

# CURRICULUM

## PROFICIENCY CERTIFICATE LEVEL IN MEDICAL SCIENCE (PHYSIOTHERAPY)

(Three Years Programme – Yearly System)



Council for Technical Education and Vocational Training

## Curriculum Development Division

Sanothimi, Bhaktapur

2010

First Revision 2019

**Approved By**

**Curriculum Committee on July 02, 2019**

**Effective From**

**Second and Third Year Revised Curriculum is Effective from the  
Academic Year 2075/076 (2018/2019) Intake**

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## **Introduction**

This curriculum of 3 years Proficiency Certificate Level in Medical Science (Physiotherapy) is designed to produce middle level skilled physiotherapist equipped with sound knowledge, skills and attitudes. Physiotherapy is an emerging field in the health service sector. Many people in the developed countries, developing countries and under developed countries have been given emphasis for the broader application of physiotherapy in treatment and rehabilitation of various health conditions. This field has been helping the societies and communities for their fitness, treatment and rehabilitation and it has been creating job opportunities both in public and private sectors as well as creating self-employment opportunities immensely.

This course is based on the tasks required to be performed by a physiotherapy assistant in variety of clinical and community settings. Therefore, this curriculum is designed to provide knowledge and skills focusing on physiotherapy.

The program extends over three academic years. The first year course focuses on basic science and foundational subjects, the second year course focuses on theory and practical part of basic physiotherapy subject. Similarly, the third year comprises of the disciplinary subjects and application of learned skills and knowledge in clinical and community setting. They have career opportunities in hospitals, rehabilitation center, community rehabilitation center, etc. It is based on the code of conduct of Nepal Health professional Council.

## **Rational**

Proficiency Certificate in Medical Science (Physiotherapy) curriculum was developed in 2010. This is the first revision after the implementation of its first development. The rationales behind its revision are as follows:

- It crossed the 5 years maturity period of its implementation and similarly the implementing agencies/college have requested to revise this curriculum based on their teaching experiences.
- The year-wise re-adjustments of the existing subjects are felt necessary.
- It is needed to revisit its weightage in both theory and practical marks contents to make it more practical oriented.
- The 20 weeks long clinical practice in 3<sup>rd</sup> year seems complicated and needs to be specified.

Furthermore, Technicians are projected to grow faster than the average for all occupations. Jobs for physiotherapist are projected to increase at a faster-than-average rate. As the population ages and medical issues arise in the elderly, attraction towards the physiotherapy service is increasing day by day. Advance technology is introduce every day. With the advent in technology, the onset of multiple and complicated physical disabilities growing in the world and expansion of research works trained technicians are needed throughout the world.

All over the world, trained technicians are needed throughout the health sectors. To cope with the national and international demand, the contents and the skills should be updated to make the skills relevant and pertinent to the health sectors.

## **Curriculum Title**

Proficiency Certificate Level in Medical Science (Physiotherapy)

## **Aim**

The program aims to prepare students for physiotherapy practice within clinical and community settings and with diverse population, including vulnerable groups in the country and elsewhere.

## **Program Objectives**

After the completion of this program, the graduates will be enabled to:

- Apply the knowledge and skills of physiotherapy (therapeutic exercise, electrotherapy, hydrotherapy and therapeutic massage) in different human health conditions.
- Practice the values and ethics of the physiotherapy profession.
- Demonstrate the professional competence, self-awareness, integrity, respect of individual, ethical and social responsibilities.
- Assist physiotherapists/seniors in treatment /rehabilitation procedures.
- Apply the knowledge and skills of rehabilitation in community and clinical settings.
- Apply knowledge and skills of hygiene, sanitation and first aid to the needy.
- State organizational structure, function and utilization of their knowledge in various health settings.

## **Group Size**

The group size will be maximum 40 students in a batch.

## **Entry Criteria**

- SLC Pass or SEE with minimum GPA 2.0 and C grade in Compulsory Mathematics, English & Science.
- TSLC in Physiotherapy with minimum 67%.
- Should pass entrance examination as administered by CTEVT.

## **Course Duration**

The total duration of this curricular program is three academic years. The program is based on yearly system. Moreover, one academic year consists up to 39 weeks and one academic week consists up to 40 hours excluding evaluation period.

## **Medium of Instruction**

The medium of instruction will be in English and/or Nepali.

## **Pattern of Attendance**

Minimum of 90% attendance in each subject is required to appear in the respective final examination.

## **Teacher and Student Ratio**

The ratio between teachers and students must be:

- Overall ratio of teacher and student must be 1:10 (at the institution level)
- 1:40 for theory and tutorial classes
- 1:10 for practical classes
- 75% of the teachers must be full timer.

## **Qualification of Teachers and Instructors**

- The program coordinator should be a master's degree holder in the related area.

- The foundational subject related teacher should be master degree holder in the related area.
- The disciplinary subject related teacher and demonstrators should be a bachelor's degree holder in the related area.

## **Instructional Media and Materials**

The following instructional media and materials are suggested for the effective instruction and demonstration.

- **Printed Media Materials** (assignment sheets, handouts, information sheets, individual training packets, performance checklists, textbooks etc.).
- **Non-projected Media Materials** (display, models, flip chart, poster, writing board etc.).
- **Projected Media Materials** (opaque projections, multimedia projector, slides etc.).
- **Audio-Visual Materials** (audiotapes, slide-tape programmes, videodiscs, videotapes etc.).
- **Computer-Based Instructional Materials** (computer-based training, interactive video etc.).

## **Teaching Learning Methodologies**

The methods of teachings for this curricular program will be a combination of several approaches such as; illustrated lecture, group discussion, demonstration, simulation, guided practice, fieldwork, block study, industrial practice, report writing, term paper presentation, experiment and other independent learning exercises.

**Theory:** Lecture, discussion, interaction, illustrated talks, assignment, group discussion, demonstration, group work etc.

**Practical:** Demonstration, observation, simulation, guided practice, self-practice, project work, field work, industrial practice, report writing, term paper presentation, experiment, etc.

## **Mode of Instruction**

There will be inductive and deductive mode of education.

## **Evaluation Scheme**

### **a. Internal assessment**

- There will be written and practical exam for each subject both in theory and practical.
- Each subject will have 3 internal assessment in each year at regular intervals and students must get the feedback about it.
- Weightage of theory and practical marks are mentioned in course structure.
- Continuous assessment format will be developed and applied by the evaluators for evaluating student's performance in the subjects related to the practical experience.

### **b. Final examination**

- Weightage of theory and practical marks are mentioned in course structure.
- Students must pass in all subjects both in theory and practical for certification. If a student becomes unable to succeed in any subject, s/he will appear in the re-examination administered by CTEVT.
- Students will be allowed to appear in the final examination only after completing the internal assessment requirements.

### **c. Requirement for final practical examination**

- Professional of relevant subject instructor must evaluate final practical examinations.
- One evaluator in one setting can evaluate not more than 20 students.
- Practical examination should be administered in actual situation on relevant subject with the provision of at least one internal evaluator from the concerned or affiliating institute led by external evaluator nominated by CTEVT.

- Provision of re-examination will be as per CTEVT policy.

**d. Final practicum evaluation will be based on:**

- Institutional practicum attendance - 10%
- Logbook/Practicum book maintenance - 10%
- Spot performance (assigned task/practicum performance/identification/arrangement preparation/measurement) - 40%
- Viva voce :
  - Internal examiner - 20%
  - External examiner - 20%

**e. Pass marks:**

- The students must secure minimum 40% marks in theory and 50% marks in practical. Moreover, the students must secure minimum pass marks in the internal assessment and in the semester final examination of each subject to pass the subject.

### **Provision of Back Paper**

There will be the provision of back paper but a student must pass all the subjects of all year within six years from the enrollment date; however there should be provision of chance exam for final year students as per CTEVT rules.

### **Disciplinary and Ethical Requirements**

- Intoxication, insubordination or rudeness to peers will result in immediate suspension followed by the review of the disciplinary review committee of the institute.
- Dishonesty in academic or practical activities will result in immediate suspension followed by administrative review, with possible expulsion.
- Illicit drug use, bearing arms in institute, threats or assaults to peers, faculty or staff will result in immediate suspension, followed by administrative review with possible expulsion.

### **Grading System**

The following grading system will be adopted:

- Distinction: 80% and above
- First division: 65% to below 80%
- Second division: 50 % to below 65%
- Pass division: Pass marks to Below 50%

### **Certification and Degree Awards**

- Students who have passed all the components of all subjects of all 3 years are considered to have successfully completed the program.
- Students who have successfully completed the program will be awarded with a degree of "**Proficiency Certificate Level in Medical Science (Physiotherapy)**".

### **Career Opportunity**

The graduates will be eligible for the position equivalent to Non-gazette 1<sup>st</sup> class/Level 5 (technical) as prescribed by the Public Service Commission of Nepal and other related agencies. The graduate will be eligible for registration with the related health professional council in the grade as provisioned in the related Council Act (if any).

## Question Patterns for Final Written Exam

The question patterns for written exam are suggested as follows;

### A. For subject with full marks 80

S. N.	Type of question	No of question	Weightage marks	Full marks	Time distribution	Optional questions
1	Long	3	8	24	54 min	1
2	Short	8	4	32	72 min	2
3	Very short	12	2	24	54 min	2
	<b>Total</b>	<b>23</b>		<b>80</b>	<b>180 min</b>	

### B. For subject with full marks 60

S. N.	Type of question	No of question	Weightage marks	Full marks	Time distribution	Optional questions
1	Long	3	6	18	54 min	1
2	Short	8	3	24	72 min	2
3	Very short	9	2	18	54 min	2
	<b>Total</b>	<b>20</b>		<b>60</b>	<b>180 min</b>	

### C. For subject with full marks 40

	Type of question	No of question	Weightage marks	Full marks	Time distribution	Optional questions
1	Long	2	6	12	27 min	1
2	Short	4	4	16	36 min	1
3	Very short	6	2	12	27 min	1
	<b>Total</b>	<b>12</b>		<b>40</b>	<b>90 min</b>	



## Course Structure

### First year

SN	Subject	Mode		Weekly Hours	Distribution of Marks						Total Marks
		T	P		Theory			Practical			
					Int	Fin	Exam Hour	Int	Fin	Exam Hour	
1	English	3	0	3	20	80	3	-	-	-	100
2	Nepali	3	0	3	20	80	3	-	-	-	100
3	Social Studies	2	0	2	10	40	1.5	-	-	-	50
4	Anatomy & Physiology	4	1	5	20	60	3	10	10	3	100
5	Physics	4	2	6	20	60	3	10	10	3	100
6	Chemistry	4	2	6	20	60	3	10	10	3	100
7	Zoology	3	2	5	20	60	3	10	10	3	100
8	Botany	3	2	5	20	60	3	10	10	3	100
9	Mathematics & Statistics	4	1	5	20	60	3	10	10	3	100
<b>Total</b>		<b>30</b>	<b>10</b>	<b>40</b>	<b>170</b>	<b>560</b>		<b>60</b>	<b>60</b>		<b>850</b>

### Second Year

S. N	Subjects	Mode		Weekly Hours	Distribution of Marks						Total Marks
		T	P		Theory			Practical			
					Internal	Final	Time (Hrs)	Internal	Final	Time (Hrs)	
1.	Applied Anatomy & Physiology	4	1	5	20	60	3	10	10	3	100
2.	Bio-mechanics	1	2	3	10	40	1.5	20	30	3	100
3.	Therapeutic Exercise	3	4	7	20	80	3	20	30	3	150
4.	Electrotherapy	3	3	6	20	80	3	20	30	3	150
5.	Medicine & Surgery	3	1	4	20	60	3	10	10	2	100
6.	Orthopedics & Pediatrics	3	1	4	20	60	3	10	10	3	100
7.	Behavioural Science (Psychology and Sociology)	3	-	3	20	80	3	0	0		100
8.	Pathology & Pharmacology	3	1	4	20	60	3	10	10	3	100
9.	Community Rehabilitation and First aid	2	2	4	10	40	1.5	20	30	3	100
<b>Total</b>		<b>25</b>	<b>15</b>	<b>40</b>	<b>160</b>	<b>560</b>		<b>120</b>	<b>160</b>		<b>1000</b>

### Third year

S. N	Subjects	Mode		Weekly Hours	Distribution of Marks						Total Marks
		T	P		Theory			Practical			
					Internal	Final	Time (Hrs)	Internal	Final	Time (Hrs)	
1.	Physiotherapy in Medicine and Surgery	3	3	6	20	80	3	20	30	3	150
2.	Physiotherapy in Orthopedics	3	2	5	20	60	3	10	10	3	100
3.	Physiotherapy in Neurology	2	1	3	20	60	3	10	10	3	100
4.	Rehabilitation Medicine	3	1	4	20	60	3	10	10	3	100
5.	Health Care Management	2	-	2	10	40	1.5				50
6.	Clinical Practices		20	20	0			300	200	4	500
<b>Total</b>		<b>13</b>	<b>27</b>	<b>40</b>	<b>90</b>	<b>300</b>		<b>350</b>	<b>260</b>		<b>1000</b>

## **First Year**

**See Separate Curriculum for Health Science First Year All**

# **Second Year**

## **Second Year Subjects**

1. Applied Anatomy and Physiology
2. Biomechanics
3. Therapeutic Exercise
4. Electrotherapy
5. Medicine and Surgery
6. Orthopedics and Pediatrics
7. Behavioural Science (Psychology and Sociology)
8. Pathology and Pharmacology
9. Community Rehabilitation and First Aid

# Applied Anatomy and Physiology

**Total: 5 hrs/w**  
**Theory: 4 hrs/w**  
**Practical: 1 hr/w**

## Course Description:

This course provides knowledge of the normal structure and function of the systems of the human body. The students require an understanding of the normal structure and function of the human body in order to be able to differentiate between the normal and abnormal pattern of movement which is essential in the treatment of patient

## Course Objectives:

After the completion of this course the student will be able to:

1. Identify the classifications of the systems of the human body.
2. Locate and describe the structure and function of the components of each body system.
3. Explain the interrelationship of the body systems.
4. Transfer knowledge of anatomy and physiology of the body to medical and surgical circumstances.
5. Describe the physical changes that occur during normal growth and development, from conception to senescence.
6. Understand the importance of anatomy and physiology in context of physiotherapy.

## Course Contents:

### THEORY

#### Part 1: Applied Anatomy

##### Unit 1: General Introduction of Anatomy

5 hrs

1. Define anatomy, sub disciplines of anatomy, level of body organization.
2. Review anatomical terminologies in relation with plane, axis and joint movement.
3. Importance of anatomy in Physiotherapy.

##### Unit 2: Musculoskeletal System

40 hrs

1. Review types of bone and division of skeletal system.
2. Describe structure and function of bones (skull, spine, thoracic cage, pelvic bones, and upper and lower limbs bones).
3. Explain the attachments, nerve supply and action of the major muscles of face and neck, spine, thoracic cage, abdominal wall, pelvic floor, upper and lower limbs
4. Define and classify joints.
5. Define and classify synovial joint and mention its functional characteristics.
6. Describe anatomical component (bone, ligament and muscles) of shoulder joint, elbow joint, wrist joint, hip joint, knee joint, ankle joint.
7. Correlate clinical conditions (sprain, strain, fractures and dislocation).

##### Unit 3: Integumentary System

5 hrs

1. Describe the characteristics of layer of skin (epidermis, dermis, subcutaneous tissue and epidermal appendages).
2. Define gland, classify gland and describe the structure of sweat gland & sebaceous gland.
3. Correlate clinical conditions (leprosy, psoriasis, alopecia).

**Unit 4: Nervous System****20 hrs**

1. Describe and classify Nervous System
2. Describe briefly the structure and functions of Central Nervous System (CNS)
  - Brain (Cerebrum, Cerebellum, Pons, Thalamus, Hypothalamus, Medulla oblongata) and
  - Spinal Cord
3. Describe formation, course and distribution of the following nerves
  - Facial nerve
  - Trigeminal nerve
  - Brachial plexus
  - Lumbo-sacral plexus
4. Describe course and distribution of the following Peripheral Nerves
  - Ulnar nerve
  - Radial nerve
  - Median nerve
  - Musculo-cutaneous nerve
  - Axillary nerve
  - Sciatic nerve
  - Femoral nerve
  - Obturator nerve
  - Tibial Nerve
5. Describe the Automatic Nervous System (ANS)
  - Sympathetic Nervous System and
  - Parasympathetic Nervous System
6. Correlate clinical conditions (stroke, bell's palsy, erb's palsy, wrist drop, claw hand, foot drop).

**Part 2: Physiology****Unit 5: General Introduction to Physiology****5 hrs**

1. Define Physiology and its branches.
2. Importance of physiology in Physiotherapy.

**Unit 6: Cardiovascular System****10 hrs**

1. Describe the structure and function of heart, arteries, veins, arterioles, venules, and capillaries.
2. Briefly describe the blood supply and nerve supply of heart.
3. Describe the systemic and pulmonary circulation.
4. Correlate clinical conditions (tetralogy of Fallot, ischemic heart disease).

**Unit 7: Muscle and Nerve Physiology****15 hrs**

1. Describe structure and function of muscle. Describe the mechanism of muscle contraction.
2. Define neuron and its types. Mention its properties & function and nerve conduction.
3. Describe membrane potential, action potential and its propagation.
4. Describe neuromuscular transmission, degeneration and regeneration of nerve fibers.
5. Define receptors, synapse & its characteristics and describe events at the chemical synapse.
6. Describe the function of the principle sensory and motor tracts of the spinal cord (Spinothalamic and Corticospinal tract)

7. Describe the functional components of the reflex arc.
8. Correlate clinical conditions (myasthenia gravis, muscular dystrophy and poliomyelitis).

**Unit 8: Respiratory System** **15 hrs**

1. Review the organization of respiratory system
2. Describe the mechanism of respiration
3. Describe pulmonary volume and capacities
4. Describe the gas exchange process
5. Describe nervous control of respiration
6. Correlate clinical conditions (asthma, chronic obstructive pulmonary disease, pneumonia).

**Unit 9: Exercise Physiology** **4 hrs**

1. Describe the importance of exercise physiology.
2. Describe cardiovascular and respiratory changes during exercise.

**Unit 10: Endocrinology** **8 hrs**

1. Describe the endocrine glands (Pituitary, Thyroid, Parathyroid, Adrenal and Pancreas-Islets of Langerhans). Enlist the hormones secreted by these glands.
2. State the role of hypothalamus in regulating endocrine system.
3. Correlate clinical conditions (hypothyroidism, hyperthyroidism, diabetes mellitus, dwarfism and gigantism).

**Unit 11: Digestive System** **6 hrs**

1. Review the structures and functions of alimentary canal with diagram.
2. Enlist the functions of digestive organs and digestive glands.
3. Correlate clinical conditions (appendicitis, gastritis, peptic ulcer and cholelithiasis).

**Unit 12: Reproductive System** **10 hrs**

1. Review the structure and function of male and female reproductive organs.
2. Describe menstrual cycle and fertilization process.
3. Describe the structure and function of breast.
4. Correlate clinical conditions (dysmenorrhoea, breast cancer, prostatomegaly, prostate cancer, uterine prolapse).

**Unit 13: Urinary System** **8 hrs**

1. Review the structure and functions of urinary systems (kidney, ureter, bladder, and urethra).
2. Explain urine formation.
3. Function of urinary system in fluid and electrolyte balance.
4. Describe micturition process.
5. Correlate clinical conditions (urinary incontinence, nephrolithiasis and urinary tract infection).

**Unit 14: Lymphatic Systems** **5 hrs**

1. Describe the gross structure and function of lymphatic system.
2. Explain function of lymph nodes.
3. Correlate clinical condition (lymphedema).

## PRACTICAL

### Unit 1: Musculoskeletal System

30 hrs

1. Identify bones and its parts (Humerus, Radius, Ulna, Scapula, Hip bone, Femur, Tibia and Fibula).
2. Identify major muscles of the head, neck, thorax, spine and extremities.
3. Identify the anatomical position of the bones in human body.
4. Demonstrate movements of synovial joints.
5. Demonstrate major muscles action.
6. Palpate and inspect the bony prominences of head, neck, thorax, spine and extremities.

### Unit 2: Anatomy of Internal Organs

9 hrs

1. Identify anatomical structures of lungs, heart, liver, pancreas, and kidney.
2. Identify anatomical structures of brain and spinal cord.
3. Identify anatomical structures of male and female reproductive system.

### References:

- Ross & Wilson, *Anatomy and Physiology*. (Churchill Livingstone, London)
- BD chaurasia, *Human Anatomy*. (7th edition, CBS Publishers & Distributors Pvt. Ltd; 2012)
- Shier, D., Butler, J. & Lewis, R., Hole's *Human Anatomy and Physiology*. (Wm. C. Brown Publishers, London; 1996)
- K Sembulingam, Prema Sembulingam. *Essentials of Medical Physiology*.(7th edition, Jaypee Brothers Medical Publishers; 2016)
- Guyton and Hall. *Textbook of Medical Physiology*. (13th edition. Saunders; 2015)
- AK Singh. *Anatomy and Physiology for paramedical*. (1st Edition, Jaypee Publications)



# Biomechanics

**Total: 3 hrs/w**  
**Theory: 1 hrs/w**  
**Practical: 2 hrs/w**

## Course Description:

This course will enable the student to understand the basic of biomechanics and their application in physiotherapy in restoration of the physical function.

## Course Objectives:

After the completion of this course the student will be able to:

1. Define biomechanics and its principles in relation to human body
2. Use equipment's/tools seen in the physiotherapy gymnasium
3. Assess the range of motion using goniometer of major joints of upper and lower extremities.
4. Identify and use different walking aids
5. Explain Gait and its phases
6. Analyze the posture in different view

## Course Contents:

### THEORY

#### Unit 1: Introduction

2hrs

1. Define Biomechanics and its importance
2. Define Kinesiology and its importance

#### Unit 2: Mechanics and Mechanical Principles

8hrs

1. Define mechanics, forces, classification of forces and forces acting on human body.
2. Define and Describe
  - Momentum
  - Torque
  - Friction
  - Pivot
  - Angle of pull
  - Gravity
  - Line of Gravity (LOG)
  - Centre of Gravity (COG)
  - Equilibrium
  - Energy
  - Work
  - Power
  - Lever and its types
  - Mechanical Advantage (MA)
  - Pulleys
  - Muscle contraction isotonic (concentric and eccentric) and isometric
  - Action of muscles- agonist, antagonist and synergist
  - Define Elasticity and explain Hooke's law

#### Unit 3: Biomechanics applied in human body

10hrs

1. Explain gravity, line of gravity and Centre of gravity in human body.
2. Explain axis and plane in human body.

3. Explain Lever and Pulleys in human body.

**Unit 4: Goniometer****2hrs**

1. Define and describe Goniometer
2. State the uses and limitation of Goniometer
3. Mention the range of motion (ROM) of the following joints- shoulder, elbow, wrist, hip, knee, ankle and subtalar joint

**Unit 5: Posture and Gait****10hrs**

1. Define posture
2. Explain types of posture (active and inactive)
3. Postural mechanism
4. Good and bad postures (ergonomics)
5. Define gait, and describe its phases (Stance and Swing)
6. Pathological gait:
  - Muscular weakness/paralysis,
  - Joint muscle ROM limitation,
  - Neurological involvement,
  - Pain,
  - Limb length discrepancy.

**Unit 6: Walking Aids****4hrs**

1. Define different walking aids
2. Describe uses and structure of followings:
  - Crutches- axillary, elbow, gutter
  - Sticks/cane- standard, tripod, quadripod
  - Walker/Walking frame- With wheels, without wheels
  - Wheelchair

**Unit 7: Therapeutic Tools****3hrs**

1. List the uses of the following tools-
  - Shoulder wheel,
  - Finger ladder
  - Shoulder pulley
  - Supinator/pronator instrument
  - Ankle exerciser
  - Grip strengtheners (Thera-putty, Exercise ball, Hand Exerciser)
  - Parallel bars
  - Balance board
  - Weights-Cuffs and Dumbbell's
  - Theraband and Theratubes

**PRACTICAL****Unit 1: Goniometer****15hrs**

1. Measure the range of motion (ROM) of the following joints:
  - Upper extremities- shoulder, elbow and wrist
  - Lower extremities- hip, knee and ankle

**Unit 2: Therapeutic Tools****15hrs**

1. Operate shoulder wheel
2. Operate static bicycle
3. Operate equilibrium board
4. Operate Tilt Table

**Unit 3: Walking Aids****15hrs**

1. Apply walking aids: axillary crutch, elbow crutch, gutter crutch, cane/stick (standard, tripod, quadripod), walker/walking frame and wheelchair.
2. Measurement of following:
  - Crutches- axillary, elbow and gutter,
  - Sticks/cane- standard, tripod and quadripod
  - Walker/Walking frame- with wheels and without wheels

**Unit 4: Posture****15hrs**

1. Analyze posture in different views.
  - Anterior
  - Posterior view
  - Lateral view- left and right
2. Identify good and bad posture in different positions

**Unit 5: Gait****18hrs**

1. Demonstrate normal gait
2. Demonstrate different types of pathological gait- Trendelenburg, Arthrogenic, Hemiplegic, Antalgic, Equines, Festinating, Waddling, High stepping
3. Demonstrate the different types of gait using walking aids
  - Two Points Gait
  - Three Point Gait
  - Four Point Gait
  - Swing to and swing through Gait

**References:**

- Lynn S. Lippert *Clinical Kinesiology for physical therapist assistant* (3rd edition, F a Davis, Co; 2000)
- Pamela k. levangie, Cinthia C. Norkin. *Joint Structure and Function*. (5<sup>th</sup> edition; Jaypee Brothers publication;2006)
- Dena Gardiner. *The principles of therapeutic exercises* (4<sup>th</sup> edition, CBS Publication)

# Therapeutic Exercise

**Total: 7 hrs/w**  
**Theory: 3 hrs /w**  
**Practical: 4 hrs/w**

## Course Description:

This course provides both the theoretical knowledge and practical skills to carry out therapeutic exercises programs. The course is designed to give the student knowledge and skills necessary to carry out comprehensive regional assessments along with the introduction of a variety of exercise techniques and exercise equipment's.

## Course Objectives:

After the completion of this course the student will be able to:

1. Carry out the regional assessment, analyze and record these findings, develop a problem lists, goals and a perform treatment.
2. Describe and demonstrate a wide variety of exercise techniques and their effects including modifications and progressions based on the patient's response to the techniques.
3. Prepare Plan for therapeutic exercise program for commonly encountered clinical conditions, including modifications, progression and home exercise programs.

## Course Contents:

### THEORY

#### Unit 1: Introduction to Therapeutic Exercise 8hrs

1. Definition of Therapeutic Exercise
2. Aspects of physical function
3. Definition of key terms (balance, stability, equilibrium, coordination, endurance, mobility)
4. Types of therapeutic intervention (aerobic and anaerobic)

#### Unit 2: Fundamental position and Derived position 8hrs

1. Describe: Various positions in Lying, Sitting, Standing, Kneeling and Hanging

#### Unit 3: Joint Movements 12hrs

1. Define joint movement (Active and Passive movement)
2. Active movements (Free, Assisted and Resisted)
3. Passive movements (Manual and Mechanical)
4. Indications and Contraindications of Active and Passive Movements

#### Unit 4: Stretching 7hrs

1. Define stretching, state principles and types of stretching (Active and Passive)
2. Define Tightness, Contracture and flexibility
3. Describe goals, indication, contraindications and precautions of stretching

#### Unit 5: Strength Training 8hrs

1. Define Manual Muscle Testing (MMT), principles, merits and demerits.
2. Define Isometric, Isotonic, Open and Closed Chain Exercise
3. Define Strength, Endurance and Power
4. Types of Strength Training (Manual and Mechanical)

- Unit 6: Mat Exercise** **12hrs**
1. Rolling, Bridging, Forearm support side lying, Prone lying with forearm support, sitting on the side of mat/bed, Hitching & Hiking
  2. Describe Transfer activities (Side lying, Prone, Quadrupled positioning, Kneeling, Half kneeling, Side sitting, Sitting, Standing )
- Unit 7: Balance and Coordination Exercise** **10hrs**
1. Define Balance and its types (Static and Dynamic)
  2. Define Coordination
  3. Exercise to improve balance (Single leg standing and Balance board)
  4. Exercise to improve coordination (Frenkel's Exercise)
- Unit 8: Posture** **6hrs**
1. Define Posture
  2. Describe physiological and pathological deviations (scoliosis, kyphosis and lordosis)
  3. Explain the corrective exercise
- Unit 9: Locomotion (Gait)** **6hrs**
1. Define gait
  2. Phases of gait- Stance and Swing
  3. Pathological Gait- Hemiplegic, Antalgic, Scissoring, Festinating, High Stepping
- Unit 10: Breathing Exercises** **6hrs**
1. Describe: concept, types (Diaphragmatic, Segmental), techniques and effects of breathing exercises.
  2. Describe Coughing
  3. Describe Huffing
- Unit 11: Therapeutic Massage** **8hrs**
1. Define massage and its types (Effleurage, Kneading, Friction)
  2. Describe physiological and therapeutic effects of massage.
  3. Enlist indication and contraindication of massage.
- Unit 12: Hydrotherapy** **3hrs**
1. Define Hydrotherapy
  2. Explain effects, merits and demerits of hydrotherapy
- Unit 13: Exercise for hand function** **5hrs**
1. Explain Grip- Power, Spherical, Hook, Lateral prehensile, Pinch grip
  2. Exercise for hand function (flexibility and strength)
- Unit 14: Gymnasium** **3hrs**
1. Explain gymnasium, setting up, equipment and its uses
- Unit 15: Suspension Therapy** **3hrs**
1. Explain suspension therapy
  2. Describe types, uses, merits and demerits of suspension therapy
- Unit 16: Relaxation** **4hrs**
1. Define relaxation and its types

2. Describe indication and Techniques of General & Local relaxation

**Unit 17: Yoga** **5hrs**

1. Definition of yoga
2. Classification of yoga
3. Benefits of yoga (physical, mental, health effects)

**Unit 18: Group Exercise and Home Exercise** **3hrs**

1. Explain group and home exercise
2. Advantage and disadvantage of group and home exercise

## **PRACTICAL**

**Unit 1: Fundamental position and Derived positions** **10hrs**

1. Demonstrate various positions: Lying, Sitting, Standing, Kneeling and Hanging

**Unit 2: Joint Movements** **14hrs**

1. Demonstrate Active and Passive movement of various joints
2. Perform Active movements (Free, Assisted and Resisted)
3. Perform Passive movements (Manual and Mechanical)

**Unit 3: Stretching** **14hrs**

1. Perform stretching (Active and Passive)
2. Perform soft tissue stretching techniques of the following muscles: Sternocleidomastoid, Pectoralis, Biceps brachii, Long flexors/Extensors of wrist and fingers, Iliopsoas, Hamstring, Quadriceps, Iliotibial band, Tendoachilis tendon

**Unit 4: Strength Training** **22hrs**

1. Assess muscle strength (MMT of group muscles of shoulder, elbow, wrist, hip, knee, ankle joints)
2. Demonstrate Isometric, Isotonic, Open and Closed Chain Exercise
3. Demonstrate strength training (Manual and Mechanical-using weight cuffs, dumbbells)

**Unit 5: Mat** **24hrs**

1. Perform Mat Exercise- Rolling, Bridging, Forearm support side lying, Prone lying with forearm support, Sitting on the side of mat/bed, Hitching & Hiking
2. Perform Transfer activities (Side lying, Prone, Quadrupled positioning, Kneeling, Half kneeling, Side sitting, Sitting, Standing )

**Unit 6: Balance and Coordination Exercise** **12hrs**

1. Demonstrate Static and Dynamic balance Exercise (Single leg standing and Balance board)
2. Perform Frenkel's Exercise

**Unit 7: Posture** **8hrs**

1. Assess Posture
2. Identify pathological deviations (Scoliosis, Kyphosis and Lordosis)
3. Demonstrate the corrective exercise

<b>Unit 8: Locomotion (Gait)</b>	<b>8hrs</b>
<ol style="list-style-type: none"> <li>1. Assess phases of gait-Stance and Swing</li> <li>2. Identify and Demonstrate Pathological Gait- Hemiplegic, Antalgic, Scissoring, Festinating, High Stepping</li> </ol>	
<b>Unit 9: Breathing Exercises</b>	<b>10hrs</b>
<ol style="list-style-type: none"> <li>1. Demonstrate Diaphragmatic and Segmental breathing techniques</li> <li>2. Perform Coughing</li> <li>3. Perform Huffing</li> <li>4. Perform Chest mobility exercises.</li> </ol>	
<b>Unit 10: Therapeutic Massage</b>	<b>8hrs</b>
<ol style="list-style-type: none"> <li>1. Perform techniques of massage (Effleurage, Kneading, Friction) on back</li> </ol>	
<b>Unit 11: Exercise for hand function</b>	<b>6hrs</b>
<ol style="list-style-type: none"> <li>1. Demonstrate- Grip- Power, Spherical, Hook, Lateral prehensile, Pinch grip</li> <li>2. Perform Exercise to improve hand function (flexibility and strength)</li> </ol>	
<b>Unit 12: Gymnasium</b>	<b>2hrs</b>
<ol style="list-style-type: none"> <li>1. Identify gymnasium equipment's</li> </ol>	
<b>Unit 13: Relaxation</b>	<b>8hrs</b>
<ol style="list-style-type: none"> <li>1. Demonstrate relaxation technique (Jacobson's technique)</li> </ol>	
<b>Unit 14: Evaluation and Assessment Methods of:</b>	<b>10hrs</b>
<ul style="list-style-type: none"> <li>➤ Hand grip</li> <li>➤ Limb girth</li> <li>➤ Limb length</li> <li>➤ Chest Expansion</li> <li>➤ Tone (Normal, Hypertonia and Hypotonia)</li> <li>➤ Sensation</li> <li>➤ Reflex-Superficial and Deep</li> </ul>	

**References:**

- Deena Gardiner, *The principles of therapeutic exercises* (4<sup>th</sup> edition, CBS Publication).
- Margaret Hollis, *Practical exercise therapy* (3<sup>rd</sup> edition, Blackwell Science Publication; 2006).
- Carolyn Kisner and Lynn Aller Colby, *Therapeutic exercises foundation and technique* (5<sup>th</sup> edition, Jaypee Publication).
- Kendel and Kendel, *Manual muscle testing* (5<sup>th</sup> edition, Jaypee Publication).
- Akhoury Gourang Sinha, *Principles and practice of Therapeutic Massage* (2<sup>nd</sup> edition, Jaypee publication).
- Nillmapatel, *Yoga and Rehabilitation* (1<sup>st</sup> edition; Jaypee publication)

# Electrotherapy

**Total: 6 hrs/w**  
**Theory: 3 hrs/w**  
**Practical: 3 hrs/w**

## Course Description:

This course provides knowledge and skills of electrotherapy. This course is designed to develop basic but comprehensive knowledge of various types of electrotherapy modalities and to develop skills of procedure adopted in electrotherapy.

## Course Objectives:

After the completion of this course the student will be able to:

1. Understand various electrotherapy modalities used in physiotherapy
2. Understand Pain and its types.
3. Apply various electrotherapy modalities in various conditions

## Course Contents:

### THEORY

#### Unit 1: Basic of Electrotherapy

12hrs

1. Define Ions, Ionization, Current- Direct and Alternative current
2. Explain Conduction and Induction of current.
3. Identify and describe the uses of Power sockets, switches and plugs.
4. Electric Shock: Definition, Classification and Management
5. Burns: Electrical and Chemical Burns
  - Definition
  - Prevention
  - Management
6. Therapeutic current: Definition and Uses.

#### Unit 2: Electrotherapy

8hrs

1. Electrotherapy: Definition and classification of electrotherapy with examples
2. Pain: Definition and types of Pain
3. Definition and mechanism of Pain- Gate Control Theory

#### Unit 3: High Frequency Current

20hrs

1. Definition, indication, contraindication, therapeutic effects and techniques of application of Shortwave Diathermy (SWD)
2. Definition, indication, contraindication, therapeutic effects and techniques of application of Microwave Diathermy (MWD)
3. Definition, indication, contraindication, therapeutic effects techniques of application of Infra-red Radiation (IRR)
4. Definition, indication, contraindication, therapeutic effects and techniques of application of Ultrasound Therapy (UST).

#### Unit 4: Medium Frequency Current.

6hrs

1. Interferential Therapy (IFT)
  - Definition of IFT
  - Explain indication, contraindication and application of IFT



<b>Unit 5: Low Frequency Current</b>	<b>8hrs</b>
<ol style="list-style-type: none"> <li>1. Definition, indication, contraindication, effects and techniques of application of faradic current.</li> <li>2. Definition, indication, contraindication, effects and techniques of application of galvanic current.</li> </ol>	
<b>Unit 6: Motor Points</b>	<b>5hrs</b>
<ol style="list-style-type: none"> <li>1. Define motor point</li> <li>2. Enlist the motor points of Upper Limb, Lower Limb and Face in a diagram.</li> </ol>	
<b>Unit 7: Faradic foot bath</b>	<b>4hrs</b>
<ol style="list-style-type: none"> <li>1. Explain Faradic foot bath, indication, contraindication and its application.</li> </ol>	
<b>Unit 8: Faradism under pressure</b>	<b>4hrs</b>
<ol style="list-style-type: none"> <li>1. Explain Faradism under pressure, indication, contraindication and its application.</li> </ol>	
<b>Unit 9: Transcutaneous Electric Nerve Stimulation (TENS)</b>	<b>4hrs</b>
<ol style="list-style-type: none"> <li>1. Define and Enlist types of TENS.</li> <li>2. Explain indication, contraindication and application of TENS.</li> </ol>	
<b>Unit 10: Electro-diagnosis</b>	<b>5hrs</b>
<ol style="list-style-type: none"> <li>1. Definition and uses: Faradic Galvanic Test and Strength Duration Curve (SD Curve)</li> </ol>	
<b>Unit 11: Paraffin Wax Bath</b>	<b>5hrs</b>
<ol style="list-style-type: none"> <li>1. Define Paraffin Wax Bath</li> <li>2. Explain indication, contraindication and application of paraffin wax bath</li> </ol>	
<b>Unit 12: Hot Packs</b>	<b>6hrs</b>
<ol style="list-style-type: none"> <li>1. Define hot packs and classify the types of hot packs.</li> <li>2. Explain indication, contraindication and application of hot packs.</li> </ol>	
<b>Unit 13: Hydrotherapy</b>	<b>6hrs</b>
<ol style="list-style-type: none"> <li>1. Define hydrotherapy</li> <li>2. Explain indication, contraindication and application of hydrotherapy in whirlpool bath.</li> </ol>	
<b>Unit 14: Cryotherapy</b>	<b>6hrs</b>
<ol style="list-style-type: none"> <li>1. Define Cryotherapy and Enlist type of Cryotherapy modalities.</li> <li>2. Explain indication, contraindication and application of Cryotherapy.</li> </ol>	
<b>Unit 15: Traction</b>	<b>10hrs</b>
<ol style="list-style-type: none"> <li>1. Define Traction, classify types of traction.</li> <li>2. Explain indication, contraindication and application of traction.</li> <li>3. Explain therapeutic uses of pelvic and cervical traction</li> </ol>	
<b>Unit 16: Light Amplification by Stimulated Emission of Radiation (LASER)</b>	<b>3hrs</b>
<ol style="list-style-type: none"> <li>1. LASER: Definition, Indication and contraindication.</li> </ol>	
<b>Unit 17: Contrast Bath</b>	<b>3hrs</b>
<ol style="list-style-type: none"> <li>1. Contrast Bath: Definition, Indication and contraindication.</li> </ol>	

<b>Unit 18: Combination Therapy</b>	<b>2hrs</b>
<ol style="list-style-type: none"> <li>1. Define Combination Therapy.</li> <li>2. Enlist its uses with examples.</li> </ol>	

## **PRACTICAL**

<b>Unit 1: Heating Modalities</b>	<b>30hrs</b>
<ol style="list-style-type: none"> <li>1. Apply SWD, MWD, IRR, UST</li> </ol>	

<b>Unit 2: Electrical stimulation</b>	<b>30hrs</b>
<ol style="list-style-type: none"> <li>1. Stimulate the denervated and innervated muscles with Faradic and Galvanic current</li> <li>2. Apply TENS and IFT</li> <li>3. Apply faradic foot bath and faradism under pressure.</li> </ol>	

<b>Unit 3: Paraffin Wax Bath</b>	<b>14hrs</b>
<ol style="list-style-type: none"> <li>1. Apply Paraffin Wax Bath</li> </ol>	

<b>Unit 4: Hot packs</b>	<b>10hrs</b>
<ol style="list-style-type: none"> <li>1. Apply hot pack in different forms.</li> </ol>	

<b>Unit 5: Hydrotherapy</b>	<b>10hrs</b>
<ol style="list-style-type: none"> <li>1. Perform reeducation and strengthening of muscle using water.</li> </ol>	

<b>Unit 6: Cryotherapy</b>	<b>11hrs</b>
<ol style="list-style-type: none"> <li>1. Apply ice in different forms.</li> </ol>	

<b>Unit 7: Apply Traction</b>	<b>10hrs</b>
<ol style="list-style-type: none"> <li>1. Lumbar and Cervical Traction</li> </ol>	

<b>Unit 8: Combination Therapy</b>	<b>2hrs</b>
<ol style="list-style-type: none"> <li>1. Apply combination therapy</li> </ol>	

### **References:**

- Jagmohan Singh, *Textbook of Electrotherapy* (3rd Edition, Jaypee publications; 2017).
- Forster and palasanga, *Clayton's Electrotherapy* (8<sup>th</sup> Edition, CBS publication; 2007).
- Subhash M Khatri, *Basics of Electrotherapy* (2<sup>nd</sup> Edition, Jaypee Brothers; 2012).
- John Low and Ann reed, *Electrotherapy Explained* (4<sup>th</sup> Edition, Elsevier India; 2008).
- Basanta Kumar Nanda, *Electrotherapy Simplified* (2<sup>nd</sup> Edition, Jaypee Brothers; 2015).

# Medicine and Surgery

**Total: 4 hrs/w**  
**Theory: 3 hrs/w**  
**Practical: 1 hrs/w**

## Course Description:

The course content of the medicine and surgery includes the study of different conditions of various medical disciplines which are important in fundamental physiotherapy practice. The course includes introduction of the conditions, causes and management related to general medical and surgical conditions, neurological, cardiopulmonary and women's health.

## Course Objectives:

After the completion of this course the student will be able to:

1. Define different medical and surgical conditions.
2. Describe the etiology, signs & symptoms and management of different conditions.

## Course Contents:

### THEORY

#### Unit 1: General medical and surgical conditions 25hrs

1. Poisoning: Clinical features, general management, common agents in poisoning, pharmaceutical agents, drugs of misuse, chemical pesticides, Envenomation
2. Edema: Definition, causes, types and management.
3. Diabetes: Definition, types, risk factors and management
4. Define plastic surgery and mention different types of grafts.  
Mention the medical and rehabilitation management after surgery.
5. Leprosy: Define leprosy, mention the types, clinical features, medical and rehab management of leprosy.
6. Vertigo: Definition, types and medical management.

#### Unit 2: Neurological Conditions 40hrs

1. Describe etiology, signs & symptoms and management of the following neurological conditions.
  - Cerebro Vascular Accident (CVA)
  - Traumatic Brain Injury (TBI)
  - Spinal Cord Injury (SCI)
  - Poliomyelitis
  - Encephalitis
  - Parkinsonism
  - Meningitis
  - Epilepsy
  - Muscular Dystrophy
  - Bell's palsy, and Facial palsy
2. Peripheral Nerve Injury: Definition, Seddon's Classification and its management.

#### Unit 3: Cardiopulmonary Conditions 35hrs

1. Describe etiology, signs & symptoms and management of the following cardio pulmonary conditions.
  - Chronic Obstructive Pulmonary Disease (COPD)
  - Pneumonia

- Plural effusion
- Pneumothorax
- Pulmonary Tuberculosis
- Coronary artery disease (Myocardial Infraction)
- Hypertension and hypotension
- Deep Vein Thrombosis (DVT)
- Pneumonectomy
- Atherosclerosis
- Embolism

**Unit 4: Women's Health**

**17hrs**

1. Anatomy of Pelvic Floor Muscles
2. Menstrual cycle and its disorders (Dysmenorrhea and Amenorrhea): Definition, causes, clinical features and management.
3. Physiological changes during pregnancy
4. List the musculoskeletal disorders during pregnancy
5. Incontinence: Types, Causes, Assessment and Management

**PRACTICAL**

**Unit 1: Vital Signs**

**10hrs**

- Handle stethoscope, sphygmomanometer, and thermometer.
- Measure Blood Pressure,
- Measure Respiration Rate,
- Measure Pulse Rate,
- Measure Temperature, and
- Measure Heart Rate.

**Unit 2: Observation and Study presentation**

**29hrs**

1. Perform Cardiopulmonary Auscultation.
2. Perform Anthropometric measurement: Limb Length, Limb girth, Height, Weight, Chest expansion.
3. Examine
  - Reflexes- Superficial/Deep
  - Sensory
  - Muscle Tone

**References:**

- K. George Mathew and Praveen Aggarawal, *MEDICINE* (3<sup>rd</sup> edition, ELSEVIER; 2008).
- Davidson's, *Principles and Practice of Medicine* (4<sup>th</sup> edition, ELBS-Livingstone publications; 2014).
- Dc Dutta's, *Textbook of Gynecology* (7th edition, Jaypee publisher; 2016).
- VL Bhargava, *Textbook of Gynecology* (ANE books; 2009).
- Navneet Kumar, *Textbook of Neurology* (Prentice-Hall of India Pvt. Ltd.; 2011).
- Lindsay, *Neurology and Neurosurgery Illustrated* (5th edition, Elsevier; 2010)

# Orthopedics and Pediatrics

**Total: 4 hrs/w**  
**Theory: 3 hrs/w**  
**Practical: 1 hr/w**

## Course Description:

The course content of the orthopedics and pediatrics includes the study of different conditions of various medical disciplines which are important in fundamental physiotherapy practice. The course includes introduction of the conditions, causes and management related to orthopedic and pediatric conditions.

## Course Objectives:

After the completion of this course the student will be able to:

1. Define different orthopedics and pediatrics conditions.
2. Describe the etiology, signs & symptoms and management of different conditions.

## Course Contents:

### THEORY

#### Unit 1: Orthopedic Conditions

1. Definition etiology, signs & symptoms and management of the following conditions:
  - Congenital anomalies **8hrs**
    - Congenital Talipes Equino Varus (CTEV)
    - Congenital Dislocation of Hip (CDH)
    - Torticollis
  - Bone infections **4hrs**
    - Osteomyelitis
    - Pott's Spine
  - Arthritis **6hrs**
    - Osteoarthritis
    - Rheumatoid arthritis
    - Ankylosing spondylitis
  - Spinal deformities **6hrs**
    - Kyphotic
    - Lordotic
    - Scoliosis
  - Bone, muscle and joints disorders **18hrs**
    - Rickets
    - Genu- valgum, varum, recurvatum
    - Osteomalacia
    - Planter fasciitis
    - Cervical Spondylosis
    - Lumber Spondylosis
    - Spondylolisthesis
    - Prolapsed Inter-Vertebral Disc (PIVD)
    - Frozen shoulder
    - Flat foot
  - Fractures **12hrs**
    - Definition and types of fracture
    - Clinical sign of fracture

- Stages of fracture healing
- Fracture Complications (cross-union, non-union, delayed-union, mal-union, fibrous-union)
- Fracture management
- Common fractures of upper limb **15hrs**
  - Clavicle
  - Shaft & condylar fracture of humerus
  - Olecranon process and shaft of the Ulna
  - Head and shaft of radius
  - Colle's fracture
  - Carpals, metacarpals and phalanges fracture
- Common fractures Lower limbs **15hrs**
  - Neck of Femur
  - Shaft and condylar fracture of femur
  - Patella fracture
  - Condylar and shaft fracture tibia
  - Shaft of fibula fracture
  - Malleolar fractures
- Amputations **6hrs**
  - Types of amputations
  - Common sites of amputation in upper limb and lower limb
  - Stump management
- Soft tissue injuries **8hrs**
  - Sprain and strain
  - Inflammation
  - Bursitis
  - Tendinitis
- Dislocation of Joint **8hrs**  
Shoulder, Elbow, Hip and Knee

**Unit 2: Pediatric (Developmental Disorders) **11hrs****

1. Normal Developmental Milestones
2. Cerebral Palsy (CP): causes, complications, clinical manifestations and management
3. Learning and behavioral problems: Define- Down's syndrome, Attention Deficit Hyperactivity Disorder (ADHD), Autism, and Learning disorder
4. Define congenital heart diseases. Enlist common congenital heart diseases.  
Describe briefly Atrial Septal Defect (ASD), Ventricular Septal Defect (VSD) and Tetralogy of Fallot's (TOF)

## **PRACTICAL**

**Unit 1: Bandaging and Splinting **7hrs****

1. Perform first aid techniques (wound dressing)
2. Perform Bandaging and Taping
3. Perform Splinting

**Unit 2: Clinical posting- Observation and Study Presentation **32hrs****

1. Clinical Posting at orthopedic department in a hospital and Rehabilitation Center
2. Observe and identify Routine X-rays

**References:**

- Davidson's, *Principles and Practice of Medicine* (4<sup>th</sup> edition, ELBS-Livingstone publications; 2014).
- John Ebnezer, *Textbook of Orthopedics* (5<sup>th</sup> edition, Jaypee publications; 2016).
- Maheshwori and Mhaskar, *Essential Orthopedics* (5<sup>th</sup> edition, Jaypee brothers; 2015).
- Vinod K Paul, *Essential Pediatrics* (9<sup>th</sup> edition, CBS Publishers & Distributors; 2018).

# Behavioral Science (Psychology and Sociology)

**Total: 3 hrs/w**  
**Theory: 3 hrs/w**  
**Practical: 0 hrs/w**

## Course Description:

This course is designed for the students of proficiency certificate level in physiotherapy (PCL in Physiotherapy). The major course contents are motivation, learning styles, emotion, reactions to stress and mental health & illness which will help the physiotherapy practitioners.

## Course Objectives:

After the completion of this course the student will be able to:

1. Define and explain the common terms used in psychology
2. Relate the terminology when working with patients
3. Describe commonly used intelligence tests.
4. Describe factors affecting learning and how it may impact their own and their patients ability to learn
5. Describe the normal emotional and personality development of a child
6. Explain how emotional deprivation may affect health
7. List the components of assessing mental health
8. Describe causes of conflict
9. List methods of stress reduction
10. Relate the knowledge of defense mechanisms
11. Describe the causes, signs & symptoms of common mental illnesses.

## Course Contents:

### Part I–Psychology

#### THEORY

- |   |             |
|---|-------------|
| <b>Unit 1: Introduction to Psychology</b>   | <b>3hrs</b> |
| <ol style="list-style-type: none"><li>1. Define Psychology</li><li>2. Explain Educational, Social, Developmental, Occupational, child psychology and clinical psychology.</li><li>3. Importance of psychology in physiotherapy.</li></ol>   |             |
| <b>Unit 2: Motive</b>   | <b>5hrs</b> |
| <ol style="list-style-type: none"><li>1. Define and classify motive</li><li>2. Explain Psychological drives, Social motives, Personal motives, Unconscious motive</li><li>3. Describe use of knowledge of motive for patients care</li></ol>  |             |
| <b>Unit 3: Intelligence</b>   | <b>6hrs</b> |
| <ol style="list-style-type: none"><li>1. Define intelligence</li><li>2. Enlist characteristics of intelligence</li><li>3. Enlist factors affecting intelligence</li><li>4. Enlist the Intelligence tests (Describe IQ Test)</li><li>5. Define and describe mental retardation</li></ol> |             |



- Unit 4: Learning** **8hrs**
1. Define learning
  2. Explain significance of learning
  3. Enlist factors of effective learning
  4. State Laws of learning-Readiness, exercise, effect.
- Unit 5: Emotion** **5hrs**
1. Define emotion
  2. Describe external and internal changes of the individual
  3. Describe emotional effects on health
- Unit 6: Personality** **10hrs**
1. Define personality
  2. Classify personality types
  3. Enlist and describe factors affecting personality -physiological, social, psychological
  4. Enlist personality development pattern in infancy, early childhood, late childhood
- Unit 7: Frustration and Mental conflict** **8hrs**
1. Define frustration
  2. Define mental conflict
  3. Classify and list types and causes of conflict
  4. Describe methods of stress reduction: relaxation, recreation
  5. List the effects of meditation, diversion and exercise on frustration and mental conflict
- Unit 8: Defence and Adjustment mechanisms** **6hrs**
1. Define defence mechanism
  2. Define adjustment mechanism
  3. Classify adjustment mechanisms including:
    - Compensation
    - Rationalization
    - Projection
    - Identification
  4. Define substitution, sublimation, repression, regression,
  5. Define sympathism, withdrawal and day dreaming
  6. Explain positive and negative aspects of defence mechanisms
- Unit 9: Mental Health** **12hrs**
1. Define mental health and mental hygiene
  2. List characteristics of mental health
  3. Explain factors affecting mental health
  4. Procedure of Mental State examination -
    - General Appearance and Behaviour: Hygiene, Facial expression, Posture and Social behavior
    - Speech: flow and content of speech
    - Mood: subjective and objective assessment of mood
    - Perception: hallucination, illusion
    - Thought: form and content of thought
    - Attention and Concentration:
    - Memory: immediate, recent and remote memory

- Orientation: time, place and person
- Intelligence: Based on test.
- Judgment: social and test judgment
- Insight: Absent or Present

**Unit 10: Mental Illness**

**12hrs**

1. Define mental illness
2. Define and classify mental disorders: Psychosis (Schizophrenia), Neurosis, Anxiety, Depression, Somatoform disorder, Drug abuse and Alcoholism
3. Explain Physiotherapy treatment for the mentally ill patient

**References:**

- Ramalingam Thangamant, *Psychology for Physiotherapists* (2<sup>nd</sup> edition; 2017).
- Clifford T. Morgan, *Introduction to psychology* TATA Mc GRAW-HILL.
- Niraj Ahuja A., *Short Textbook of Psychiatry* (Jaypee brothers Medical Publishers).

## **Part II- Sociology**

**Course Description:**

Sociology will introduce student to the basic sociology concepts, principles and social process, social institutions (in relation to the individual, family and community) and the various social factors affecting the family in rural and urban communities in Nepal.

**Course Objectives:**

After the completion of this subject the student will be able to:

1. Define and explain the common terms used in Psychology.
2. Understand their clients while assessment and while planning appropriate treatment methods.
3. Describe their clients in terms of social, economical and psychological status.
4. Correlate their health problems with social and cultural conflicts.
5. Understand the health problems with family, community and social factors.

**Course Contents:**

### **THEORY**

**Unit 1: Basic concept in sociology**

**4hrs**

1. Definition, nature and scope of sociology
2. Relationship of sociology with other social sciences (anthropology, psychology, economics, political science)
3. Importance of its study with reference to health care professionals.

**Unit 2: Socialization**

**4hrs**

1. Concept of social groups.
2. Influence of formal and informal groups on health and sickness.

**Unit 3: Social process**

**4hrs**

1. Definition of social process, acculturation, enculturation, accommodation, adaption, assimilation, conflict and socialization

**Unit 4: Family** **4hrs**  
1. Definition and types of family  
2. Role of family on the individual health, family and nutrition.  
3. The effect of sickness of family and psychosomatic disease and their importance to physiotherapy.

**Unit 5: Community** **4hrs**  
1. Definition and concept of community.  
2. Rural and Urban community-meaning and its features.

**Unit 6: Social factors in health and Disease.** **4hrs**  
1. The meaning of social factors.  
2. The role of social factors and illness.  
3. Changing concept of health

**Unit 7: Culture and Health** **6hrs**  
1. Definition of Culture and Health  
2. Impact of Culture in Human Behavior  
3. Relationship between Culture and health disorder

**Unit 8: Social Problem in Disabled** **8hrs**  
Consequences of the following social problem in relation to sickness and disability and readies to prevent these problems  
1. Population explosion.  
2. Poverty and unemployment  
3. Beggary  
4. Juvenile delinquency  
5. Prostitution  
6. Alcoholism  
7. Problems of women in employment

**Unit 9: Social security** **2hrs**  
1. Social security and social legislation in relation to the Disabled.

**Unit 10: Social work** **2hrs**  
1. Meaning of social work  
2. The role of medical social worker.

**References:**

- KP Neerja, *Textbook of sociology for physiotherapy students* (2<sup>nd</sup> edition, Jaypee publication; 2008).
- Bid Dibyendunarayan, *Sociology for Physiotherapists and Nurses* (1st edition, Jaypee Brothers Medical Publishers; 2016).
- Laxman P Bhandari, *Fundamentals of Sociology* (Buddha Publications).

# Pathology and Pharmacology

**Total: 4 hrs/w**  
**Theory: 3 hrs/w**  
**Practical: 1 hrs/w**

## Course Description:

The course is comprised of two parts. The first part intends to provide knowledge on the common pathology of medical and surgical conditions. Similarly, the second part is designed to provide knowledge on the common groups of drugs used in medical and surgical conditions.

## Course Objectives:

After the completion of this course the student will be able to:

1. Describe pathological condition of various medical and surgical conditions.
2. Describe microorganisms and their structure.
3. Describe mode of infection and prevention of medically important intestinal parasites
4. Explain defense mechanism of body.
5. Describe formation and function of blood.
6. Describe the actions, effects, side effects and contraindications of drugs.
7. Name the common therapeutic drugs used in various problems
8. Describe the sources, uses and side effects of vitamins.

## Course Contents:

### THEORY

#### Part 1: Pathology

##### Unit 1: Medical Microbiology

**15hrs**

1. Describe Morphological classification of Bacteria, Parasites, Viruses and Fungi.
2. Distinguishing features between Gram Positive and Gram Negative Bacteria.
3. Enlist the Normal Bacterial Flora in human body.
4. Enlist the microorganisms causing diseases in human.
5. Explain the methods of basic bacteriological investigations (Gram's stain, AFB stain, culture media, identification techniques and sensitivity testing methods).
6. Explain bacterial growth process and factors influencing it.
7. Define sterilization and explain various methods of sterilization.
8. Define Immunity, Antigen, Antibodies and antigen-antibody reaction.
9. Define virus and explain its properties.

##### Unit 2: Medical Parasitology

**12hrs**

1. Define parasite, host, host parasite relations.
2. Describe modes of infection, pathogenicity, laboratory diagnosis and prevention of medically important intestinal parasites prevalent in Nepal (Ascaris, Hookworm, Trichuris, Taenia, Entamoeba and Giardia lamblia).
3. Describe modes of infection, pathogenicity, laboratory diagnosis and prevention of medically important blood and tissue parasites found in Nepal (Plasmodium, Leishmania, Wuchereria).

##### Unit 3: Haematology

**8hrs**

1. Define Blood, Composition and functions of blood. Functions of different components (RBC, WBC, Platelets, Plasma)

2. Describe Hematopoiesis (Erythropoiesis, Leucopoiesis, and Thrombopoiesis).
3. Define anticoagulants, their types and uses.
4. Describe methods of blood collection.
5. Describe the structure, functions and estimation of hemoglobin (Sahli's Acid Hematin and Cyanmethemoglobin method).
6. Enlist the normal values of Complete Blood Cell (CBC) count.

#### **Unit 4: Biochemistry**

**8hrs**

1. Define and classify carbohydrate, lipid, protein and enzymes.
2. Define metabolism, anabolism and catabolism.
3. Define glycolysis, gluconeogenesis, Krebs's cycle and urea cycle.
4. Enlist normal value of Liver Function Test (LFT), Renal Function Test (RFT), Sugar and Lipid profile

#### **Unit 5: Basic Pathology**

**15hrs**

1. Inflammation
  - Define Inflammation
  - Describe inflammatory process including physical, chemical and biological causes.
2. Infection
  - Define infection and it's types
  - Explain the source of infection
  - Explain differences between infection and inflammation
3. Wound
  - Define and classify wound
  - Describe stages of wound healing
4. Ulcers
  - Define and classify ulcers
  - Describe stages of ulcer healing
5. Gangrene
  - Define and classify Gangrene
  - Causes of Gangrene
6. Neoplasm
  - Define and classify Neoplasm
  - Difference between benign and malignant tumor

### **PRACTICAL**

**22hrs**

1. Perform Gram's Stain, AFB stain.
2. Prepare Culture Media.
3. Perform Sterilization.
4. Demonstrate Antibiotic Sensitivity test.
5. Collect Blood Sample and prepare Vial.
6. Perform Hemoglobin Estimation.
7. Perform Blood Grouping.

#### **References:**

- C.P Baveja, Textbook of Microbiology (6<sup>th</sup> edition, APC; 2019).
- Tejindar Singh, *Textbook of Hematology* (3rd edition, Arya Publication).

- Satish Gupte, *The short textbook of Medical Microbiology* (10<sup>th</sup> edition. Jaypee Brothers Medical Publishers; 2010).
- Subhash Parija, *Textbook of Microbiology and Immunology* (3rd Edition; 2016).
- Anantha Narayanan, *Textbook of Microbiology* (7<sup>th</sup> edition, Orient Longman publication; 2007).
- P. Chakraborty, *A textbook of Microbiology* (3<sup>rd</sup> edition, New Central book Pvtld; 2013).

## **Part 2: Pharmacology**

### **Unit 6: Terminology and Definition 10hrs**

1. Define: Pharmacology, Pharmacy, Drug, Pharmacodynamics, and Pharmacokinetics
2. Discuss Adverse Reactions, Dose, Indication, Contraindication, Preparation, Dispensing
3. Enumerate the routes of drug administration and identify the factors effecting drug action.
4. Define local dosage form-Ointment and spray.
5. Explain with examples the importance of expiry date and self-life of drug.
6. Explain the prescription and its parts.

### **Unit 7: Analgesic, Antipyretic and Anti-Inflammatory Drugs 3hrs**

1. Define analgesic, anti-inflammatory and antipyretics with examples
2. Describe the indications, common adverse effects and contraindications of commonly used Non-Steroidal Anti Inflammatory Drugs (NSAID's)

### **Unit 8: Drugs used in common respiratory problems 5hrs**

1. Define cough and classify the drugs used for it (Anti-tussives, Expectorants, and Bronchodilators).
2. Describe the indication, common side effects and contraindications of Ephedrine, Aminophylline, Salbutamol, and Chlorpheniramine.

### **Unit 9: Drugs used for treatment of infections and infestations 8hrs**

1. Define antibiotic and its classification, chemotherapeutic agent, antitubercular, antileprotic, antihelminthic, antiamoebic.
2. Describe uses and side effects of penicillin, cephalosporins, azithromycin, co-trimoxazole, streptomycin, metronidazole, tinidazole.

### **Unit 10: Drugs used locally 8hrs**

1. Define: local anesthetic, soothing agent, antifungal, antiseptic, disinfectant, and vasoconstrictor.
2. Explain uses and side effects of: lignocaine, zinc oxide, salicylic acid, benzoic acid, methyl salicylate, iodine, acriflavine, potassium permanganate, chlorhexidine, benzylbenzoate, adrenaline and sulphur, gamma benzene hexachloride.

### **Unit 11: Vaccines and Antisera 8hrs**

1. Define: active and passive immunizations, vaccine, toxoid, and antisera.
2. Explain the various uses and adverse effects of BCG, DPT, Cholera vaccine, Polio vaccine, TAB vaccine, Anti Rabies vaccine, Tetanus toxoid, Measles vaccine, Tetanus antitoxin, Diphtheria antitoxin and Anti-snake venom serum.

**Unit 12: Drugs used in common cardiovascular problems** **5hrs**

1. Define: antihypertensives and diuretics.
2. Explain the uses and side effects of hydrochlorothiazide, furosemide, amlodipine, Enalapril, Propranolol.

**Unit 13: Drugs used in common nervous system problems** **6hrs**

1. Define sedative, hypnotic, tranquilizer, antidepressant's, anticonvulsant, antiepileptic, opioid analgesics and drug dependence with examples of drugs causing dependence.
2. Explain uses and common side effects of phenobarbitone, phenytoin diazepam, amitriptyline, morphine.

**Unit 14: Nutritional supplements.** **4hrs**

1. Define vitamin, minerals, deficiency problems and nutrition supplement.
2. Describe the sources and uses of vitamins A, B, C, D, E, K Iron and calcium.

**Unit 15: Drug dependency and drug addiction** **2hrs**

1. Definition - drug dependency and drug abuse.
2. Classification of addictive drugs.

**PRACTICAL** **17hrs**

1. Prepare white field Ointment
2. Prepare Lugol's solution
3. Prepare Methylsalicylate Ointment
4. Handling of prescriptions.

**References:**

- KV Ramesh, *Pharmacology for physiotherapist* (1<sup>st</sup> edition, Jaypee publications; 2004).
- Shetty Uday Kumar, *Textbook of Pharmacology for physiotherapy*. (Jaypee Brothers Medical Publisher).
- KD Tripathi, *Essentials of Medical Pharmacology* (8<sup>th</sup> Edition, Jaypee Publications; 2018).
- Padmaja Udaykumar, *Medical Pharmacology* (4<sup>th</sup> edition, CBS publication).

# Community Rehabilitation and First Aid

**Total: 4 hrs/w**  
**Theory: 2 hrs/w**  
**Practical: 2 hr/w**

## Course Description:

This course is designed to impart knowledge and skills on rehabilitation, from a facility based physiotherapy approach (largely based on the medical model) to a more holistic, community-based approach (largely based on the social/community model). It also deals with the existing community based rehabilitation (CBR) programs in Nepal, their role, their locations and the links between physiotherapy and CBR. The existing and potential role of community physiotherapy will also be explored. This course also provides knowledge and skills on first aid. This course deals on various common emergency situation which need first aid.

## Course Objectives:

After the completion of this course the student will be able to:

1. Understand physiotherapy and its scope
2. Describe the current situation of disability in Nepal.
3. Identify the elements of Primary health care and its principle.
4. Examine their own and others attitudes, assumptions and underlying belief system regarding impairment, disability and handicap.
5. Identify the social, political, economic, culture and religious factors, which impact attitudes towards and belief systems surrounding disability and handicap.
6. Conduct a community meeting in a participatory fashion to promote disability awareness and to teach health promotion and disability prevention.
7. List government policies relating to disability and understand how these impact attitudes towards persons with disabilities, and the lives of the disabled persons themselves.
8. Describe government plans, policy and legislation in relation to disability.
9. Provide emergency first aid to the needy.

## Course Contents:

### THEORY

#### Unit 1: Introduction to Physiotherapy

**6hrs**

1. Definition, branches, history and evolution of physiotherapy (also mention in context to Nepal)
2. Scope of physiotherapy
3. Briefly describe the organization of physiotherapy
  - World Confederation for Physical Therapy (WCPT)
  - Nepal Health Professional Council ( NHPC)
  - Nepal Physiotherapy Association (NEPTA)

#### Unit 2: Community Rehabilitation

**10hrs**

1. Define community and rehabilitation
2. Definition of impairment, disability and handicap according to the recent WHO conceptualizations.
3. Concept of prevention and disease control and explain the levels of prevention with examples.
4. Primary health care: definition, elements and principle



5. Explain modes of intervention: health promotion, specific protection, early diagnosis and treatment, disability limitation and rehabilitation.

### **Unit 3: Community and Disability**

**13hrs**

1. Define disability in the context of Nepal.
2. Classification of disability according to the Nepal Government and WHO.
3. Prevalence and causes of disability (Recent Nepal Census and World disability report)
4. Prevention of disability.
5. Social Security Schemes, Disability card and its types.
6. Explain Disability rights including issues of access, inclusion, as well as legal & social issues.
7. Explain role of community, government, NGO and INGO in disability prevention
8. Describe government plans, policy and legislation in relation to disability.
9. Explain the role of physiotherapy in disability awareness in the community.

### **Unit 4: Community Based Rehabilitation**

**10hrs**

1. Community based rehabilitation: definition, aims, members, aspects and models
2. Difference between Institution Based Rehabilitation (IBR) and Community based Rehabilitation (CBR)
3. Define CBR Matrix and enlist its components
4. Community approaches to handicap in development : introduction and its components
5. Explain locally made aids (assistive device) and its application in community.

### **Unit 5: First Aid**

**39 hrs**

1. Introduce first aid, scope and principle, management on the site and make decision for referral and management during transfer.
2. Handling and transport of patient at site.
3. Define shock, list the causes of shock, and identify first aid measures in shock.
4. Identify first aid measures in cases of poisoning (insecticides, rodenticides, drugs and alcohol)
5. Conceptualize ABC (Airway, Breathing and Circulation) and describe the procedure of cardio-pulmonary resuscitation.
6. First aid measures for foreign body in ear, nose, throat and eye and
7. Define musculoskeletal injuries (Sprain and Strain) and its first aid.
8. Define hemorrhage and its measures to provide first aid to arrest external bleeding.
9. Classify burns, calculate its percentage and state the first aid measures to thermal and chemical burns.
10. Define frostbite and its first aid
11. Define heat stroke and its first aid.
12. First aid measures in case of acute mountain sickness.
13. Define fracture and dislocation and its first aid measures.
14. List the dangers of rabid animal bite and its first aid measures.
15. First aid measures to be taken in case of snakebite and insect bite.

## PRACTICAL

### Unit 1: Community Rehabilitation

60hrs

1. Visit nearby community and Enlist potential cases to be rehabilitated in the community.
2. Identify the types of disability in the community.
3. Develop tools and materials to educate and counsel the patients and his/her environment.
4. Simulate the implementation of plan developed.
5. Make/modify assistive devices (splint, cane, crutches, pulley) using local resources.
6. Simulate to apply referral procedures.
7. Develop community based rehabilitation awareness program for school children.
8. Prepare, present and submit the community visit report.

### Unit 2: First Aid

18hrs

1. Measure temperature, pulse, respiration and blood pressure.
2. Apply dressing, bandages and splint.
3. Perform cardio-pulmonary resuscitation.
4. Perform emergency transfer techniques (for burns, musculoskeletal injuries, spinal cord injuries, shock, snake bite and cut injuries).

### References:

- Park, *Textbook of preventive and social medicine* (23<sup>rd</sup> edition, M/s Banarsidasbhanot publishers).
- Sunder and Sunder, *Text book of Rehabilitation* (3<sup>rd</sup> edition, Jaypee brother's medical publishers).
- B. Goldbery, MD; John D. HSV, MD, *Atlas of Orthosis and assistive devices*(5<sup>th</sup> edition, Elsevier publisher)
- St. John, *First aid manual –ambulance* (10th edition).
  - N. N. Yalayyaswamy, *First Aid and Emergency Nursing* (International Edition, Published by CBS Publishers & Distributors CBS).
  - *Rehabilitation Therapy Hand Book Volume I* (Second edition, Bangalore: MOBILITY INDIA-Rehabilitation Research and Training Center, 2014).

# Third Year

## Offered Subjects

1. Physiotherapy in Medicine and Surgery.
2. Physiotherapy in Orthopedics.
3. Physiotherapy in Neurology.
4. Rehabilitation Medicine
5. Health Care Management
6. Clinical Practices (In hospital and clinical settings)

# Physiotherapy in Medicine and Surgery

**Total: 6 hrs/w**  
**Theory: 3 hrs/w**  
**Practical: 3 hrs/w**

## Course Description:

The course is comprised of two parts. The first part intends to provide knowledge and skill on the specific conditions and physiotherapy management of general medical and surgical condition. Similarly the second part is designed to provide knowledge and skills on specific conditions and physiotherapy management of cardiopulmonary condition. This course also provides knowledge and skills on specific conditions in Obstetrics & gynecology and pediatric.

## Course Objectives:

After the completion of the course, the student will be able to:

1. Understand various medical and surgical conditions
2. Perform various therapeutic interventions in relation to various medical and surgical conditions
3. Perform various therapeutic interventions in relation to various obstetric and gynecological conditions like pregnancy, uterus prolapse and urinary incontinence
4. To identify different equipment's used in ICU
5. Enlist the various drug used in cardiopulmonary condition
6. Perform different techniques used in chest physiotherapy

## Course Contents:

### THEORY

#### Part– I: Cardiopulmonary Condition

1. Thoracic Surgeries: **6hrs**
  - Definition and types of thoracic surgeries
  - Definition Indication and physiotherapy management after Pneumonectomy and Lobectomy.
2. Coronary artery bypass surgery: Introduction, Indication, Preoperative and postoperative role of physiotherapy. **8hrs**
3. Define Peripheral Vascular Disease and its types. Definition, causes, clinical features and physiotherapy management of atherosclerosis, DVT and Varicose veins. **8hrs**
4. Investigation and Tests. **4hrs**
  - Interpretation of chest Radiographs.
  - Definition and Indication of
    - a) Exercise Tolerance Test
    - b) Pulmonary Function Test
    - c) Arterial Blood Gas Analysis
    - d) ECG
5. Incentive Spirometer: Definition, Indication and contraindication **2hrs**
6. Physiotherapy techniques to clear secretions: Definition, indication, contraindication and technique of application of **8hrs**
  - Humidification
  - Nebulization
  - Breathing Exercises (Types and techniques)

- Percussion, Vibration, shaking
  - Coughing and Huffing
  - Postural Drainage
7. Physiotherapy Techniques to increase lung volume: Definition, indication and application of **4hrs**
- Breathing Exercise
  - Incentive Spirometer
  - Positioning
8. Definition, associated clinical features and physiotherapy management of **11hrs**
- Obstructive lung disease
  - Restrictive lung disease
9. Enlist the common drugs used in cardiopulmonary condition. **2hrs**
- Drugs to prevent and treat inflammation
  - Drug to treat Bronchospasm
  - Drugs to treat Breathlessness
  - Drugs to help sputum clearance
  - Drugs to inhibit coughing
  - Drugs in inhalers and Nebulizers.
10. Introduction to ICU. Definition of mechanical ventilation. List the equipment's, airways and tubes used in ICU. Mention the role of physiotherapy in ICU. **4hrs**
11. Enlist Congenital Deformity of Chest- Introduction to pediatric chest physiotherapy. **4hrs**

## **Part– II: Medical & Surgical conditions**

1. Define Inflammation, classification of different stages of inflammation, physiotherapy management of inflammation. **4hrs**
2. Define wound. Enlist the stages of wound healing. Physiotherapy management of wound. **4hrs**
3. Define Leprosy. Enlist the complication of leprosy. Physiotherapy management of leprosy. **6hrs**
4. Define mastectomy. Enlist the types of mastectomy. Enlist the complication of postmastectomy. Physiotherapy management of post mastectomy. **4hrs**
5. Mention different types of abdominal surgery. Physiotherapy management after abdominal surgery. **6hrs**
6. Define, gangrene and its physiotherapy management. **4hrs**
7. Atrophy **4hrs**
  - Definition
  - Cause
  - Clinical Features
  - Measures to prevent atrophy
8. Define pressure sore. Enlist the stages and its clinical features. Medical, Surgical and physiotherapy management of pressure sores. **6hrs**
9. Define Edema. Explain its types and physiotherapy management. **4hrs**
10. Exercise During Pre-natal and Post-natal periods **8hrs**
  - Definition
  - Indication
  - Contraindication
  - Precaution
  - Exercises

11. Urinary Incontinence- Types, Causes and Physiotherapy Management.	<b>2hrs</b>
12. Uterine Prolapse- Definition, Stages and Physiotherapy Management.	<b>2hrs</b>
13. Plastic Surgery-Introduction and Role of Physiotherapy	<b>2hrs</b>

## **PRACTICAL**

### **Unit 1: Cardiopulmonary unit**

Perform:

➤ Breathing exercises	<b>10hrs</b>
➤ Percussion, Vibration, Shaking	<b>6hrs</b>
➤ Postural Drainage	<b>8hrs</b>
➤ Nebulization	<b>6hrs</b>
➤ General Assessment (Observation, Inspection, Auscultation)	<b>8hrs</b>
➤ Observation of chest Radiographs	<b>6hrs</b>
➤ Patient care in Thoracotomy	<b>6hrs</b>
➤ Identification of Equipment's in ICU	<b>6hrs</b>
➤ Incentive spirometer	<b>5hrs</b>
➤ Coughing and Huffing	<b>6hrs</b>
➤ Dyspnea Relieving Positions	<b>6hrs</b>

### **Unit 2: General –Abdominal and lower limb**

Perform:

➤ Pelvic floor exercises	<b>10hrs</b>
➤ Handling technique after Abdominal surgery	<b>4hrs</b>
➤ Antenatal and post-natal exercises	<b>10hrs</b>
➤ Edema management	<b>6hrs</b>
➤ Pressure sore management Technique	<b>4hrs</b>
➤ Core Muscle Strengthening	<b>6hrs</b>
➤ Identify and Handle Equipment's used in Cardiac Rehabilitation	<b>4hrs</b>

### **References:**

- Stuart B. Porter, *Tidy's Physiotherapy* (15<sup>th</sup> edition, Elsevier; 2013).
- Joan E. Cash, *Textbook of General Medical and Surgical Conditions for Physiotherapists* (Mosby International; 1990).
- Joan E. Cash, *Cash's Textbook of Chest, Heart and Vascular Disorders for Physiotherapists*
- PK Mitra, *Hand Book of Practical Chest Physiotherapy* (1<sup>st</sup> edition, Jaypee).
- Madhuri GB. *Textbook of Physiotherapy for Cardio-respiratory Cardiac Surgery and Thoracic Surgery Conditions* (Jaypee Publications)
- Susan B. O'Sullivan, *Physical Rehabilitation*(5<sup>th</sup> edition, F.A. Davis Company; 2006)
- Donna Frownfelter, *Cardiovascular and Pulmonary Physical Therapy: Evidence to Practice* (5<sup>th</sup> edition, Mosby publication; 2012).
- Margaret Polden and Jill Mantle, *Physiotherapy in Obstetrics and Gynecology* (Butterworth-Heinemann Ltd; 1990).

# Physiotherapy in Orthopedics

**Total: 5 hrs/w**  
**Theory: 3 hrs/w**  
**Practical: 2 hrs/w**

## Course Description:

The course intends to provide knowledge and skill to carry out common traumatic and orthopedic conditions which cause disability.

## Course Objectives:

After the completion of this course the student will be able to:

- a. Describe the etiology, signs & symptoms, complications & prognosis of the musculoskeletal conditions.
- b. Describe the physiotherapy and orthopedics management of these conditions.
- c. Demonstrate effective clinical treatment skills emphasizing for musculoskeletal conditions.

## Course Contents:

### THEORY

#### Unit 1: Traumatology

**5hrs**

- a) Review of fracture
- b) Define fracture
- c) Enlist types of fracture
- d) Review common complications (non-union, delayed union, mal-union, cross-union, volkmann ischemic contracture, myositis ossificans)

#### Unit 2: Management of fracture

**24hrs**

- a) Review Sign and Symptoms, Medical, Surgical Management of fracture
- b) Explain physiotherapy management of fracture

##### Upper Limb

- Clavicle fracture
- Humerus fracture (Head, Shaft & Supracondylar)
- Ulna fracture (Olecranon process and shaft )
- Radius fracture (Head, Colle's fracture)
- Scaphoid and Boxer fracture

##### Lower Limb

- Femur fracture (Neck, Intertrochanteric, Shaft)
- Patella fracture
- Tibia fracture (Condylar and shaft)
- Malleolus fracture
- Calcaneus fracture

##### Spine

- Wedge Compression

#### Unit 3: Dislocation and subluxation

**10hrs**

- a) Review Sign and Symptoms, Medical and Surgical Management.
- b) Explain physiotherapy management of
  - Shoulder
  - Elbow

- Hip
- Patella

**Unit 4: Soft tissue injuries** **2hrs**

- a) Explain clinical features and physiotherapy management of following conditions:
  - Sprain
  - Strain

**Unit 5: Inflammatory Conditions** **12hrs**

- a) Explain clinical features and physiotherapy management of following conditions:
  - Dequervain's disease,
  - Dupuytren's contracture,
  - Plantar fasciitis
  - Lateral and medial epicondylitis (Tennis elbow and Golfer's elbow)

**Unit 6: Amputation** **10hrs**

- a) Review amputation (Definition and Level of amputation)
- b) Describe physiotherapy management for amputation and enlist its common complications

**Unit 7: Arthritis** **12hrs**

- a) Review Definition, causes, clinical features.
- b) Explain Physiotherapy management of the following conditions:
  - Osteoarthritis (OA)
  - Rheumatoid Arthritis (RA)
  - Ankylosing Spondylitis (AS)

**Unit 8: Deformities** **12hrs**

- a) Definition, causes, clinical features and Physiotherapy management of following conditions:
  - Torticollis
  - Congenital Talipes Equino Varus (CTEV)
  - Genu- Valgum, Varum and Recurvatum
  - Pesplanus and Pes cavus

**Unit 9: Regional conditions of spine** **10hrs**

- a) Review Definition, causes and clinical features
- b) Explain physiotherapy management of following conditions:
  - Cervical Spondylosis
  - Low Back Pain (Lumbar Spondylosis, Prolapsed Intervertebral Disc)
- c) Spondylolisthesis

**Unit 10: Nerve Injuries** **10hrs**

- a) Review Definition, causes, clinical features.
- b) Explain physiotherapy management of following conditions:
- c) Brachial plexus injuries
  - Erb's Palsy
- d) Peripheral Nerve injury
  - Wrist Drop
  - Claw Hand



- Ape hand Deformity
- Foot drop

**Unit11: Sports Injury** **2hrs**

- a. Definition
- b. Enlist common sports injury
- c. Role of physiotherapy in sports injury.

**Unit 12: Miscellaneous** **8hrs**

- a) Definition, causes, clinical features and physiotherapy management of following conditions:
  - Carpel tunnel syndrome
  - Osteoporosis
  - Frozen shoulder
  - Congenital Dislocated Hip (CDH)

## PRACTICAL

### Orthopedics

Identify the problems, orthopedic management and apply physiotherapeutic skills for the management of following cases:

**Unit 1: Review Range of Motion, MMT, and Gait.** **3hrs**

- Review of Range of Motion (ROM)
- Review of Manual Muscle Testing (MMT)
- Review type of gait.

**Unit 2: Fractures**

- a) Examine Fractures **2hrs**
  - Identify the types of fractures (Simple and Compound)
  - Categorize fractures (Transverse, Oblique, Spiral, Communitives, Segmental)
- b) Management of Fractures **15hrs**
  - Identify the method of orthopedic management (Conservative, Surgical)
  - Demonstrate physiotherapeutic management skills and tools

**Unit 3: Dislocations** **10hrs**

- a) Identify the method of orthopedic management(Conservative, Surgical)
- b) Demonstrate physiotherapeutic management skills and tools

**Unit 4: Soft tissue injuries** **10hrs**

- a) Perform the exercises and apply electrotherapeutic modalities

**Unit 5: Amputation** **10hrs**

- a) Identify the types and level of amputation
- a) Assess preoperative amputee
- b) Train preoperative and postoperative amputee (Below knee amputee)
- c) Manage the stump(Stump care and bandaging)
- d) Identify appropriate prosthesis

**Unit 6: Degenerative and inflammatory conditions** **12hrs**  
a) Perform the exercises and apply electrotherapeutic modalities

**Unit 7: Deformities** **5hrs**  
a) Identify the deformities  
b) Perform Exercise  
c) Apply necessary Orthosis

**Unit 8: Nerve Injuries** **8hrs**  
a) Identify Erb's palsy, wrist drop, claw hand, ape hand deformity, foot drop  
b) Perform the exercises and apply electrotherapeutic modalities  
c) Apply necessary Orthosis

**Unit 9: Miscellaneous conditions (carpal tunnel syndrome, frozen shoulder Osteoporosis)** **3hrs**  
a) Perform exercise and apply electrotherapeutic modalities

**References:**

- Jayant Joshi and Prakash Kotwal, *Text book of Orthopedics and applied physiotherapy* (3<sup>rd</sup> edition, ELSEVIER Publication)
- Maheshwori and Mhaskar, *Essential Orthopedics* (5<sup>th</sup> edition, Jaypee brothers; 2015)
- Patricia a Downie, *Cash's text book of orthopedics and rheumatology for Physiotherapists* (1<sup>st</sup>edition; Jaypee Publication)
- Stanley Hoppenfield, *Physical Examination of Spine and Extremities, MD* (1<sup>st</sup> edition, Appleton & Lange Publication)

# Physiotherapy in Neurology

**Total: 3 hrs/w**  
**Theory: 2 hrs/w**  
**Practical: 1 hr/w**

## Course Description:

This part is designed to provide knowledge on the functioning of the nervous system. Neurology helps to build up basic foundation for the treatment of more common neurological conditions and supports for the development of effective treatment skills.

## Course Objectives:

After the completion of this course the student will be able to:

- a. Describe the etiology, signs & symptoms and physiotherapeutic interventions of the commonly encountered neurological conditions.
- b. Demonstrate effective clinical treatment skills emphasizing for the movement pattern of various neurological conditions.
- c. Understand normal motor development
- d. Provide effective advice and counseling for the home care

## Course Contents:

### THEORY

#### Unit1: Nervous System

**6hrs**

1. Overview of Central Nervous System and Autonomic Nervous System
2. Cranial nerve- Name and its function
3. Tracts of spinal cord (Spinothalamic and corticospinal) and its function

#### Unit 2: Motor Development

**10hrs**

1. Describe Gross motor development.
2. Primitive reflex patterns- Spinal reflex (Flexor withdrawal, Palmar grip, Sucking); Brainstem reflex (Asymmetrical Tonic Neck Reflex, Symmetrical Tonic Neck Reflex); Midbrain level reflex (Neck righting, Body on body); Cortical level (Equilibrium reactions- prone, kneeling, sitting); Automatic Reactions (Moro's)

#### Unit 3: Neurological Disorders

1. Describe the etiology, signs & symptoms, types and physiotherapy management of the following conditions.
2. Cerebral palsy (CP) **10hrs**
3. Cerebrovascular accident (CVA) **8hrs**
4. Neuro-Infections- meningitis and Poliomyelitis (PPRS) **6hrs**
5. Parkinsonism **8hrs**
6. Spinal cord injury (SCI) **10hrs**
  - Traumatic (Paraplegia, quadriplegia)
  - Non-traumatic (Pott's paraplegia)
7. Spina bifida **4hrs**
8. Peripheral neuropathies **8hrs**
  - Guillain-Barre Syndrome (GBS)
  - Diabetic neuropathy

- |                                       |             |
|---------------------------------------|-------------|
| 9. Head injury                        | <b>4hrs</b> |
| 10. Duchenne Muscular Dystrophy (DMD) | <b>4hrs</b> |

## **PRACTICAL**

- |                                   |             |
|-----------------------------------|-------------|
| <b>Unit 1: Examination</b>        | <b>9hrs</b> |
| 1. Cranial nerve examination      |             |
| 2. Reflexes– Superficial and Deep |             |

- |   |              |
|---|--------------|
| <b>Unit 2: Neurology</b>  | <b>30hrs</b> |
| Assess and perform physiotherapy management for the following conditions: |              |
| ➤ Cerebral palsy  |              |
| ➤ Cerebrovascular accident  |              |
| ➤ Spinal cord injury  |              |
| ➤ Head injuries   |              |
| ➤ Duchenne Muscular Dystrophy   |              |

### **References:**

- Gladys Samuel Raj, *Physiotherapy in Neuro-Conditions* (1<sup>st</sup> edition, Jaypee Brothers Medical Publishers; 2006).
- P. A, Downie, *Cash'S Textbook of Neurology for Physiotherapists* (4<sup>th</sup> edition, Jaypee Brothers Medical Publishers; 1993).
- Susan B. O'Sullivan, *Physical Rehabilitation* (5<sup>th</sup> edition. F. A. Davis Company; 2006).
- Lindsay, *Neurology and Neurosurgery Illustrated* (5<sup>th</sup> edition, Elsevier; 2010).
- Stuart B. Porter, *Tidy's Physiotherapy* (15<sup>th</sup> edition, Elsevier; 2013).
- Darcy Umphred, *Neurological Rehabilitation* (4<sup>th</sup> edition, Mosby Publishers; 2001).
- *Rehabilitation Therapy Hand Book Volume I* (2<sup>nd</sup> edition, Bangalore: MOBILITY INDIA-Rehabilitation Research and Training Center; 2014).
- *Rehabilitation Therapy Hand Book Volume II* (2<sup>nd</sup> edition, Bangalore: MOBILITY INDIA-Rehabilitation Research and Training Center; 2014).

# Rehabilitation Medicine

**Total: 4 hrs/w**  
**Theory: 3 hrs/w**  
**Practical: 1 hr /w**

## Course Description:

This course is designed to equip the students with knowledge and skills deals with locomotors handicap as well as holistic rehabilitation medicines. Rehabilitation medicine is a fast emerging specialty today and there is a need to increase awareness about it.

## Course Objectives:

After the completion of this course the student will be able to:

1. Understand the concept of rehabilitation medicine
2. Familiar with wheel chair, its parts and its accessibility.
3. Describe application of transfer techniques
4. Understand the management of behavior disorder
5. Conduct vocational and psychological training for persons with disability
6. Rehabilitate the burn patients

## Course contents:

### THEORY

- |   |              |
|---|--------------|
| <b>Unit 1: Rehabilitation Medicine.</b>   | <b>12hrs</b> |
| <ol style="list-style-type: none"><li>1. Define rehabilitation medicine</li><li>2. Distinguish impairment, disability and handicap</li><li>3. Enlist the members and describe the function of rehabilitation team</li></ol>   |              |
| <b>Unit 2: Behavioral and learning problems in the disabled</b>   | <b>9hrs</b>  |
| <ol style="list-style-type: none"><li>1. Definition of learning and behavior in context of disability</li><li>2. Enlist learning and behavioral problems</li><li>3. Management of behavior disorder</li></ol>   |              |
| <b>Unit 3: Health communication</b>   | <b>12hrs</b> |
| <ol style="list-style-type: none"><li>1. Define communication</li><li>2. Describe Barriers of communication</li><li>3. Describe Communicating effectively with people who have a disability</li><li>4. Explain the role of communication in rehabilitation</li></ol>  |              |
| <b>Unit 4: Activity of Daily Living (ADL)</b>   | <b>10hrs</b> |
| <ol style="list-style-type: none"><li>1. Definition and explain the classification of ADL.</li><li>2. Describe ADL training in cerebral palsy</li></ol>   |              |
| <b>Unit 5: Models in health and disability</b>  | <b>9hrs</b>  |
| <ol style="list-style-type: none"><li>1. Define the different models of health and disability with suitable examples<ul style="list-style-type: none"><li>➤ Charity model</li><li>➤ Medical model</li><li>➤ Bio psychological model</li><li>➤ Social model</li><li>➤ International Classification of Functioning, Disability and Health (ICF)</li></ul></li></ol> |              |

**Unit 6: Transfer Techniques** **9hrs**  
1. Define transfer techniques  
2. Describe importance of transfer techniques  
3. State principle of transfer techniques

**Unit 7: Orthosis and Prosthesis** **9hrs**  
1. Define and classify Orthosis and prosthesis  
2. State general principles of Orthosis and prosthesis  
3. List functions and uses of Orthosis and prosthesis

**Unit 8: Wheelchair** **9hrs**  
1. Define and types of wheelchair and its uses  
2. Explain the parts of wheelchair with diagram  
3. Describe the maintenance and care of wheelchair  
4. Describe the training methods to use wheelchair

**Unit 9: Architectural Barriers** **15hrs**  
1. Define architectural barriers  
2. Classify types of architectural barriers  
3. Describe architectural design features and their accessibility  
4. Explain wheel chair assistive houses in community  
5. Explain special rooms relating to various disabilities

**Unit 10: Rehabilitation of Burn** **6hrs**  
1. Define and classify burns and describe its complication  
2. Describe rehabilitation of the burn

**Unit 11: Vocational Rehabilitation** **12hrs**  
1. Define vocational rehabilitation  
2. Describe the importance of vocational rehabilitation  
3. Explain the role of vocational rehabilitation team  
4. Explain the training for various disabilities according to their functional capacity

**Unit 12: Counseling** **5hrs**  
1. Define counseling  
2. Describe the importance of counseling  
3. Explain the methods of counseling

## **PRACTICAL**

**Unit 1: Devices** **20hrs**  
1. Identify and Apply Orthosis and prosthesis  
2. Perform gait training for the individual using different Orthosis and prosthesis  
3. Perform training methods to use the wheelchair.

**Unit 2: Exercise** **19hrs**  
1. Perform transfer techniques  
2. Handle and positioning of burns patient  
3. Apply different splints in burns  
4. Perform ADL activities in wheelchair

**References:**

- Sunder and Sunder, *Text book of rehabilitation* (3<sup>rd</sup> edition, Jaypee brothers medical publishers).
- Susan B. O'Sullivan. Thomas J. Schmitz. George D. Fulk, *Physical Rehabilitation* (6<sup>th</sup> edition, publishers, Jaypee brothers).
- Park, *Textbook of preventive and social medicine* (23<sup>rd</sup> edition, M/s Banarsidasbhanot publishers).
- B. Goldbery, MD; John D. HSv, MD, *Atlas of Orthosis and assistive devices*, (5<sup>th</sup> edition, Elsevier publisher).

# Health Care Management

**Total: 2 hrs/w**  
**Theory: 2 hrs/w**  
**Practical: 0 hrs/w**

## Course Description:

This course is designed to provide knowledge on health care management, public health, and epidemiology. This course focuses on health care management, public & environmental health, leadership skills, personnel management, wastes management and health care delivery system. This course also provides knowledge on professional ethics (national/international).

## Course Objectives:

After the completion of this course the student will be able to:

1. State health care management principles and their application to the practice of physiotherapy
2. Understand the application of public health and environmental health
3. Understand the application of Nutrition science.
4. Familiarize with hospital waste management
5. Understand the basic concept of ethics, research and biostatistics.
6. Understand the role of physiotherapy in disaster management.

## Course Contents:

### THEORY

#### Unit 1: Health Care Management

22hrs

1. Define management and health care management.
2. State organizational management principle And its functions
3. Define planning and health planning. Explain its steps/process
4. Define staffing and its importance in health care
5. Define directing and its components (leadership, Motivation, communication).
6. Define controlling and coordination. Explain its relevance with stakeholders.
7. Define supervision, monitoring, evaluations and its types.
8. Definition, methods and importance of record keeping.
9. Explain the concept of entrepreneurship development.
10. Organogram of Health System and Health care Institution in context to Nepal.
11. Define Health Insurance. Describe present scenario of health insurance in Nepal.
12. Describe job descriptions, roles and responsibilities of Physiotherapy Assistant

#### Unit 2: Public Health and Epidemiology

6hrs

1. Define public health. Explain the Scope of public health.
2. Define epidemiology, importance, and its application in medical science.
3. Define different terminologies used in epidemiology and epidemiological triad.
4. Define Epidemiological measurements tools with examples.
5. Explain the disease transmission process.

#### Unit 3: Environmental Health

18hrs

1. Define Environmental health.
2. Define air and water pollution. Mention its impact on public health.
3. Enlist air and water borne diseases.
4. State methods of purification of water in small scale and large scale.



5. Describe the hospital born infections (Nosocomial and iatrogenic infections)
6. Define Housing and the basic principles of housing (site selection, material used, space, light, ventilation, waste disposal management, etc.)
7. Define Disaster and causes. Explain Disaster management and role of physiotherapy.

#### **Unit 4: Nutrition and Health**

**16hrs**

1. Define Nutrition and nutrients. Classify the food. RDA of macro nutrients (Lactating, Pregnancy, Children and adolescents).
2. Define food additives, food adulteration and food fortification. With examples.
3. Describe different types of food poisoning (bacterial, chemical and plants).
4. Describe the sources of food contamination (human factor, environmental factors)
5. Enlist the methods of food preservation (pickling, smoking, carrying, cooking, drying, adding chemicals)
6. Define food borne infections and food poisoning with examples.
7. Define breast feeding with advantages over bottle feeding.

#### **Unit 5: Waste Management**

**6hrs**

1. Define waste, health care waste and its classification.
2. Explain hospital waste management process in Nepal.
3. Describe the health hazards from hospital waste.
4. Explain Nepal's Anti-litter Campaign.

#### **Unit 6: Professional Ethics**

**4hrs**

1. Define Ethics and its principle.
2. Enlist code of conduct of physiotherapy according to Nepal Health Professional Council (NHPC).
3. Describe importance of continuing medical education and lifelong learning.

#### **Unit 7: Basic Research Concept and Biostatistics**

**6hrs**

1. Define Biostatistics. Explain its application in health sectors.
2. Explain basic concept and application of mean, median, mode, range, quartile deviation and standard deviation.
3. Define research, types, methods and application of research in health sectors.
4. Explain Data collection Tools and Data Presentation Techniques.

#### **References:**

- On Being In Charge, A guide to Management in Primary Health Care - Macmohan, R. et al. WHO. Current edition.
- The Quest for Health- Dixit, H. Educational Enterprise, (P) Ltd., Kathmandu. 1999.
- Health Management- Pradhananga, Y. Council for Technical Education and Vocational Training, Bhaktapur, Nepal. 2055B.S.
- Leadership and Management for Nurses- Kamala, T. & Bishnu, R. Health Learning Materials Centre, Tribuvan University, Kathmandu. 1990.
- Basic Principles of Management- Shrestha, B.M. Akshyulak Publication, Nepal. 2039B.S.
- Modern Management Methods and the Organization of Health Services, Public Health Papers #55.WHO. 1974.
- Inventory Control and Basic Logistics Procedure Manual on Store Management for PHC/HP and SHP Personnel. HMG/JSI. 2054B.S.
- Textbook of Preventive and Social Medicine- Park, K. Bhandrasidas Bhanot, Jabalpur, India. 2000.

- Health Logistics Procedure Manual- NHTC/LMD/USAID JSI, Nepal 2057.
- Health Statistics and EPI Cold Chain Management Procedure Manual. - NHTC/LMD/USAID JSI, Nepal 2057.
- A Handbook of Hygiene and Public Health - Y.P. Bedi.
- Jorcan's Tropical Hygiene and Sanitation- W. Wilinteet.al.
- W.H.O. Excreta disposal
- Environmental Health and Sanitation- Shatrughna Ojha.
- Annual Report of Department of Health Services, Ministry of Health
- WHO Publications (related issues)-WHO, Geneva
- Laboratory Bio-safety Manual- WHO Publication, Geneva
- Park, Text Book of Preventive and Social Medicine, New Edition 23<sup>rd</sup>

# **Clinical Practices**

**(In Hospital and Clinical Settings)**

**Total: 20 hrs/w**  
**Theory: 0 hrs/w**  
**Practical: 20 hrs/w**

## **Course Description:**

This comprehensive clinical practice program is designed to help students apply the comprehensive learned knowledge and skills on actual situation. This course consists of clinical practice in hospitals and/or other suitable settings. The students will be supervised primarily by an instructor/lecturer. It is the instructor/lecturer's responsibility to organize the clinical experience for each individual student, to provide theoretical and practical support in their specialty.

## **Course Objectives:**

1. Relate to and adapt to varying work situations
2. Demonstrate confidence in dealing with clinical problems
3. Assess patients
4. Plan patient treatments
5. Demonstrate effective patient treatments using the practical skills.
6. Demonstrate the analytical skills to evaluate the effect of treatment methods.
7. Progress or modify treatments in response to evaluation, and to discharge patients when appropriate.
8. Demonstrate the ability to keep accurate comprehensive patient record.
9. Communicate effectively with multidisciplinary team, patients and their families
10. Give effective health care advice and prevention

**Duration: 780 hrs**

## **Course contents:**

Placements in hospitals and/or other suitable facilities, comprising a total of 780 hrs of clinical practice including

- Clinical assessment
- Therapeutic exercises
- Electrotherapy
- Orthopedics conditions
- Neurological conditions
- Cardiopulmonary conditions
- Pediatric conditions
- Gynecological conditions

### Placement schedule

The whole class of students will be divided into groups and placed for the following sections.

S. N.	Subject Area/Sections	Duration (in hrs)	No. of Cases to be performed
1.	Physiotherapy in Orthopedics	230	100
2.	Physiotherapy in Neurology	200	40
3.	Physiotherapy in Cardiopulmonary	150	30
4.	Community Based Rehabilitation	120	20
5.	Physiotherapy in Women's Health	40	5
6.	Physiotherapy in Pediatrics	40	5
	<b>Total</b>	<b>780</b>	<b>200</b>

Students should be present in the departments at least 90% of the allotted days to be eligible to sit in the final examination. Students will have to perform all physiotherapy treatment under the supervision of departmental staffs.

Students should keep their practical record (logbook) signed periodically by their supervisor/instructor at the end of the posting in each subject.

### Evaluation Scheme

At the end of the term the teacher or supervisor closely evaluates their performance for accuracy and precision according to the evaluation sheet proposed. At the end of the course there will be a final practical and examination which will be administered by CTEVT.

### Distribution of marks for evaluation

Section	Evaluator/Paper	Distribution of marks			Total Marks
		Internal	Final	Time	
1	Related Physiotherapy hospital/clinical supervisor/teacher (continuous evaluation)	200			200
2	Related institution supervisor/teacher (continuous evaluation)	100			100
3	CTEVT appointed examiner (at the end of the field practice)		200	4 hrs	200
	<b>Total:</b>	<b>300</b>	<b>200</b>		<b>500</b>

**Important note:** Each student must pass in each of the section of the evaluation as presented above with a minimum of 50% marks.

## **Experts Involved in Curriculum Revision**

1. Dr. Dildip Khanal, Physiotherapist, National Trauma Center, Kathmandu
2. Rishikesh Sah, HoD, Chitwan Medical College, Chitwan
3. Subarna Shrestha, Physiotherapy Instructor, School of Health Science, Bharatpur
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15. Raman Kumar Mehata, Principle, School of Health Science, Bharatpur