



सत्यमेव जयते



भारतीय पुनर्वास परिषद्

# DIPLOMA IN REHABILITATION THERAPY

**D.R.T.**

**May, 2023**

**(w.e.f. 2023-24)**

**REHABILITATION COUNCIL OF INDIA**

***(Statutory Body of the Ministry of Social Justice & Empowerment)***

**Department of Empowerment of Persons with Disabilities (Divyangjan)**

**Government of India**

**B-22, Qutab Institutional Area**

**New Delhi – 110 016**

**[www.rehabcouncil.nic.in](http://www.rehabcouncil.nic.in)**

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## **1.0 Preamble**

As per the census 2011, an estimation of 69% of disabled population lives in rural areas. The growing number of elderly population from 5.6% in 1961 to 10.1% in 2011 is also a factor to the existing figure. In addition to existing requirement of Rehabilitation Therapist for Divyangjan and Elderly in rural areas or urban slums, recent covid-19 pandemic, growing number of chronic conditions including aging population, diabetics, post stroke paralysis, parkinson's disease and obesity accelerated the need of therapeutic rehabilitation service provider in India. Dramatic change of technological advancement, social network connective, awareness on importance of exercise and yoga are also other reasons for growing demand of rehabilitation therapy technician in the unreached and remote rural areas where no access to qualified therapist.

The need of psychological therapy, behavioural therapy, cognitive therapy to overcome common factor like social stigma, discrimination, anxiety, depression, mental health and other psychological issues has been well documented and discussed. It has also been noticed that the changing life style in rural areas where people prefer more sitting and comfort jobs than occupation demand strenuous physical exercise like agricultural field suffer arthritis, musculoskeletal disorders and necessity the intervention of Rehabilitation Therapy Technician.

The overall objective to prepare a suitable manpower in the field of rehabilitation, who can provide the rehabilitation therapy at the district level. In addition, it can also take care of the training programmes of community worker at the grass-root level. Since the student has to be imparted knowledge about the various common disabilities viz Locomotor, Speech, Hearing Visual, Intellectual disability, Chronic neurological condition, blood disorders Learning and Multiple disabilities, it may be necessary at the operational level to involve a number of institutes dealing with the respective disability groups, especially, in terms of practical training and internship.

## **2.0 Nomenclature of the Programme: DIPLOMA IN REHABILITATION THERAPY i.e. D.R.T.**

### **Objectives**

1. To impart knowledge and skills of rehabilitation therapy so that student can assist in rehabilitation therapy to the persons with various common disabilities.
2. To assist in service delivery at the middle level (district level and act as first level training & referral rehabilitated professional for the grass root/ primary rehabilitation cart.
3. To promote understanding of situation and needs of people with disabilities in rural as well as urban and slum are and for persons with disabilities marginalized by poverty.
4. To develop an understanding to prevent disabilities involvement of the families, community, the PWD and the existing health infrastructure.
5. To understand and develop skills for assisting rehabilitation therapy viz. by conservative method, exercises, yoga and physical principles use of functional aids, principles and practice on speech training and sign language, training in use of ambulatory aids and other appliances, mobility training and Braille system, psycho educational assessment and independence living, CBR concepts and approach and working with the parents, families and communities.
6. To develop necessary skills for training of volunteers in rehabilitation therapy especially in the context of CBR.

### **3.0 Scope of the Programme**

- i) The pass out trainee likely to get placement in rural health support and referral system, old age home, Early Intervention, DDRC, CRC, Skill centers, DDRS Schemes, NGO and able to assist in providing relevant aspects of exercise therapy, posture management, transfer and therapy required for activities of daily living.
- ii) The beneficiary of this course will play a major role in Rural camp and Rehabilitation systems - IBR & CBR concepts & approaches information gathering, surveys, basic record keeping, report writing, devising individual plans & evaluating progress under supervision of rehabilitation professional, supporting, training & supervising community level workers, Referrals & coordination with other agencies. Monitoring & evaluation-reviews & discharges.
- iii) To get empowered with skills in working with parents of disabled families & community, use of learning/ training materials, CBR manuals, basic counselling & interpersonal skills, develop problems solving skills, developing & promoting human values, working with other sectoral agencies.
- iv) To get empowered with soft skill, smart knowledge for self-help and latest technology in low-cost Rehabilitation Therapy

### **4.0 General Framework of the Course**

#### **5.0 Duration of the programme:**

Duration of the programme will be of 2 years. Each year will have 1200 hours leading to 40 credits for each year (30 hours = 1 credit). The weightage to the programme will be 60% practical and 40% theory

- i. The first year will comprise of 720 hours of practical and 480 hours of theory
- ii. The second year will also have 1200 hours which will include 720 hours of practical and 480 hours of theory. The theory hours will also include 60 hours of Employability skills (Soft Skills). The resources for the same are freely downloadable at [www.employabilityskills.net](http://www.employabilityskills.net) This will enable and empower the trainees with readiness for applying, working as professionals in supporting diverse students across different setups. The module will also have a weightage of 60:40 of practical and theory with formative assessment at internal and the final exam.

#### **6.0 Eligibility:**

Any candidate passed in the Higher Secondary Examination (10+2) (PCB) with a minimum of 50% marks from a recognized board or Equivalent will be eligible.

#### **7.0 Medium of Instruction:**

The medium of instruction will be English / Hindi / Regional language

#### **8.0 Methodology:**

The training programme will utilize a participatory approach to learning which will provide students with opportunities to develop the knowledge, attitudes, and skills necessary to carry out their role as Rehabilitation Therapy Assistants on completion of the course.

Special attention is placed on the development of the positive attitudes towards Persons with Disabilities (PWDs) and their eventual performance in their own work environment.

Among the teaching-learning strategies (methods) which will be utilized are:

- Field and Workshop experience

- Practical
- Case studies
- Demonstrations
- Participative class session (lecture)
- Self study
- Questions and answers
- Role play and Simulations
- Trainee presentations
- Projects and group work

The emphasis both throughout the training and during the assessment of the students' learning outcomes is on the basic principle of problem solving. The integrative studies module has been added to the syllabus to provide a specific forum where problem solving can be applied. As a strategy, problem solving presents complex issues to students and prepares them to apply their knowledge and experience to situations, which will arise in their work. The utilisation of this approach facilitates learning and enhances the skills of the student.

## 9.0 Staff Requirement

### a) Human Resource Requirement

Senior faculty in the discipline of Rehabilitation Therapy / Speech & Hearing / Intellectual Disability shall be considered as course coordinator/ HOD. The coordinator /HOD should be the controlling and informant authority for the correspondence related to the DRT program.

1.	Assistant Professor / Lecturer	3 (one) for Locomotor disability One for HI One for VI disability	Full Time	RCI Registered Rehabilitation Professional having Bachelor & above qualification in Rehabilitation Therapy / Audiology & speech Langauge Pathology / Prosthetics & Orthotics / VI
2.	Demonstrator	Minimum 2 covering all disability	Full Time	For practical teaching in each disability
3.	Visiting faculty	(as per requirement)	Part time	For teaching need base Medical science & other Topics

b) **Teacher Student Ratio: 1:10**

c) **Professional Qualifications of Faculty in Core Areas:** RCI Registered Rehabilitation Professional having Bachelor & above qualification in Rehabilitation Therapy / Audiology & Speech Language Pathology / Prosthetics & Orthotics / Visual Impairment

**10.0 Intake capacity:** The intake for the course will be 30 maximum.

**11.0 Minimum attendance/ Working days:** A candidate is required to put in minimum 80% of attendance in both theory & practical separately in each year, before being allowed to appear in the examination.

**12.0 Examination pattern:** The programme shall follow the NBER Scheme of Examination and norms from time to time. Annual Program with Continuous Assessment and Term End examination will be followed.

**Criteria of Passing:** As per NBER norms,.

**Award of Degree:** Diploma Rehabilitation Therapy as awarded by NBER.

### **13.0 Infrastructure requirements for starting the Course**

**School / Clinical Infrastructure (as applicable)**

**Audio – Visual resources**

- Whiteboard / flip chart, overhead projector, charts, models, skeleton, Computers, LCD projector and Video cassettes, photos, slides, CDs etc are available

a) **Physical Space required (Classrooms/labs/therapy rooms/seminar halls etc as and when applicable)**

Sl. No.	Name	Quantity	Minimum size in sq. Ft
1.	Classrooms with Information and Communication Technology (ICT)	2	576
2.	Laboratory room	1	300
3.	Multipurpose hall	1	2000
4.	Therapy rooms	1	500
5.	Principal/coordinator room	1	200
6.	Staff room	1	300

b) **Office Furniture and equipment**—Standard office furniture. Students Class room bench and chairs as per the number of seats, Table chairs for the faculties, library facility

c) **Equipment required (As applicable for the programme)**-- Basic diagnostic & therapeutic equipment's related to disabilities

SL.NO.	Equipment	Quantity	SL.NO.	Equipment	Quantity
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1.	Assessment bed	2	12.	Theraband	1 set
2.	Physio ball	2	13.	Weight cuffs	2
3.	Goniometer, 180°	2	14.	Dumb bell	2
4.	Goniometer, 360°	2	15.	Crepe bandage	2
5.	Measuring tape (Metal)	2	16.	Toilet, shower chair, diaper	1 each
6.	P & O devices (samples-upper, lower, spine)	1 each			
7.	Types of Wheelchair ( 3, 4 wheelchair, pediatric wheelchair)	1 each			
8.	Types of walking aids (Cane, elbow, axillary, walking frame)	1 each			
9.	Types of positional devices (sitting, standing, prone board, corner seat)	1 each			
10.	Types of ADL devices (feeding, dressing, bathing, toileting)	1 each			
11	Reading Glasses (1.5, 2, 2.5, 3)				

#### 14.0 Library Facilities

A library equipped with basic books on various disabilities, basic sciences, social, psychological and vocational rehabilitation should be a pre-requisite. It should have minimum 200 books which are related to the program.

#### 15.0 Registration as Personnel/Professional and Category of Registration:

##### Certification as Registered Personnel

It is mandatory for every rehabilitation professional / personnel to obtain a “Registered Personnel/ Professional Certificate” from the Rehabilitation Council of India to work in the field of disability and special education in India. A Student who has attended the training and completed the requirements for all modules successfully will be qualified as a **Multi-Purpose Rehabilitation Therapist Technician - Personnel** and be eligible to work in the field of Rehabilitation in India as a **Rehabilitation Therapist**. As continuous professional growth is necessary for the renewal of the certificate, the rehabilitation professional / personnel should undergo in-service programme periodically to update their professional knowledge. Each registered professional/personnel will be required to get himself/herself renew his registration periodically. The periodicity will be decided by

the council from time to time. The activities for enrichment training programmes in the form of Continuous Rehabilitation Education (CRE) is decided by the RCI.

## 16.0 Annual Program Structure with breakup of hours and Credits (Theory / Practical)

### First Year

S. No.	Name Of Subject	Hours (Theory)	Hours (Practical)	Total hours	Credit Points	Internal Marks	External Marks	Total Marks
1.	Human Body & Human Development	60	30	90	03	40	60	100
2.	Psychology, Sociology & Counselling	90	30	120	04	40	60	100
3.	Disability & Rehabilitation	60	60	120	04	40	60	100
4.	Introduction to Locomotor Disability (Medical & Surgical Conditions)	90	---	90	03	40	60	100
5.	Biomechanics, Kinesiology and Basic Prosthetics & Orthotics	60	30	90	03	40	60	100
6.	Physical Agents, Exercise Therapy and Electrotherapy, Therapeutic Activities And Functional Training	120	-----	120	04	40	60	100
	<b>Practical</b>							
7.	Introduction to Locomotor Disability (Medical & Surgical Conditions) Practical	---	180	180	06	40	60	100
8	Physical agents, exercise therapy and electrotherapy, therapeutic activities and functional training (practical)	-----	390	390	13	40	60	100
	<b>Total</b>	<b>480</b>	<b>720</b>	<b>1200</b>	<b>40</b>	<b>320</b>	<b>480</b>	<b>800</b>

**NOTE: Practical examination will be conducted in the following disciplines:**

- 1. Introduction To Locomotor Disability (Medical & Surgical Conditions,)**
- 2. Physical Agents, Exercise Therapy and Electrotherapy, Therapeutic Activities And Functional Train**



## Second Year

S. No	Name Of Subject	Hours (Theory)	Hours (Practical)	Total hours	Credit Points	Internal marks	External Marks	Total marks
1.	Audiology & Aural rehabilitation Including ICT	90	----	90	03	40	60	100
2.	Language And Speech	60	30	90	03	40	60	100
3.	Hearing Aids, Assistive Devices And Ear Moulds, TLM Kit	60	60	120	04	40	60	100
4.	Visual Impairment & Rehabilitation	60	90	150	05	40	60	100
4.	Intellectual Disability	60	----	60	02	40	60	100
5.	Multiple Disabilities (Rehabilitation Therapy C.P & Other Neurological Condition)	90	---	90	03	40	60	100
6.	Employability Skill	60	---	60	02	40	60	100
<b>PRACTICALS</b>								
7.	Intellectual Disability	---	210	210	07	40	60	100
8	Multiple Disabilities (Rehabilitation Therapy C.P & Other Neurological Condition)	----	330	330	11	40	60	100
	<b>Total</b>	<b>480</b>	<b>720</b>	<b>1200</b>	<b>40</b>	<b>320</b>	<b>480</b>	<b>800</b>

**NOTE: Practical examination will be conducted in the following disciplines:**

- 1. Intellectual disability.**
- 2. Multiple disabilities (Rehabilitation Therapy C.P & Other Neurological Condition)**

# HUMAN BODY & HUMAN DEVELOPMENT

(THEORY—60, PRACTICAL-30 TOTAL—90 HOURS)

CREDITS- 03

## OBJECTIVES:

- a. To give basic knowledge about structure & function of human body necessary in practice of rehabilitation therapy.
- b. To give basic information on the principles of human growth and development and on psychological processes, their normal and maladaptive aspects.
- c. To demonstrate application of principles of psychology, tools used in the rehabilitative process.
- d. To give information on the sociological concepts, community resources, and benefits available from the governments and Guidance & counselling skills.
- e. To give information on the genesis of disability, its types, causes, prevention & identification and rehabilitation approaches.

## CONTENTS

General introduction to various systems of body & their basic functions.  
Terminology, movements, planes & relationships of body parts.  
Cell, its structure function, types of cells.  
Cell, tissue, organs, & system.  
Gross structure & function of the central nervous system & peripheral nervous system.  
Gross structure & function of musculo-skeletal system.  
Structure & function of muscle tissue  
Classification of joints & their structure  
Osteomyology of upper limb  
Osteomyology of lower limb  
Osteomyology of trunk  
The respiratory system  
The Cardiovascular system  
The Gastro-intestinal system  
The endocrinal glands  
The genito urinary system  
Reproductive & genetic system  
Normal posture  
Gravity and the body  
The neural control of posture, balance & muscle tone  
Motor learning and feedback mechanisms  
Calcium and phosphorus metabolism  
Effect of exercise on heart and lungs  
The anatomy and physiology of the eye.  
The anatomy and physiology of the speech mechanism  
The anatomy & physiology of the hearing system  
Introduction to human development  
Gross motor development  
Principles of development, milestones  
Primitive reflexes, and automatic reactions  
Righting & equilibrium reflexes

Development of mature reflexes & Voluntary control

### **Fine Motor development**

Principles of development, milestones

Types of grasp

Importance of trunk and head control in fine motor development. The development of drawing and writing

### **Developmental milestones of daily living skills**

Bladder & bowel control

Pre-feeding & feeding

Dressing

Bathing

Grooming

Cognitive development

### **Milestones, theories of development**

Perceptual development

Body image, spatial relation-form perception, figure ground perception, motor basis of learning

Importance of intersensory integration, perceptual process.

Generalization

Speech, language & communication

Development & relationship to vegetative functions.

Language mediation for motor development

Social & emotional development

Infancy, childhood & adolescent

### **Development of play in 0-6 years.**

Types of play and its importance

### **Visual development**

Eye movements, tracking, accommodation & convergence, acuity

Development of hearing.

## **PRACTICAL**

1. Demonstration of parts of body and bony landmark on the surface.
2. Identification of cells and basic tissues.
3. Skeletal System, Identification of bones and joint.
4. Demonstration of interior of Thorax with organs in situ.
5. Demonstration of respiratory system and pleurae.
6. Demonstration of heart and great vessels.
7. Demonstration and identification of various organs within the abdomen.
8. Demonstration of spleen, pancreas and parts of urinary system.
9. Male genital system.
10. Female genital system
11. Various reproductive organs.
12. Central nervous system, spinal level and peripheral level nervous system
13. Surface anatomy of important organs.
14. Phenomenon of fatigue in human beings.
15. Determination of mechanical efficiency during different grades of exercise.

16. Study of cardio-respiratory changes during exercise.
17. Blood pressure, pulse rate and effect of exercise.
18. TPR charts.

# PSYCHOLOGY, SOCIOLOGY & COUNSELLING

Total 120 hrs (Theory 90 Hours Practical - 30)

Credits--04

## PSYCHOLOGY

- Nature, definition & scope of psychology
- Sensation, attention, perception & motivation
- Concept & meaning of intelligence, individual differences
- Theories of intelligence, measurement of intelligence & aptitude testing
- Meaning, concept & dimensions of personality
- Theories and assessment of personality
- Frustration & conflict, adjustment mechanisms
- Problem behaviour, its identification & management

## SOCIOLOGY

- Definition, nature & scope of sociology.
- Marit society, society & community, process of socialization,
- Social system
- Social groups: meaning & classification
- The rural & urban community of India and their characteristics, changes and developmental projects
- Social change, social disorganisation
- Social welfare planning in India
- Traditional & modern society
- Developing and promoting human values
- Sociology of disability
- Working with families in the community & family
- Understanding parents & family perspectives
- Assessment of needs and resources of parents & family as a whole
- The problem solving process
- Techniques of working with families (training, counselling etc.)
- Developing communication skills
- Parent training programmes
- Involvement of siblings & peer group

## GUIDANCE & COUNSELLING

- Nature, meaning & scope of guidance & counselling
- Role of home & type school in guidance & counselling
- Techniques of guidance & counselling with reference to disabled
- Vocational guidance for disabled.
- Individual problems and stress management through counselling

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# DISABILITY & REHABILITATION

Total-120 hours (Theory-- 60 hours practical-60 hours)

Credits--04

## PREVENTIVE & COMMUNITY MEDICINE

- Concept of health, health & illness
- Contributing factors influencing health
- Personal & environmental hygiene & health
- Atmospheric pollution, effect on health prevention & control
- Concept of preventive medicine & community health
- Public health organisations & services in India
- Food & nutrition

## DISABILITY & RELATED ISSUES

- Disability, attitudes to disability, misconceptions, beliefs etc.
- Situation, reciprocal attitudes/needs of persons with disability
- Issues related to rural/urban slums
- Socio-economic status of disabled persons: empowerment in Indian & Global contexts
- Participatory development
- The disabled person, family dynamics and the community
- Mainstreaming of the disabled
- Access, services, special schemes, public facilities, concessions etc.
- Legislation and Disability.

## CAUSES & PREVENTION OF IMPAIRMENTS

- Disability: genesis, magnitude, futuristic trends
- Disability types and causes
- Disability limitation & prevention
- Preventable disabilities: strategies & approaches
- Early detection & intervention
- Rehabilitation: Definition, aims, objectives & Philosophy of rehabilitation
- Rehabilitation approaches and systems
- Different models of service delivery
- Community based rehabilitation concepts & approaches
- Information gathering: surveys, record keeping, report writing community resources
- Devising individual programme, plans & evaluating progress
- Referrals, and coordination with other agencies.
- Monitoring needs, reviews, discharges, communication, participative evaluation

## PRACTICAL

1. Preparation of charts & posters related to preventive medicine
2. Information gathering related to benefits & concessions available to disabled and the methods of obtaining them (Prepare check list of same)
3. Preparation of charts & material relating to disability prevention & rehabilitation
4. visits to institutions dealing with different disabilities.

# INTRODUCTION TO LOCOMOTOR DISABILITY

**Total—180 (Theory—90)**

**Credits-- 03**

(GENERAL CONSIDERATION, MEDICAL & SURGICAL CONDITIONS, DISABILITY PROCESS)

## OBJECTIVES

After studying this paper students will be able to :

1. Narrate the magnitude of the problem of persons with locomotor disability/disorders affecting locomotor system.
2. Describe the causative factors for locomotor disability/disorders - Medical conditions
3. Describe the causative factors for locomotor disability/disorders - Surgical conditions.
4. Demonstrate ability to use assessment devices for persons locomotor disability.
5. Describe the possible preventive measures to be undertaken to minimise the incidence of locomotor disabilities.

## COURSE CONTENT

INTRODUCTION, DISABILITY PROCESS & CAUSATIVEFACTORS.

Magnitude of problem of locomotor disability.

Disability genesis congenital and acquired causes.

Disease/disorder, pathology, sign, symptoms, diagnosis, prognosis, morbidity and mortality.

## GENERAL MEDICAL CONDITIONS

Neurology - Elementary description of the following neurological conditions, hemiplegia, paralegia, quadriplegia, polio myelitis, parkinsonism, ataxi, peripheral nerve lesions" Myopathy, epilepsy.

Pediatrics - Normal milestones of development, immunisation, congenital deformities, cerebral palsy, nutritional. deficiencies.

Skin - Leprosy.

Medical conditions - tuberculosis,' pneumonia, asthma, bronchitis, common peripheral vascular disorders, heart disease, hypertension, cancer, aging & degenerative disorders, osteroporosis, connective tissue disorder, rheumatoid arthritis, ankylosing spondylitis etc.

Psychiatric conditions - Anxiety, Mood disturbances on Schizophrenia, obsessive compulsive neurosis. organic psychosis.

## SURGICAL CONDITIONS--- General Surgery/Plastic Surgery

Abdominal surgery - scope of various procedure

Shock, Cardiothoracic surgery, Burns, complications and scope of corrective surgery

Amputation, levels, types & complication Surgery in gynacology

Head Injuries Congenital deformities CTEV, AMC, scoliosis, torticollis

Clinical features of fracture, dislocation and soft tissue injury, General principles of treatment, Spinal injuries, Bone and joint infections, Back pain, neck pain, Peripheral nerve injuries, Degenerative problems of joints

Limb anomalies and spina bifida, Principles of operative treatment, Residual polio – problems & management

## **PREVENTION & ACCESSIBILITY**

General concept, levels, application and effect of prevention \ 57 )

Immunisation schedule

Environmental modification in family neighbourhood and workplace as preventive method.



# BIOMECHANICS & KINESIOLOGY AND BASIC PROSTHETICS & ORTHOTICS

Total-90 hours (Theory—60, practical- 30).

Credits- 03

**COURSE DESCRIPTION;** The understanding of Bio-mechanical principles of Prosthetics and Orthotics will be the foundation of the work of the students. It is essential to have a sound theoretical knowledge of the subject and students are able to demonstrate the rigorous application of these principles to practical P&O situations and in the analysis of those situations.

## OBJECTIVE

Demonstrate and apply principles of tissue mechanics to explain the principles of P&O treatment, (involving various force systems) and the practical problems encountered in prosthetics and orthotics

Use biomechanical terminology to describe position and motion of the human body

Discuss mechanical principles governing human motion Utilise temporal spatial, kinematic and kinetic information to distinguish

between normal and abnormal function of the upper limbs, lower limbs & Spine.

Analyse the forces at a skeletal joint for various static and dynamic activities

Demonstrate the ability to analyse forces and moments applied to the body by prosthetic and orthotic devices.

Apply biomechanical principles to generate optimal solutions to clinical problems in prosthetics and orthotics.

Understand the concepts of differentiation and integration and evaluate derivatives and integrals of a function

## CONTENTS:

1. **Biomechanics & Kinesiology**-- Kinematics and Kinetics: Types of Motion, Location of Motion, Direction of Motion, Magnitude of Motion, Definition of Forces, Force of Gravity Reaction forces, Equilibrium, Objects in Motion, Force of friction, Concurrent force systems, Parallel force systems, Work, Moment arm of force, Force components Equilibrium of levers.
2. Introduction to Human locomotion
3. Grading of muscle power by manual muscle testing, Goniometric measurement of ROM of joint
4. Raw material used for aids & appliances, leather, fabrics, plaster of paris, wood, plastis etc

In the fabrication of prostheses and orthoses

## PRACTICAL—

Demonstration of various prostheses and orthoses, Observation of gait and submission of report

# PHYSICAL AGENTS AND EXERCISE THERAPY

Theory—120 hours.

Credits- 04

## OBJECTIVES

After studying this paper, the students will be able to

1. learn assessment of locomotor disability.
2. learn and understand basic principles related to use of physical agents and exercise therapy in the management of locomotor disability and disorders & disability.
3. Give exercise therapy and use simple procedures in management and rehabilitation of locomotor disorders/disability.
4. Carry out simple electrotherapy and hydrotherapy procedures and assist qualified personnel in carrying out sophisticated procedures.
5. To maintain and take care of rehabilitation equipment's and materials.

## EXERCISE THERAPY

History and introduction of exercise therapy.

Mechanical principles as applied to human body.

Classification and definition of movements active, passive and resisted.

Progressive resisted exercises

Re-education and coordination exercise.

Hydrotherapy

Breathing exercises

Physiological effect of massage and manipulation-techniques

Equipment required to improve joint mobility and muscle power.

Suspension therapy, traction

## HEAT AND COLD THERAPY

Physiological effects of heat and cold

Heat as a physical agent-waxbath, infra-red rays, heating pads. Indications/contraindication.

Cold as a physical agents, techniques Indications/contraindication

## ELECTRO THERAPY

Low frequency currents, Physiological effects on muscle and nerves.

Faradic and galvanic current, indications/contraindication SD curve

TENS, mechanism of pain relief and technique of application

Shortwave diathermy, principles technique of application, indications and contra indications

Ultrasonic therapy - principles, technique of application, indications and contraindications.

## USE OF PHYSICAL AGENTS IN LOCOMOTOR DISORDERS/ DISABILITY

Normal and abnormal posture, causes and exercises for restoring normal posture.

Pathological gait, gait training

Pain management

Exercise therapy and physical agents in various medical and surgical conditions.

### **MAINTENANCE & PREPARATION**

Description and application of various apparatus used in exercise therapy.

Knowledge of electric connection, their checking and repair.

Materials used for making pads, and electrodes.

Preparation of patient and equipments.

Complications and safety measures for the patient during electrotherapy.

## INTRODUCTION TO LOCOMOTOR DISABILITY

Total—180 (Practical —180)

Credits-- 06

### PRACTICALS / DEMONSTRATION

- Survey of a village-detection of persons with disabilities.
- Demonstration of rehabilitating needs of locomotor disability persons.
- Visit to a immunization center.
- Writing health talks and making posters on Locomotor disability problems.
- Observing A.V. programmed and other mass media health education programme.
- Preparation of charts and posters

Definition of Rehabilitation, its aims & objectives.

Disability process-impairment - functional limitation-disability - rehabilitation

Team approach

Practical demonstration of various surgical and medical conditions

Visit to physiotherapy and observation of its working in terms of man, material and machinery.

Observation of various techniques used in using physical agents and exercisestherapy.

Visit to occupational therapy and observation of working.

Observation of various therapeutic activity and functional training methods. .

Visit to prosthetic and orthotics workshop to see its functioning.

To see various aids & appliances and learn about various materials being used to fabricate supportive and substitutive appliances.

To learn measuring ROM of various joints.

To learn manual muscle charting

Normal human locomotion various parameters, demonstration of few cases of gait deviation

# PHYSICAL AGENTS AND EXERCISE THERAPY

Practical—390 hours.

Credits- 13

## PRACTICALS

### Exercise Therapy

Demonstration of active, passive and resisted movements.

Equipment's required to improve joints mobility and muscle power, Breathing exercises

Normal and abnormal postures

Demonstration and description of equipments like parallel bars, dumbles, springs, walkers, static cycle medicine ball, sand bags, weights and pulley, tilt table etc.

Walking aids, demonstration and practice of gait training.

Demonstration of special therapies like suspension therapy, hydrotherapy and relaxation, traction

Transfer activities

Demonstration and practice of massage

Demonstration of exercises for prevention/treatment of contractive and deformities.

Demonstration of exercises on hemiplegic, CP, Polio, quadriplegia, paraplegia ataxia, myopathy, peripheral nerve injury etc.

Demonstration of postural drainage.

Demonstration of exercises in osteoarthritis, peri-arthritis, rheumatoid arthritis, ankylosis, spondylitis', CS, LS, etc.

Field visit for practical training to rural rehabilitation set up, burns and plastic department, leprosy centre, etc.

### Electrotherapy, Heat and Cold Therapy

Identification of components of electric equipment.

Procedures of tidying and cleaning of equipment

Safety and precautions measures of burn, shock, giddiness.

Preparation of patient and equipment for electrotherapy.

Maintenance of machines, wires, pads and electrodes.

Observation of working of electrical equipments and assisting in electro diagnostic and therapeutic procedures.

Procedure of testing sensation of patient before starting heat therapy.

Maintenance/Cleaning and application on patients of hot packs cold packs, contrast bath and wax bath, IRR US therapy, SWD, TENS, Faradic and galvanic amounts.

## SECOND YEAR

### AUDIOLOGY AND AURAL REHABILITATION

(Theory-90 Hours)

Credits- 03

#### OBJECTIVES:

- To equip the trainee in with basic principles of Audiology and Speech and its application therapy.
- To familiarize the trainee with the different Rehabilitation aid and appliances used in audiology and speech.
- To acquaint the trainee with the recent developments in the field of audiology and speech and their application.

#### COURSE CONTENTS

##### Hearing mechanism

Anatomy of the Ear

How we hear.

Hearing loss; nature, causes and classification.

Aural hygiene and steps to prevent hearing impairment. Hearing mechanism

##### Identification and assessment of Hearing

Behavioural responses to sound at various age range.

Informal Hearing tests (screening)

Early identification of hearing impairment.

Importance of early identification in rehabilitation process.

Different types of instruments used for testing hearing sensitivity.

What is an audiogram, how to obtain and interpret an audiogram.

Classification of hearing impairment according to degree of hearing loss.

##### Hearing aids, Assistive devices and Ear moulds.

Hearing aid its parts and different types of hearing aids.

Different types of assistive and amplification devices.

Selecting a suitable hearing aid, its maintenance and care.

Ear moulds its importance and care.

Custom making of ear moulds.

##### Auditory Training

Definition, need and importance of auditory training.

Steps in auditory training.

Factors like age of the child, type of hearing loss, intensity of stimuli.

Recording responses and progress.

Game and activities for auditory training (individual and group training.)

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# LANGUAGE AND SPEECH

Total—90 hours (Theory-60, practical-30 hours).

Credits--03

## 1. Introduction to language

Definition nature and functions of language.  
Definition, nature and scope of communication.  
Modes of communication, (Aural, Oral, Finger Spelling, Sign and Sign Language, CuedSpeech and Total Communication).  
Biological and psychological foundation of language.  
Effects of hearing impairment on language development.  
Critical period and its importance in the language and speech development.

## 2. Introduction of Speech

Definition, different parameters, concept and characteristics of normal speech.  
Structure of speech organs, respiratory, articulatory and phonatory systems.  
Stages of vocabulary, syntax semantics, and phonological development.  
Classification of sounds (Vowels, consonants)  
Place and manner of articulation.  
Speech sound system of (Hindi) regional language.

## 3. Language and Speech Therapy

Definition, concept of abnormal speech.  
Classification of language and speech problems  
Suprasegmental feature.  
Evaluation of speech in terms of Voice, articulation, suprasegmental features.  
Techniques of correcting different voice and speech problems.  
Parent centred activities in developing and maintaining speech.  
Different types of speech training aids.

## 4. Language and Speech Therapy

Evolution of language and Speech using different test material.  
Making plans for language and speech therapy.  
Taking language and speech therapy sessions.  
Preparation of material for language and speech therapy.

## PRACTICAL TRAINING

### Hearing Mechanism

Observation of case history and recording.  
Demonstration by charts, models, computer etc.  
Preparation of charts.

### Identification and Assessment of Hearing

Screening of school children  
Identification of Hearing Impairment in Hospitals, Nursing Homes etc.  
Pure Tone Audiometry, Plotting of audiogram, writing impressions.  
Collecting information on technical specification of audiometers.

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# HEARING AIDS, ASSISTIVE DEVICES AND EAR MOULDS

Total—120 Hours (Theory-60, Practical-60 Hours,)

Credits-04

## CONTENTS

Hearing and trial, Making diagrams of different types of hearing aids and assistive devices. Collecting information on technical specification of different hearing aids and assistive devices. Development of listening skills, Development of games and activities for auditory training. Observation of case history and recording. Demonstration by chart, models, computer etc. Preparation of charts.

### **Language and Speech Therapy**

Evaluation of language and speech using different test material

Making plans for language and speech therapy.

Taking language and speech therapy sessions.

Preparation of material for language and speech therapy

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# VISUAL IMPAIRMENT & REHABILITATION

Total -150 (Theory-60 hours, practical-90 hours)

Credits—05

## OBJECTIVES:

- Develop an understanding of varying disabilities and their implications
- Realize the importance and role of family and community as a catalyst in the education of children with disabilities
- Describe Psycho-Social and educational implications of Blindness and Low Vision
- Acquire and ability to use methods of teaching various school subjects to children with Blindness and Low Vision
- Explain the historical perspectives and paradigm shift in the models of disabilities
- Describe the importance of early identification and intervention of children with disabilities

## CONTENTS

### 1. ANATOMY AND PHYSIOLOGY OF THE EYE

Structure of eye  
Major causes of blindness in India.  
Common eye diseases

### 2. PREVENTION OF BLINDNESS

Need for giving vitamin A to children  
Simple hygiene.  
Simple ways of preventing visual impairment

### 3. EDUCATION OF VISUALLY IMPAIRED CHILDREN

Teaching of braille Braille  
Use Braille Equipment  
Use of Mathematical Equipment  
Use of Magnifiers.

### 4. INTEGRATION

Role of special school  
Role of resource room.  
Other support service.  
Integration in Crafts and Sports.

### 5. ORIENTATION AND MOBILITY

Pre-cane skills  
Use of the Long cane  
The Human guide technique.  
Picking up dropped objects.  
Activities of daily living.  
Sense training.

Mobility of persons with low vision.

**6. REHABILITATION OF THE ELDERLY BLIND**

Independence at home

Recreation

Social interaction and community participation.

**7. HEARING MECHANISM**

Observation of case history and recording.

Demonstration by charts, models, computer etc.

Preparation of charts.

**8. IDENTIFICATION AND ASSESSMENT OF HEARING**

Screening of school children.

Identification of Hearing Impairment in Hospitals, Nursing Homes etc.

Pure Tone Audiometry, Plotting of audiogram, writing impressions.

Collecting information on technical specification of audiometers.

Hearing Aids, Assistive devices and Ear Moulds.

Hearing aid trial.

Making diagrams, of different types of hearing aids and assistive devices.

Collecting information on technical specification of different hearing aids and assistive devices:

**9. AUDITORY TRAINING**

Development of listening skills

Development of games and activities for auditory training.

Observation of case history and recording.

Demonstration by chart, models, computer etc.

Preparation of charts.

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# INTELLECTUAL DISABILITY

Theory—60

Credits--02

**OBJECTIVES:** To impart information and first hand experience on

- i) Nature causes and prevention of mental retardation and associated conditions.
- ii) Special Education principles, techniques and strategies of teaching and training children /persons with Mental Retardation.
- iii) Psycho-educational assessment and programme planning for individual and group of children with Mental Retardation.
- iv) Class room management and organizational issues.
- v) Management of problem behaviour.

## **CONTENTS:**

Mental Retardation - Nature and needs.

Historical perspective.

Concept of mental retardation.

Definition-AAMR, WHO, ICD.

Incidence and prevalence.

Causes and prevention, prenatal, natal and post natal.

Screening and identification of mental retardation.

Classification of mental retardation - medical, psychological and educational.

Associated conditions.

Psycho - social problems of persons with M.R.

Misconceptions and social practices

### **Assessment and Evaluation**

Concept, definition.

Scope and purpose of assessment.

Types of Assessment and Evaluation.

Continuous and periodic assessment.

Formative and summative assessment.

Psychological, educational assessment.

Functional, behavioural, clinical assessment.

Problems and Implication of assessment and Evaluation with reference to teaching training.

Assessment tools with special reference to Indian context.

Interpretation of assessment results and programming

### **Special Education for Children with M.R.**

Historical perspective.

Concept and definition of special education.

Teaching Learning principles, techniques and strategies for infants, pre-primary, secondary and pre-vocational levels of children I persons with mental retardation.

### **Curriculum and Educational Intervention.**

Procedure for developing curriculum.

Principles and purpose of curriculum development.

Types and approaches of curriculum development.

Individualized Educational programme.

Group educational programme.

Home Bound programme.

Management of persons with severe, Profound and multiple disability.

Development of instructional material.

Organization and administration of a special school.

**Problem Behaviour in Persons with Mental Retardation and its management.**

Behaviour Problems - nature and types.

Behavioral assessment - identification, collecting baseline data, functional analysis of problem behaviour, package programme evaluation of change in problem behaviour.

Approaches to behaviour modification - medical, social, psycho - analytical and behavioural.

Behaviour modification - concept and definition.

Behavior modification techniques.

# **MULTIPLE DISABILITY, REHABILITATION THERAPY CEREBRAL PALSY AND OTHER NEUROLOGICAL CONDITIONS**

**Theory- 90 Hours  
03**

**Credits-**

## **OBJECTIVE**

- To understand the magnitude and the problems of persons with multi-disability in India.
- To be able to recognize various categories of multi-disability/neurological conditions
- To be able to identify the need to refer for further diagnosis and prognosis.

## **Content**

- Issues related to the prevalence of multi-disability in urban and rural India magnitude and attitudes
- Issues related to access to information services and technology
- Specific needs of persons with multi-disability in relation to self, family and community
- Types, causes, signs and symptoms of cerebral palsy and other neurological conditions
- Life history of cerebral palsy and other neurological conditions
- Specific developmental problems in cerebral palsy and other neurological conditions
- History taking

## **Guidelines for referral**

- Assessment of persons with disability, family and community
- Assessment of gross motor and fine motor level.
- Identification of functional and practical problems related to independent function in ADLs. Identification of associated behaviour, sensory and health problems of multi disabled.
- Screening and assessment check lists. Identification of contractures and deformities
- Identification of abnormal postures and movement patterns.
- Assessment of mobility potential and mobility needs of persons with disability.
- Assessment of management related problems of family.
- Methods to assess family problems and resources. Methods to identify environmental and social barriers.
- Comprehensive interpretative summary of needs assessments.
- Guidelines for referrals.

## **HOLISTIC APPROACHES TO WORKING WITH PERSONS WITH MULTI DISABILITY**

- Philosophy of management
- Prioritising needs, goal setting and action plans
- Specific intervention strategies - persons with disability
- Early stimulation / play
- Handling and transfer techniques
- Positioning and support - postural aids and postural management

Basic exercises - indication and types  
Mobility aids and training  
Pre and post operative management  
Self - care and independence training  
Orthotic aids and assistive devices - types and use in Cerebral Palsy and other  
Neurological conditions  
Specific intervention strategies - family and community  
Parent education and training  
Family support  
Accessing community support systems  
Selection of intervention techniques for holistic individual programme plan  
Basic record keeping and report writing  
Monitoring and reviewing progress  
Interpretation and application of prescribed specialised programmes  
Guidelines for referral

## MODULE ON EMPLOYABILITY SKILLS

Teaching Hours: 60

Credits: 02

[www.employabilityskills.net](http://www.employabilityskills.net)

# Intellectual Disability

## PRACTICAL

Practical—210)

Credits--07

### Special Education

Observe, Discuss and learn methods, tools and techniques for special education assessment and plan an I.E.P. with minimum three objectives in two children with mental retardation select or make teaching aids appropriate to the objectives.

Implement the Program under supervision for one month (half an hour daily)

Measure the progress and identify short comings.

Plan and implement group lessons (Minimum 10 lessons with different group levels)

Write report and submit for evaluation.

### Behaviour Modification

Observe, discuss and learn techniques of behaviour assessment. .!

Identify two children /persons with mental retardation having behavioural problems.

Working out behaviour management programme and implement the package. Submit the write up on the work done. Visits to M.R Institutions and submit report

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# **MULTIPLE DISABILITY, REHABILITATION THERAPY CEREBRAL PALSY AND OTHER NEUROLOGICAL CONDITIONS**

**Practical- 330 Hours**

**Credits-11**

## **Practical**

- Case Study
- Project
- Referral kits

## Recommended. Reading

- Serge Rochatte, Handicap International (1990): Therapy Assistant Manual- Vol-I to VolIV, France: Handicap International
- Nancie R Fannie (1997): Handling The Young Child With CP At Home-3rd Edition, Butterworth Heinemann, MA
- Anjana Jha, Calcutta(1995): Toileting, Your Baby, Physical Manage, Vocational Training, Behaviour Management, Cleaning For Cerebral Palsy, Indian Institute of Cerebral Palsy, Calcutta
- WHO, UNCF and Rehabilitation Unit, Ministry of Health, Zimbabwe (1997): Let's Communicate ( A Handbook For People Working With Children With Communication Difficulties)-Communication, Assessment, Goal Planning, Mental Handicap, CP, Hearing Impairment, Multiple Disability, Geneva
- E. Helander(Geneva), P.Mendis(Srilanka), G.Nelson(Sweden), and A.Goerdt(Geneva), 1989: Training Package For A Family Member -WHO, Geneva
- World Confederation for Physical Therapy, WHO, World Federation of Occupational Therapist , 1996: Promoting The Development Of Infants And young Children With Cerebral Palsy , Spina Bifida And Hydrocephalus-A Guide For Mid-Level Rehabilitation Workers- WHO, Geneva
- Archie Hinchecliffe, 2003: Children With Cerebral Palsy- A Manual For Therapists, Parents And Community Workers: ITDG , London
- David Dilli : Handbook Accessibility And Tool Adaptations For Disabled Workers In Post Conflict And Developing Countries: International Labour Office, Geneva
- Mr. Leslie Gardner(UK), Prof S.N.Tandon and Prof. D.Mohan (Delhi): A Manual Of Aids For The Multiply Handicapped –Upkaran: The Spastics Society of India, Bombay
- Economic and Social Commission for Asia and the Pacific 1995: Promotion Of Non-Handicapping Physical Environments For Disabled Persons: Case-Studies - United Nations
- Indian Institute of Cerebral Palsy:- “Feeding for the child with cerebral palsy”, “Play for the child with cerebral palsy” , “Physical management for the child with cerebral palsy”, “Communication for the child with cerebral palsy” ,” Behaviour management”, “Toileting for the child with cerebral palsy “.
- Human walking.-- Baltimore: [Williams & Wilkins], [cop. 1994].
- Measurement of joint motion: a guide to goniometry.--3rd ed. ed. - Philadelphia: F.A.Davis Company, cop.2003.
- Muscles testing and function: with posture and pain.--4th ed. Philadelphia: Lippincott Williams & Wilkins, cop.1993

## Reference books

- Prof .Dr. Soeharso Community Based Rehabilitation Development & Training Centre, Indonesia, ( 1995) -Training Materials For CBR Workers: Indonesia
- David J.Dandy : Essential Orthopaedics And Trauma-Third Edition: Churchill Living Stone
- Arthur C. Guyton And John E.Hall( Mississippi) 2001: Text Book Of Medical Physiology: W.B.Saunders Company
- Catherine A. Trombly and Mary Vining Radomski 2002: Occupational Therapy 5<sup>th</sup> Edition: Lippincott Williams And Wilkins Company
- Lorraine Williams Pedreth 1996: Occupational Therapy Practice Skills For Physical

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- Dysfunction 4th Edition – MOSBY, Missouri
- Jane Case-Smith, Anne S.Allen and Pat Nuse Pratt, 1996: Occupational Therapy for children: MOSBY, Missouri
  - M.Dena Gardiner 2000:The Principles Of Exercise Therapy-IV Edition: CBS Publishers & Distributor, New Delhi
  - Patricia M.Davies , 2000: Steps To Follow IInd Edition:Springer, Germany
  - Marian E Tidswell,1992:Cash Textbook Of Orthopaedics And Rheumatology For Physiotherapists 2nd Edition :Jaypee Brothers, New Delhi
  - Patricia A Downie 1992: Cash's Textbook Of Neurology For Physiotherapists-4th Edition: Jaypee Brothers, New Delhi
  - WHO 1995:Guidelines For The Prevention Of Deformities In Polio: Geneva
  - Florence Peterson Kendall, Elizabeth Kendal McCreary and Patricia Geise Provance, 1983: Muscles Testing And Function :Lippincott Williams & Wilkins
  - Suzanne "Tink" Martin and Mary Kessler(2000): Neurological Intervention For PhysicalTherapist Assistants: W.B.Saunders Company
  - Barbara Engstrom and Catherine Van De Ven (2001) Therapy For Amputees (Third Edition):Churchill Livingstone
  - John H. Bowker And Cameron B.Hall :Normal Human Gait
  - WHO United States Department Of Defence Drucker Brain Injury Centre: Rehabilitationfor Persons with Traumatic Brain Injury: WHO, Geneva
  - LOTCA loewenstein occupational therapy “cognitive assessment”
  - Promoting independence following a stroke: World Health Organisation
  - Physical therapy in leprosy for paramedicals:- American Leprosy Missions
  - Therapeutic exercise: foundations and techniques.—3<sup>rd</sup> ,4<sup>th</sup>, ed. Philadelphia: F.A Davis Company
  - Physiotherapy in rheumatology.-- Oxford: Blackwell Publishing Ltd., 1980
  - Adult hemiplegia: evaluation and treatment. -- London: William Heinemann Medical Books Limited, cop.1978
  - Principles and practices of therapeutic massage.-- New Delhi: Jaypee Brothers Medical Publishers (P) Ltd
  - Practical exercise therapy.--2nd ed. ed.-- Oxford: Blackwell Scientific Publication,
  - Physiotherapy in paediatrics.--3rd ed. ed. -- Oxford: Butterworth-Heinemann, cop.1995
  - Children with cerebral palsy: a manual for therapists, parents and community workers.- -London: ITDG Publishing, cop.2003.
  - Treatment of cerebral palsy and motor delay.--4th ed. ed. -- USA: Blackwell Publishing Ltd., cop.2004.
  - Management of painful musculoskeletal conditions.-- Dr. A.B.Samsi. Mumbai.
  - Self -help manual managing back pain: daily activities guide for back pain patients.-- Caska, MN: The Saunders Group , Inc., 1989.
  - Physical therapy techniques and devices France: Handicap National, 1990.
  - Exercises for lower-limb amputees.-- Birmingham, West Midlands: West Midlands Rehabilitation Center
  - Handbook for paraplegic and quadriplegic individuals.-- California: National Spinal CordInjury Association.
  - Manual therapy in a clinincal reasoning perspective.-- Bangalore: Federation of India Manual Therapists, 2007.
  - Hansen's disease: (lerosy).-- Bangalore: Sumana halli society

- Better care of mentally disabled children. 1st ed. ed.-- New Delhi: Voluntary Health Association of India, 1989.
- Handbook on the late effects of poliomyelitis: for physicians and survivors. -- Missouri, U.S.A.: Gazette International Networking Institute, 1984.
- Poliomyelitis: a guide for developing countries - including appliances and.-- Edinburgh, London: Churchill Livingstone, 1975.
- Understanding learning disabilities. -- Mumbai: ShriMathi Nathibai Damodar Thakrassi Women s Unive, [1997]

### **Supporting Modules**

- English Story Book
- Getting Started-MS windows 2000 Server
- Windows 95 Programming For Dummies
- Power Point For Windows 95 Step By Step
- Microsoft Windows 95 Internet Kit- Bryan Pfaffenberger