's Clinical Sports Medicine -Peter Brukner, Karim Khan

5. Therapeutic Exercise: Moving Toward Function -CarrieM.Hall, LoriThein Brody
6. Manual Mobilization of Extremity Joints -Kaltenborn
7. Neural Tissue Mobilization -Butler
8. Taping Techniques –Rose Mac Donald
9. Clinical Orthopaedic rehabilitation-Brotzman
10. Rehabilitation for the post surgical Orthopaedic patient – Lisa Maxey
11. Joint Mobilization Manipulation : Extremity and Spinal Techniques- Fdmond Susan
12. Rehabilitation Of The Hand And Upper Extremity, Vol-1 & 2- Skirven, Terri M.

NEUROPHYSIOTHERAPY

RECOMMENDED TEXT BOOKS:

1. Proprioceptive Neuro muscular Facilitation –Herman Kabat
2. Practical Physical Therapy –Margaret Hollis
3. Physical Rehabilitation–O'Sullivan
4. "Right in the middle" –Patricia Davis
5. Stroke rehabilitation –Margaret Johnstone
6. Paediatric Physiotherapy –Roberta Shepherd.

RECOMMENDED REFERENCE BOOKS:

1. Neurological rehabilitation –Darcy Umphred
2. Paediatric physical therapy –Stephen Tecklin
3. Brain's diseases of Nervous system - Michael Donaghy
4. Paediatric Physiotherapy –Sophie Levitt
5. Neurological Rehabilitation -Optimising Motor Performance –Carr and Shepherd
6. PNF In Practice : An Illustrated Guide - Adler, Susan S.
7. Steps to Follow: The Comprehensive Treatment of Patients with Hemiplegia
8. Physiotherapy in Neurological Conditions - Megha Sandeep Sheth
9. Right in the Middle : Selective Trunk Activity in the Treatment of Adult Hemiplegia - Davies, Patricia M.
10. Pediatric Physical Therapy - Tecklin, Jan Stephen
11. The Development Of The Infant & Young Child : Normal And Abnormal - Illingworth, Ronald S.
12. Physical Therapy For Children - Campbell, Suzann K.
13. Motor Control : Translating Research Into Clinical Practice - Shumway-Cook, Anne
14. Vestibular Rehabilitation - Herdman, Susan J.
15. Dejong's The Neurologic Examination - Campbell, William W.
16. Adult Hemiplegia : Evaluation and Treatment - Bobath, Berta

CARDIO-VASCULAR & RESPIRATORY PHYSIOTHERAPY(INCLUDING CRITICAL CARE)

RECOMMENDEDTEXT BOOKS

1. Chest Physical therapy & pulmonary rehabilitation --Donna Frownfelter
2. Brompton's hospital guide
3. Physiotherapy in respiratory and cardiac problem -Pryor and Prasad
4. Physiotherapy in Cardio –Vascular rehabilitation –Webber

5. Chest physiotherapy in intensive care Colin Mackenzie
6. Mechanical ventilation –Ashfaq Hasan
7. Management of Mechanical ventilation –Pierce
8. The ECG Made Easy - Hampton, John R.
9. Chest X-Ray Made Easy- Corne, Jonathan

RECOMMENDED REFERENCE BOOKS

1. Exercise & the Heart –Wenger
2. ECG –P.J.Mehta
3. Cardiopulmonary Physical Therapy --Irwin Scott
4. Fundamental of respiratory care -Egan's
5. Essential of cardio pulmonary physical therapy –Hillgass And Sodosky
6. Exercise physiology, energy, nutrition and human performance –M'cardle
7. Exercise testing and prescription -Skinner
8. Exercise in health and disease- Pollock
9. Physiotherapy In Medical And Surgical Conditions -Megha Sandeep Sheth
10. ACSM's Guidelines for Exercise Testing and Prescription - Riebe, Deborah
11. Physiotherapy in Cardiopulmonary Conditions – Mariya Jiandani

COMMUNITY PHYSIOTHERAPY

RECOMMENDED TEXT BOOKS

1. Physiotherapy in Gynecological & Obstetrical conditions –Mantle
2. Therapeutic Exercise –Kisner
3. Text book of Community Health for Physiotherapists –Bhaskar Rao
4. Geriatrics Physiotherapy –Andrew Guccione
5. Industrial Therapy –Glenda Key
6. Text of Physiotherapy for obstetrics and Gynecology –G.B. Madhuri &Pruthvish
7. Textbook of Prevention Practice And Community Physiotherapy Vol - 1 & 2 - Bellare, Bharati Vijay
8. Textbook on Women's Health- Megha Sheth
9. Role of Physical Therapists in disaster management- WCPT report 2016

RECOMMENDED REFERENCE BOOKS

1. Mural K F –Ergonomics: Man in his working environment
2. Exercise Physiology-Mc'Ardle
3. Musculoskeletal Disorders in work place: Principle & Practice-Nordin
4. Andersons Pope
5. Indian Social Problem Vol 2 –G R Madan
6. Status of Disabled in India -2000-RCI publication
7. Legal Rights of disabled inIndia-Gautam Bannerjee
8. ICF –WHO 2001 publication
9. Preventive &Social Medicine –Park
10. Training in the Community for the people with disability –Hallender Padmini Mendes
11. Disabled Village Children--David Werner

12. Chorin C & M Desai, C Gonsalves, 1999, Women & the Law, Vol. I & II Socio -legal Information Centre Mumbai
13. Astrand P A Rodahe K-Text book of Work Physiology
14. Women's Health –Sapsford
15. Ergonomics Edge- Dan MacLeod
16. Principles & Practice Of Physical Rehabilitation -Vyas, Neeta J.
17. Community Medicine With Recent Advances - Suryakantha, A.H.
18. Physiotherapy in Community Health And Rehabilitation - Naqvi, Waqar
19. Essentials of Community-Based Rehabilitation - Nagar, Satya Bhushan
20. ACSM's Guidelines for Exercise Testing and Prescription
21. Short Notes In Community Medicine - Shetty, P.V.D.
22. Role of Physiotherapist in Obstetric & Gynecological Conditions - Changela, Purvi K.
23. HET's Manual Of Pelvic Floor Rehabilitation - Desai, Het
24. Principles of Geriatric Physiotherapy - Multani, Narinder Kaur
25. Text book of Rehabilitation – S. Sunder
26. Essentials of Community based Rehabilitation – Bhushan Nagar

PRINCIPLES OF BIOENGINEERING

RECOMMENDED REFERENCEBOOKS

1. Orthotics & Prosthetics in Rehabilitation - Lusardi, Michelle M.
2. Orthotics in Functional Rehabilitation of Lower limb-Deborah A. Nawoczenski, Marcia E. Epler
3. Orthotics – clinical Practice and Rehabilitation Technology-Published by - Churchill Livingstone
4 . Atlas of Orthotics-Biomechanical principles and application (American Academy of Orthopedic Surgeons)-The C. V. Mosby Company
5. Orthotics : A Comprehensive Clinical Approach - Edelstein, John E.
6. Orthotics In Rehabilitation : Splinting the Hand and Body - McKee, Pat
7. Orthoses, Prostheses & Assistive Devices for Physiotherapists - Sinha, Akhoury Gourang

Additional Books for COMPEL Module

(Communication skills, Professionalism, Evidence and research, Leadership: Administration & management)

Sr. No	Author	Title	Edn/Year
Communication Skills			
1	K R Sethuraman	Communication Skills in clinical practice	2nd edn
2	Decker B.	Communication Skills for Leaders delivering a clear and Consistent Message	4th edn
3	Viva Career Skills Library	Communication Skills	1stEdn
Professional Ethics			
1.	R.S Naagarazan	A Textbook of Professional Ethics and Human Values	
2.	Saxena A	Human values and Professional Ethics text and cases	2012
Research Methodology			
1	Kothari	Research Methodology Methods and Techniques	
2	Mahajan	Methods in Bio-statistics	
3.	Carolyn M. Hicks	Research Methods for Clinical Therapists: Applied Project Design and Analysis	2007
4.	Madan P.	Research Methodology	1stEdn
5	Pannerselvam R.	Research Methodology	2nd edn
Evidence-based practice			
1.	Law Mary	Evidence based rehabilitation: a guide to practice	
2.	Michelle C.	Physical Rehabilitation_ Evidence-Based Examination, Evaluation, and Intervention,	
Leadership			
1.	Sadler P.	Leadership	2nd Edn
2.	Birch P.	Leadership: Reach your full potential now	2009
3	Myrick J.	5 Ancient Principles of Leadership: The Fable of the ship-Builder	2006
Reflection Writing			
1.	Gillie Bolton	Reflective practice: writing and professional development	
2.	Barbara Bassot	The Reflective Practice Guide: An interdisciplinary approach to critical reflection	

Sr. No	Author	Title	Edn/Year
Time management			
1	Haynes ME	Personal Time management	3rdEdn
2	Marshall Cook	Time management: Proven Techniques for making the most of your Valuable time	1stEdn.
3			
Hospital Administration			
1	Pai	Administration for Physiotherapists	
2	Sakharkar	Principles of Hospital Administration	
3	D C Joshi	Hospital Administration	2nd edn
Lifelong learning			
1	Russell Sarder	Learning: Steps to becoming a passionate lifelong learner	

14. REFERENCES FOR DOCUMENT PREPARATION

1. MUHS BPTh Syllabus 2012
2. Model Curriculum Handbook Physiotherapy, MoHFW, Allied Health Section 2017
3. Competency based UG Curriuclum for Indian Medical Graduate guidance documentof MCI 2018
4. Expected Minimum competencies for entry level Physiotherapist in Europe regionWorld Physiotherapy guida document
5. World Pysiotherapy Guidance document. Guidance for developing a curriculum for entry level Education program September 2022
6. Competencies based BSc SEHS by Dr. Karuna Datta et al