S.N.D.T. Women's University

SYLLABI AND RULES

FOR THE COURSE OF

BACHELOR OF PHYSIOTHERAPY

(B.P.T.)

EFFECTIVE FROM : 1999 – 2000

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY

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S.N.D.T.WOMEN'S UNIVERSITY, MUMBAI.

TRANSCRIPT HOURS FOR THE COURSE OF

BACHELOR OF PHYSIOTHERAPY (B.P.T.)

EFFECTIVE FROM: 1999 – 2000

Sr. No.	Subject	Transcript hours			
		Theory	Practical	Clinical training	Total
	FIRST YEAR - (TERM WISE)				
[1]	**Human Anatomy**	3 hrs.	1 hrs.	-	4 hrs.
[2]	**Human Physiology**	3 hrs.	1 hrs.	-	4 hrs.
[3]	**Fundamentals of Biomedical Physics**	3 hrs.	1 hrs.	-	4 hrs.
[4]	**Fundamentals of Exercise therapy**	3 hrs.	1 hrs.	-	4 hrs.
*[5]	**Psychology and**	1 hrs.	-	-	1 hrs.
	Sociology	2 hrs.	-	-	2 hrs.
*[6]	**English**	1 hrs.	-	-	1 hrs.
	SECOND YEAR - (TERM WISE)				
[1]	**Pathology and Microbiology**				
	[A] Pathology	36 hrs	20 hrs	-	
	[B] Microbiology	14 classes	-	-	
		50 hrs	20 hrs	-	70 hrs
[2]	**Pharmacology and Biochemistry**				105 hrs
	[A] Pharmacology	50 hrs	-	-	
	[B] Biochemistry	55 hrs	-	-	
[3]	**Kinesiotherapeutics and Movement Therapy**	100 hrs	150 hrs	-	250 hrs
[4]	**Electrotherapeutics and Actinotherapeutics**	100 hrs	150 hrs	-	250 hrs
[Clinical Supervised practice in Physical therapy – 800 Hrs.]				800 hrs	800 hrs
	THIRD YEAR - (TERM WISE)				
[1]	**Surgery - I**	50 hrs	-	-	50 hrs
[2]	**Surgery - II**				
	[A] Traumatology & Orthopaedics	30 hrs	-	60 hrs	
	[B] Plastic Surgery	10 hrs	-	10 hrs	
	[C] Clinical Radiology	10 hrs	-	-	
		50 hrs	-	70 hrs	120 hrs
[3]	**Medicine - I (Including Dermatology)**	50 hrs	-	-	50 hrs
[4]	**Medicine- II**				
	[A] Neurology	30 hrs	-	60 hrs	
	[B] Psychiatry	30 hrs	-	15 hrs	
		60 hrs	-	75 hrs	135 hrs
[5]	**Physiotherapy – I** (Functional Analysis & Clinical Reasoning)	60 hrs	-	140 hrs	200 hrs
[6]	**Community medicine**	30 hrs	-	15 hrs	45 hrs
*[7]	**Principles of Bio-engineering**	20 hrs	-	10 hrs	30 hrs
[Clinical Supervised practice – 265 Hrs. each in Surgery – II, Medicine – II and Physiotherapy – I.]				795 hrs	795 hrs
	FOURTH YEAR - (TERM WISE)				
[1]	**PHYSIOTHERAPY – II** (Physiotherapy in Musculo-skeletal condition)	60 hrs	-	140 hrs	200 hrs
[2]	**PHYSIOTHERAPY – III** (Physiotherapy in Neuro-motor + Psychosomatic conditions)	60 hrs	-	140 hrs	200 hrs
[3]	**PHYSIOTHERAPY – IV** (Physiotherapy in General Medicine, Surgery - Including Cardio Respiratory conditions)	60 hrs	-	140 hrs	200 hrs
[4]	**PHYSIOTHERAPY – V** (Physiotherapy in Community)	60 hrs	-	140 hrs	200 hrs
*[5]	**ETHICS, ADMINISTRATION AND INTRODUCTION TO RESEARCH & STATISTICS**				
	ETHICS AND ADMINISTRATION	20 hrs	-	-	
	INTRODUCTION TO RESEARCH & STATISTICS	20 hrs	10 hrs	-	
		40 hrs	10 hrs	-	50 hrs
*[6]	**PRINCIPLES OF ALTERNATIVE MEDICINE**	60 hrs	-	40 hrs	100 hrs
	* College Level Examination				
	INTERNSHIP				
	Six months rotational Internship Training Programme for Final Year pass out B.P.Th. Candidates is compulsory.				

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SCHEME OF EXAMINATION FOR THE COURSE OF
BACHELOR OF PHYSIOTHERAPY (B.P.T.)
EFFECTIVE FROM: 1999 – 2000

Sr. No.	Subject	Theory Marks			Practical Marks		
		External	Internal	Total	External	Internal	Total
	FIRST YEAR - (TERM WISE)						
[1]	**Human Anatomy**	60	40	100	60	40	100
[2]	**Human Physiology**	60	40	100	60	40	100
[3]	**Fundamentals of Biomedical Physics**	60	40	100	60	40	100
[4]	**Fundamentals of Exercise therapy**	60	40	100	60	40	100
*[5]	**Psychology and**	30	20	50	-	-	-
	Sociology	30	20	50	-	-	-
*[6]	**English**	30	20	50	-	-	-
	SECOND YEAR - (TERM WISE)						
[1]	**Pathology and Microbiology**						
	[A] Pathology	30	20	50	-	-	-
	[B] Microbiology	30	20	50	-	-	-
		60	40	100	-	-	-
[2]	**Pharmacology and Biochemistry**						
	[A] Pharmacology	30	20	50	-	-	-
	[B] Biochemistry	30	20	50	-	-	-
		60	40	100	-	-	-
[3]	**Kinesiotherapeutics and Movement Therapy**	60	40	100	60	40	100
[4]	**Electrotherapeutics and Actinotherapeutics**	60	40	100	60	40	100
	THIRD YEAR - (TERM WISE)						
[1]	**Surgery - I**	60	40	100	-	-	-
[2]	**Surgery - II**	60	40	100	30	20	50
	[A] Traumatology & Orthopaedics						
	[B] Plastic Surgery						
	[C] Clinical Radiology						
[3]	**Medicine - I (Including Dermatology)**	60	40	100	-	-	-
[4]	**Medicine- II**	60	40	100	-	-	-
	[A] Neurology						
	[B] Psychiatry						
[5]	**Physiotherapy – I**	60	40	100	60	40	100
	(Functional Analysis & Clinical Reasoning)						
[6]	**Community medicine**	30	20	50	-	-	-
*[7]	**Principles of Bio-engineering**	30	20	50	-	-	-
	FOURTH YEAR - (TERM WISE)						
[1]	**PHYSIOTHERAPY – II**	60	40	100	60	40	100
	(Physiotherapy in Musculo-skeletal condition)						
[2]	**PHYSIOTHERAPY – III**	60	40	100	60	40	100
	(Physiotherapy in Neuro-motor + Psychosomatic conditions)						
[3]	**PHYSIOTHERAPY – IV**	60	40	100	60	40	100
	(Physiotherapy in General Medicine, Surgery - Including Cardio Respiratory conditions)						
[4]	**PHYSIOTHERAPY – V**	60	40	100	60	40	100
	(Physiotherapy in Community)						
*[5]	**ETHICS, ADMINISTRATION AND INTRODUCTION TO RESEARCH & STATISTICS**	30	20	50	-	-	-
	ETHICS AND ADMINISTRATION						
	INTRODUCTION TO RESEARCH & STATISTICS						
*[6]	**PRINCIPLES OF ALTERNATIVE MEDICINE**	30	20	50	-	-	-
	* College Level Examination						

S.N.D.T.WOMEN'S UNIVERSITY, MUMBAI.

SYLLABUS

FIRST YEAR BACHELOR OF PHYSIOTHERAPY

[applicable to all the classes from the year 1999-2000]

FIRST YEAR OF BACHELOR OF PHYSIOTHERAPY WEEKLY SCHEDULE FOR THE TEACHING AND MARK ALLOTMENT

Sr. No.	Subjects	Hours per Week		Total Hours	Marks				Total Marks
					Theory		Practical		
		Theory	Practical		Internal	External	Internal	External	Theory + Practical = Total
1	Human Anatomy	3 Hrs.	1 Hrs.	4	40	60	40	60	100 + 100 = 200
2	Human Physiology	3 Hrs.	1 Hrs.	4	40	60	40	60	100 + 100 = 200
3	Fundamentals of Biomedical Physics	3 Hrs.	1 Hrs.	4	40	60	40	60	100 + 100 = 200
4	Fundamentals of Exercise therapy	3 Hrs.	1 Hrs.	4	40	60	40	60	100 + 100 = 200
* 5	Psychology and	1 Hrs.		1	40	60			= 100
	Sociology	2 Hrs.		2					
* 6	English	1 Hrs.		1	20	30			= 50

1. Minimum 50% marks in Internal Assessment is required to qualify for External Examination

2. Minimum Passing marks is also 50% separately for internal & External Examination.

*** College level Examination**

[1] HUMAN ANATOMY. -- -- -- -- -- -- -- 300 hrs

Theory (220 hours)

Practical (80 hours)

Note: Emphasis to be placed on topographical. Skeletal. Neuromuscular and functional aspects of anatomy. Students must take part in dissections to identify various structures.

General Introduction :

1. Definitions and subdivisions.
2. Plan of the human body.
3. System of the body.
4. The unit of structure and function- the cell.

Osteology:

1. Terminology Anatomical position, Planes, surface relationship of part of the body, proximal, distal etc.
2. Bones: Type of bones, formation, function, growth and repair, structure of long bone, vertebral column, types of vertebrae, bones of extremities and bony landmarks.

Arthrology:

1. Classification of joints.
2. Construction of joints.
3. Motions of joints.
4. Articulations - Articular Surfaces, types of joints, motions of upper and lower extremities. Trunk, head, Hip.

Myology:

1. Types of muscle tissue.
2. Muscles of upper extremity, lower extremity, trunk, eye, face etc. Origin, Insertion, nerve supply and action (in detail).
3. Cardiovascular System
4. Blood, lymph, tissue fluid – characteristics, composition, function.
5. The heart- main arteries, veins, capillaries.
6. Lymph circulation.

Nervous System :

1. Division and function of the nervous system.
2. Nerve tissue – neuron, nerve fibers, synapse, end-organs etc.
3. Spinal cord, Brain – their structures, divisions.
4. Peripheral and cranial nerves and their distribution, special emphasis on nerve supply to voluntary muscles, segmental distribution.
5. Cerebro – Spinal fluid
6. Sensory androgens and sensation.
7. Autonomic nervous system – sympathetic, parasympathetic.

Respiratory System :

1. Anatomy of respiratory organs air passages, lungs, bronchial tree etc. Relation with diaphragm and thoracic cage.

Digestive System

1. Anatomy of digestive organs – oesophagus, stomach, intestine, rectum etc.
2. The digestive glands.

Urinary System

1. Anatomy of urinary organs – kidneys, ureter, urinary bladder etc. emphasis on types of bladder in paraplegics.

Endocrine System:

1. Glands, secretion, enzymes, hormones.

Reproductive System:

1. Outline of reproductive system – male and female reproductive organs.

Special sensory organs and sensations

1. Emphasis on skin, ear and eyes, less detail on smell and taste.

Histology:

1. Cell, tissues of the body epithelium, connective tissue, cartilage, bone, blood, lymph, muscles and nerves.

General Embryology:

1. Ovum, spermatozoa, fertilization, differentiation, development of musculoskeletal system, central nervous system.

Practical Work:-

Dissection: Dissection of upper and lower extremities, Back, antero-lateral abdominal Identification and description of all anatomical structures, surface marking.

[2] HUMAN PHYSIOLOGY. -- -- -- -- -- -- -- 220 hrs
Theory (170 hours)
Practical (50 hours)

General Physiology :

1. Cell Structure and Organelle.
2. General Principles of Biophysics.
3. Body Fluid compartments.

Blood (in brief)

1. Composition of blood, plasma, Protein formation and their function.
2. Structure, formation and functions of R.B.C.
3. Structure, formation and function W.B.Cs. and Platelets.
4. Coagulation and its defects of bleeding, clotting time.
5. Blood groups and their significance Rh factor.
6. Reticular Endothelial system. Jaundice, structure and functions of spleen.
7. Haemoglobin and E.S.R.

Cardiovascular System:

1. Structure, properties of Heart muscle and nerve supply of heart Structure and function of arteries, arterioles, capillaries and veins.
2. Cardiac cycle and heart sounds.
3. Cardiac output measurement, factors affecting.
4. Heart rate and its regulation, cardio vascular reflexes.
5. Blood pressure, its regulations and Physiological variations.
6. Peripheral resistance, factors controlling B.P.
7. Hemorrhage.
8. Changes in muscular exercise.

Respiratory System:

1. Mechanism of respiration, Intra-pleural and intra pulmonary pressure.
2. Lung volumes and capacities.
3. 02 and CO2 carriage and their exchange in tissues and lungs.
4. Nervous chemical regulation of respiration – Respiratory Centres. Respiratory states – Anoxia, Asphyxia, Cyanosis, Acclimatization.

Digestive System : (in brief)

1. General outline and salivary digestion.
2. Gastric secretion and its mechanism of secretion and functions.
3. Mechanism of secretion of succus enteritis and pancreatic juice and its functions.
4. Structure, Secretions and Functions of livers.

Nutrition: (in brief)

1. Digestion, absorption and metabolism of carbohydrates.
2. Digestion, absorption and metabolism of fats.
3. Digestion, absorption and metabolism of proteins.
4. Vitamins, sources, functions and resources.
5. Balanced diet in different age groups and occupation.

Endocrines

1. Anterior Pituitary.
2. Post Pituitary and parathyroid.
3. Thyroid.
4. Adrenal Medulla. Thymus.
5. Adrenal Cortex.
6. Pancreas and Blood sugar regulation.

Reproduction System: **(in brief)**

1. Sex determination and development, puberty.
2. Male sex hormones and their functions, spermatogenesis.
3. Female sex hormones and functions, menstrual cycle, ovulation and contraceptives.
4. Pregnancy, functions of placenta and lactation.

Excretory System: **(in brief)**

1. Gross and minute structure of kidney and features of renal circulation.
2. Mechanism of formation of urine, G.F.R. and Tubular function.
3. Renal function tests.
4. Physiology of micturition

Neuro Muscular Physiology: (in detail)

Muscle And Nerve:

1. Structure of neurons, membrane potential and generation of action potential.
2. Nerve impulse conduction, salutatory conduction.
3. Neuro muscular junction and drugs acting on it – Myasthenia gravis.
4. Degeneration and regeneration in peripheral nerves – Wallerian degeneration of electro tonus and pflagers law.

Muscle:

1. Type of muscles and their gross structure, stimulus, chronaxie, strength duration curve.
2. Structure of Sarcoma – basis of muscle contraction, Starlings law, changes muscle contraction.
3. Electrical Biphasic and monophasic action potentials.
4. Chemical, Thermal and physical changes, isometric and isotonic contraction.
5. Motor units and its properties. Clonus, tetanus, all or none law, beneficial effect.
6. Nature of voluntary contraction, fatigue.

Nervous System: **(in detail)**

1. Types and properties of receptors, types of sensations.
2. Structure of synapse, reflex arc and its properties, occlusion, subminimal fringe etc.
3. Tracts of spinal cord.
4. Descending tracts, pyramidal and Extrapyramidal.
5. Hemisection and complete section of spinal cord, Upper and lower motor neuron paralysis.
6. Cerebral Cortex areas and functions –E.F.G.
7. Structure, connections and functions of cerebellum.
8. Basal ganglia and thalamus, connections and function.
9. Reticular formation, tone, posture and equilibrium.
10. Autonomic Nervous system.

Special Senses:

1. Broad features of eye, errors of refraction, lesions of visual pathways.
2. Speech and its disorders.
3. Ear and vestibular apparatus.

Practical & Demonstration :

A.

1. Haemoglobinometer and total R.B.C. Count.
2. Total W.B.C. Count.
3. Preparation and staining of Blood smears, determination of differential W.B.C. Count. (Demonstration)
4. Blood Grouping.
5. Erythrocyte Sedimentation rate. } (Demonstration)
6. Bleeding and clotting time.

B.

1. Artificial Respiration. (Demonstration & Practice)
2. Pulmonary function tests. (Demonstration & Practice)

C.

1. Heart Sound.
2. Arterial Blood pressure in man.
3. Cardiac efficiency tests. } (Practice)
4. Recording and study of Electrocardiogram.

D.

1. Testing of peripheral sensations and cranial nerves.
2. Superficial and deep reflexes. } (Practice)
3. Tests for Cerebral and Cerebellar functions.

E.

Varieties of stimuli, electrical apparatus for physiological experiment. - Practice

Frogs Nerve – muscle preparation and demonstration of the following experiments on it. - Practice

Simple muscle twitch. - Practice

Effect of load, temperature and fatigue of muscular contractions. - Practice

Frog's normal cardiogram. - Demonstration

Effect of following on normal cardiogram of frog.

1. Temperature.
2. Extrasystole.
3. Stimulation of vagosympathetic trunk.
4. Radial pulse tracing.
5. Basal metabolic rate.
6. Work physiology.

[3] FUNDAMENTALS EXERCISE THERAPY AND SOFT TISSUE MOBILIZATION: 300 hrs
Theory (220 hours)
Practical (80 hours)

A - FUNDAMENTALS OF EXERCISE THERAPY

1. Introduction to Exercise therapy
2. Physiological effects and uses of Exercises
3. Psychogenic aspects of Exercise
4. Pharmacological aspects of Exercises
5. Use of apparatus in Exercise Therapy
6. Fundamental starting positions, derived positions-effects and uses, pelvic tilt.
7. Muscle work for all positions
8. Joint movement - terminology and range, axes and planes of movement, levers, measurement of joint movements, goniometry, types of goniometers - bubble and gravity goniometers.
9. Classification of movements.
10. Active movements - Definition, types, techniques, effects and uses.
11. Passive movements - Definition, types, techniques of relaxed passive movements and uses. Comparison of both movements.
12. Causes of restriction of range of movement - Distinguish between skin, muscles, capsular contractors.
13. Group work - Criteria of selection of patients, advantages and disadvantages of group class exercises.
14. Home exercises- trick movements.
15. Suspension therapy-definitions of suspension and point of suspension, types of suspension, pulleys and use of pulleys in suspension therapy, application of suspension therapy either to increase the joint range or to increase muscle power.
16. Breathing-Mechanism of breathing (normal), muscles of respiration, changes in thoracic cage during process of respiration, types of breathing exercises, training programme- diaphragmatic and segmental breathing.
17. Pursed lip breathing - significance.
18. Crutch walking - types of crutch walking use of parallel bars in pre-crutch walking stage, balance exercises, phase of walking, gang training group of muscles responsible during crutch walking.
19. Progression in crutch-walking, measurement of crutches, other walking aids- canes, walkers, tripods, other types of crutches, crutch - walking on even surface, slopes, climbing up the stair-case.
20. Measurement of limb length, methods of measurements.
21. Application of resistance to develop endurance and power, progression of exercises, angle of pull, types of muscle work, exercises-m free, resisted, assisted-use of gadget apparatus.

22. Resisted Exercises-techniques and types of resistance, SET system (Heavy resisted exercises Oxford Method, Delorm`s Methods, Macqueen's Methods).
23. Free Exercises-Classification, techniques, effects of free exercises- application for shoulder, neck, hip and knee joints, techniques of mobilization for stiff joints.
24. Mat exercises re-education of balance, strength, endurance.
25. Posture- definition types, factors, influencing posture, posture training.
26. Maintenance of record- Volume, range of motion, resistance limblength.

B - SOFT TISSUE MOBILIZATION

1. Introduction - brief history, definition, classification.
2. Physiological effects and therapeutic uses, contra-indications
3. Preparation of patient, basic points to be considered before and during massage procedure.
4. Technique, effects uses of each manipulation and contra-indications.
5. Specific effects of certain manipulations.
6. Massage for arm, leg, neck and upper back, face
7. Massage for oedema, scar, tendinitis fibrosis (tight fascia)
8. Practice of soft tissue manipulation subjects.
9. Mobilization of soft tissues, joints and fluid collection.

[4] FUNDAMENTS OF BIO - MEDICAL PHYSICS. -- -- -- 150 hrs

Theory (120 hours)
Practical (30 hours)

General Physics and Properties of Matter:

Machines- principle of work, Definition, Mechanical advantage, Velocity of Radio and efficiency, Lever, pulley and systems of pulley, wheel and axle. Fluid mechanics–viscosity. Definition co-efficient of viscosity, poise, Critical velocity. Principle of Archimedes, law of floatation Hydrostatic pressure, surface tension, buoyancy, streamline flow and turbulent flow, effect of temperature and pressure on viscosity, surface tension, excess pressure in spherical liquid drop Friction - Limiting friction, laws of static and dynamic friction, friction necessity and anvil, physical properties of water. Elasticity – only definition.

Heat

Emissive and absorptive power-properties of thermal radiation perfectly black body, Kirchoffs law, Newton's law of cooling and specific heat by cooling, first law of thermodynamics and its application, second law of thermodynamics, Grothus law, joule's law of heat production.

Sound

Newton's formula for velocity of sound, Laplace correction effect of temperature, pressure, density of media, humidity and wind loudness, pitch vibrations of string and wise sonometer, Meld's experiment, resonance and velocity of sound by resonance method, Ultrasonic- production and its application, recording and reproduction of sound.

Light

Absorptive and Emission spectra, classification of emission spectra sole spectrum and Fraunhofer lines, infra red spectrum and ultra violet spectrum. Interference Newton's rings polarization, double refraction positive crystal, negative crystal, nicol`s prism. Optical activity, laser and its application. Fiber-optics.

Electricity

Different types of capacitors, biological cell as capacitor, Ohm's law, thermo electricity Chemical effect current and electromagnetic induction- faraday's law, fleming right hand rule, self induction, mutual induction induction coil, induced E.M.F. in the coil rotating in magnetic field, transformer long distance trasmission. Measurement of A.C, D.C. Modified current, millimeter, voltmeter, gack coil, variable rheostat.

Modern Physics

Structure of atom (Bohr model) X-rays production properties and applications, infra red rays, ultra violet rays and lamp short wave diathermy. Electric shock, radio active transformations, half life period, average life period radio active isotopes and medical application isotopes, G.M. Counter. Scintillation count.

Electronics:

Semi conductor, diode as rectifier, zener diode single stage transistor, amplifier, production of high frequency of current (microwave) by Klystron magnetron Amplifier C.R.O. triode as amplifier, triode as oscillator, thyratron.

List of Experiments:

1. Constant volume air thermometer.
2. Resonance
3. Spectrometer (dispersive power)
4. Low resistance
5. Post Office Box
6. Thermocouple
7. Deflection of magnetometer
8. Wattage
9. Triode (static and dynamic)
10. Friction
11. Newton’s law of cooling
12. Zener
13. Calibration of spectrometer.

***[5] PSYCHOLOGY & SOCIOLOGY** -- -- -- -- -- 70 hrs

PSYCHOLOGY -- 40 hrs

Reference should be made whenever appropriate to the therapist's relationship with the patient and with his professional colleagues. Emphasis should be laid on the effects of disease on the patient's behaviour.

1. **Biological** foundations of behaviour, hereditory and environment and logical basis for development, developmental psychology (child).
2. **Learned and unlearned behaviour:** Simple learning and conditioning, social learning.
3. **Thinking and Intelligence:** Learning and problem solving, development of conceptual thinking in children, Communication, language and thinking. Measurement of intelligence, influences on intelligence, extent and consequence of individual difference, Assessment of Intelligence.
4. **Perception:** Sensory basis of perception, attention and perception, observer error.
5. **Memory:** Phases of memory, short term storage, memory and perception, thinking etc. Forgetting testimony and recall of events, memory and aging.
6. **Motivation and Emotions:** Approaches to motivations, emotional development influence of early experience. Family and social influences on motivation and behaviour.
7. **Personality:** Nature of personality, structure and dynamics, dimensional, psycho analytical and constitutional theories of personality, measurement of personality, culture and personality patterns.
8. **Attitude:** Nature of attitudes and beliefs including prejudice, group influences on attitudes, attitude change, doctor-patient expectations and attitudes, prejudice formation and reduction.
9. **Interpersonal Behaviour:** Experimental analysis of social interaction, studies of the interview situation, behaviour in formal groups, group norms and roles. Leadership in formal and informal groups, group morale. Behaviour therapy, behaviour modification techniques (reinforcement, modeling, forward chaining, backward chaining, imitation &punishment techniques), token economy.
10. **Social psychology:** Nature and scope of social psychology, social interaction, psychological groups and their classification, socialization of the individual, social control (social Heredity)- moves., customs, fashion, propaganda and its techniques.
11. **Tests:** Weschler scales, Stanford-Binet Intelligence scale, Bender and Gestalt-other projective test, Anxiety scale.

SOCIOLOGY -- 30 hrs

The subject will introduce the student to the basic sociological concepts. Principles and social processes, social institutions in relation to the individual. Family and the community and the various social factors affecting the family in rural and urban communities.

Introduction :

1. Meaning – Definition and scope of sociology.
2. Its relation with anthropology, psychology, social psychology and ethics.
3. Methods of sociology – Case study, social survey, questionnaire, interview and opinion poll methods.
4. Importance of its study with special reference to health care professionals.

Social factors in Health and Disease:

1. The meaning of social factors.
2. The role of social factors in health and illness.

Specialization:

1. Meaning and nature of socialization
2. Primary, secondary and anticipatory socialization.
3. Agencies of socialization.

Social groups:

1. Concept of social groups, influence of formal and informal groups on health and sickness. The role of primary groups and secondary groups in the hospital and rehabilitation settings.

Family:

1. The family.
2. Meaning and Definition.
3. Functions.
4. Types.
5. Changing family patterns.
6. Influence of family on the individuals health, family and nutrition. The effects of sickness on family are psychosomatic disease and their importance to physiotherapy.

Community:

1. Rural community – Meaning and features – Health hazards of ruralites.
2. Urban community – Meaning and features – Health hazards of Urbanites.

Culture and Health:

1. Concept of culture.
2. Culture and behaviour.
3. Cultural meaning of sickness.
4. Culture and Health disorders.

Social Change:

1. Meaning of social changes.
2. Factors of social change.
3. Human adaptation and social change.
4. Social change and stress.
5. Social change and deviance.
6. Social change and health programme.
7. The role of social planning in the improvement of health and in rehabilitation.

Social Problem of Disabled

Consequences of the following social problems in relation to sickness and disability. Remedies 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.

Social Security:

Social security and social legislation in relation to disabled.

Social Worker:

Meaning of social work. The role of a medical social worker.

*[6] ENGLISH AND COMMUNICATION SKILLS -- -- 60 hrs

OBJECTIVES:

1. To equip the students to comprehend lectures, text-books and reference materials on subjects in nursing.
2. To equip the students with the knowledge of prefixes and suffixes which can be used as combining forms in compounded words in medical terminology.
3. To equip the students with the knowledge of medical terminology and the specialized vocabulary of the subjects in physical therapy.
4. To equip the students with the knowledge of the terms used in reporting their observations of the symptoms and reactions of patterns.
5. To help the development of study skills needed for working and organizing thoughts in English.
6. To help the students to focus on the issues in conversation and documentation and to express themselves in precise terms.
7. To widen the students horizons through an exposure to imaginative literature.

COURSE CONTENT

The course in language skills will be of the nature of English for special purpose (E.S.P.) course. The teaching material will have to be specially prepared by the teacher in charge and adapted and revised in the light of experience. Oral comprehension will be an integral part of the course. Short passages (Preferably talks) will be prepared related to topics in the other subjects being taught at the time. The listening texts must provide examples of precise scientific definitions clear and orderly sequence seen in physical therapy procedures, reporting in concise scientific terms of observation of patients symptoms and reactions.

The question asked at the end of the listening text must provide practice in writing under and concise answer. Those questions must draw the students attention to the main points in the passage and provide practice in note making. The answer to the questions will also provide practice in writing concise summaries of the listening texts. Listening texts can be drawn up to use of classifications lists and sequence of events in a procedure. These can be used both for testing stort term memory and report after a week or two to test long term memory.

Literature "Nectar in a Sieve" by Kamala Markandeya is the text book used. The students will be required to read the novel by themselves. The teacher will comment on the attitudes and values depicted in it. Discussion of the various events must follow these comments.

SCHEME OF EXAMINATION FOR THE FIRST YEAR BACHELOR OF PHYSIOTHERAPY

Subject	Theory		I.A.		Total	Practical		IA		Total	Hours
[1] Human Anatomy	60	-	40	=	100	--	60	- 40	=	100	3 Hrs.
[2] Human Physiology	60	-	40	=	100	--	60	- 40	=	100	3 Hrs.
[3] Fu. Ex. Therapy and S. T. M.	60	-	40	=	100	--	60	- 40	=	100	3 Hrs.
[4] Fu. of Bio-Medical Physics	60	-	40	=	100	--	60	- 40	=	100	3 Hrs.
*[5] Psychology and	30	-	20	=	100	--	--	- --		--	3 Hrs.
Sociology	30	-	20	=							
*[6] English and Communication skills	30	-	20	=	50	--	--	- --		--	2 Hrs.

* [5] Psychology & Sociology and [6] English and Communication Skills are for the College level Examinations.

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SYLLABUS

SECOND YEAR BACHELOR OF PHYSIOTHERAPY

[applicable to all the classes from the year 2000-2001]

SUBJECTS	**TRANSCRIPT HOURS - 675**
[1] Pathology and Microbiology	70 hrs
[2] Pharmacology and Biochemistry	
[A] Pharmacology	50 hrs
[B] Biochemistry	55 hrs
[3] Kinesiotherapeutics and Movement Therapy	250 hrs
[4] Electrotherapeutics and Actinotherapeutics	250 hrs

[Clinical Supervised practice in Physical therapy – 800 Hrs.]

[1] PATHOLOGY AND MICROBIOLOGY -- -- -- -- 70 hrs

Theory (50 hours)
Practical (20 hours)

PATHOLOGY

1. Aims and objects of study of pathology, meaning of the terms, etiology, pathogenesis, lesions and disease,
2. Concepts of Disease, various causes of disease an approach to laboratory study and diagnosis of process of disease classification of lesions.
3. Brief outlines of sick cells degeneration, necrosis, gangrene etc.
4. Inflammation: Definition, vascular and cellular phenomenon tissue changes, exudates and pus formation difference between acute and chronic inflammation.
5. Repair (Bone, skin. Nerves and muscles etc.)
6. Vascular disturbances with emphasis on ischaemia, thrombosis embolism, infarction, Haemorrhage, shock and oedema.
7. Brief about : Anemia, Leukemia Haemorrhagic disorders.
8. General approach to bacterial and viral infection Emphasis on tuberculosis, syphilis, leprosy; fungal infections and HIV.
9. General approach to immunity and allergy.
10. Clear concepts about Tumors definition, classification, Etiology and spread of tumors, Benign versus malignant tumours.
11. Diseases of
    - (a) Central Nervous system – meningitis and Encephalitis brief outline of C.N.W. Tumors and peripheral nerve lesions and Degeneration of CNS.
    - (b) Bones and joints – Osteomyelitis, Septic Arthritis, Gout. Rheumatic Arthritis, and bone tumors.
    - (c) Muscles – Poliomyelitis, myopathies, Volkman's ischemic contracture, Fibromyalgia.
    - (d) Skin – Scleroderma, Psoriasis Autoimmune disorders.
12. Animal Parasites
13. In Brief about –
    - (a) Respiratory diseases – Pneumonia, Bronchitis, Asthma, Emphysema, Lung cancers and occupational lung diseases.
    - (b) C.V.S. Rheumatic heart disease, myocardial infection, Atherosclerosis, congenital heart diseases.
    - (c) Alimentary system – Peptic ulcer carcinoma of stomach, ulcerative lesions of intestine
    - (d) Liver – Hepatitis, Cirrhosis
    - (e) Pancreas–Pancreatitis, carcinoma of pancreas. Diabetes

14. General approach to immunity and allergy
15. Deficiency diseases, Pigments and pigmentation
16. Medical Genetics
17. In brief about
    (a) Urinary system – Nephritic syndrome, Nephritis Glomerulonephritis
    (b) Prostate – Prostatitis, BPH Carcinoma of Prostate
    (c) Endocrine – Thyroid, Thyroids, Typhoid Turnouts
    (d) Salivary gland – Salivary gland tumors

MICROBIOLOGY

(14 Classes)

I. General Microbiology

1. Introduction
2. Classification of micro-organisms
3. Morphology of Bacteria
4. Sterilization and disinfection
5. Immunity – Antigen and Antibodies, General overview of antigen – antibody, reaction and practical application ,natural & acquired immunity.

II.

1. Classification Morphology and physiology of Micro-organisms. Bacteria, Viruses (HIV), Protozoa, Spirochetes, Helminthes and Fungi Pathogenesis and Laboratory Diagnosis.
2. Disinfection and Sterilization Hospital infection
3. Immunology: Antigen Antibody reaction, Hypersensitivity reaction and auto – immune diseases.
4. Immune – prophylaxis
5. Hepatitis

TEXT BOOKS

1. Text Book of Pathology W Bag & Boyd
2. General pathology : Bhende
3. Text Book of Bacteriology Day
4. Medical Microbiology : Cruikshank

BOOKS RECOMMENDED FOR REFERENCES

1. Text books of pathology : Anderson
2. Basic pathology : Robin Conton and Kumar
3. Hematology : Basic
4. Bacteriology : Topley Wilson
5. Essential of Microbiology: Jochu Panijni and Rajesh Bhatia.

[2] PHARMACOLOGY AND BIOCHEMISTRY

[A] Pharmacology -- -- -- -- -- -- -- 50 hrs

[B] Biochemistry -- -- -- -- -- -- 55 hrs

[A] PHARMACOLOGY - 50 hrs

1. General action of drugs.
2. Routes of drug administration.
3. Drug Receptors.
4. Mechanism of drug action
5. Factor modifying drug effects.
6. Drugs Toxicity.
7. Drugs acting on C.N.S.: General Anaesthetics, Alcohols; Sedative and Hypnotics; Anti- convulsive; Narcotics Analgesics Non – Heretic Analgesics and Antipyretics, C.N.S. Stimulant: Psychotherapeutics.
8. Drug acting on peripheral nervous system Stimulating and inhibiting Cholinergic Drugs.
9. Drugs acting on muscles – muscle Relaxants, musclestimulants.
10. Drug Therapy in Parkinsonism.
11. Drug acting on C.V.S. Pharmacotherapy in Hypertension, Vasodilator Drug; Pharmacotherapy of cardiac Arrhythmia's Angina pectoris; Shock.
12. Drug acting on Respiratory system – Cough, Bronchial Asthama.
13. Chemotherapeutic agents.
14. Thyroid and Antithyroid drugs calcium: phosphorus, magnesium, parathyroid; Vitamins.
15. Insulin and Oral Antidiabetic drug.
16. Chemotherapy in malignancy
17. Locally acting drug: Anodynes, Local anaesthetic drug, Counter irritants, Soothing agent.

TEXT BOOKS

1. Pharmacology & Pharmaco-therapeutics by Satoskar Bhandar
2. Medical Pharmacology : by Goth Anders

REFERENCE BOOKS :

1. Pharmacology by Gaddum
2. Medical Pharmacology by Drill
3. The Pharmacology principle of Medical practice by Krants & carr
4. The pharmacological basis of Therapeutics by Goodman, L.S. & Gilman A.

[B] BIO- CHEMISTRY - 55 hrs

1. Nutrition – importance of nutrition, nutritional aspects of Carbohydrates. Proteins, Fats and Fibers, Classification of fibers, calorimetry, energy values, respiratory quotient. Its Significance, B.M.R, definition, normal values factors affecting B.M.R. Energy requirements with age.

   Chemical score, digestibility coefficient, Nitrogen balance and significance composition of food, balanced diet, dietary recommendation, nutritional Supplementation, Protein energy malnutrition.

2. Carbohydrates – Chemistry – Definition.

   Metabolism – Digestion and absorption – Glycolysis, aerobic anaerobic Regulation and energetic, Gluconeogenesis. Glycogenesis, Glycogenolysis and their regulation. Role of muscle and Liver Glycogen. Hormonal regulation of sugar. Disorders of Glycogen, Lactose intolerance, Diabetes Mellitus.

3. Proteins–Chemistry, Classification of proteins, amino acids, denaturation, coagulation, iso – electric pH and its importance. Metabolism–Digestion and absorption, Decarboxylation, Deamination, transmethylation, transmutation, Specialized products of phenylalanine, tyrosine, tryptophan, methionine, Neurotransmitter (nobiosynthesis), Detoxification of ammonia, including urea cycle. Nucleoproteins – D.N.A, R.N.A. Definition – structure and function of D.N.A. Types and functions of R.N.A. Genetic code Catabolism of purines, Gout.

4. Enzymes – Definition, Co-enzymes, factors affecting enzyme activity. Mechanism of action of enzyme. Inhibition types – Isoenzymes. Clinical and therapeutic use of enzymes.

5. Biologic Oxidation – Oxidative phosphorylation and (in brief)

6. Cell – Membrane structure, function of in organelles.

7. Hormones – Definition, classification, mechanism of action, 2^{nd} messenger (cAMP, Ca.IMP) Effects of hormones on various metabolites, metabolites (in brief) 6 Blood buffers, role of Lung and Kidney in acid-base balance.

8. Clinical Biochemistry – LFT.RFT normal levels of blood sugar. Urea, uric acid creatinine Triglycerides, cholesterol, enzymes, proteins, Glycosuria.

9. Lipids – chemistry, Definition, classification of lipids and fatty acids – with examples essential fatty acids and their importance. Metabolism – Digestion and absorption of fats B-oxidation of saturated fatty acids, its significance and energetics regulation Fatty acid biosynthesis, energetics regulation. Fat metabolism in adipose tissue, Role of Lipoprotein lipase, Cholesterol and its importance only precursor molecule, But no biosynthesis. Ketone body formation and functions. Lipoprotein lipase -separation broad outline of technique Composition and functions. Disorders of lipid metabolism Atherosclerosis, hyperlipidaemia.

Vitamins – water and fat soluble sources, coenzyme forms, function. RDA transport deficiency and toxicity.
Minerals – Calcium, phosphorus, iron (in details) Magnesium, Fluoride, Zinc, Copper, Selenium, molybdenum, and iodine – functions, RDA, absorption, transport, Excretion, and disorders.
Biochemical events of muscle contraction, biochemistry of connective tissue collagen, its arrangement, Glycoproteins and proteo glycans.

[3] KINESIOTHERAPEUTICS AND MOVEMENT THERAPY -- 250 hrs

Theory – 100 hrs.

Practical clinical – 150 hrs.

OBJECTIVES

At the end of the course – the student

1. Will be able to analyse musculoskeletal movement in terms of biomechanics and will be able to apply such biomechanical principles to evaluation methods & treatment modes.
2. Will acquire skill to quantity muscle strength & mobility limb length & girth discrepancy.
3. Will be able to detect any deviators in the posture and gait.
4. Will gain knowledge of Biophysical & Physiological effects; therapeutic uses, merits & demerits & contraindications of Various therapeutic mode.
5. Will gain skill to apply modes of therapeutic exercise & tools of therapeutic gymnasium for assessment and treatment of muscle strength mobility & for correction of gait/ posture.
6. Will be able to plan & prescribe appropriate home programme & will be able to give ergonomic advice.

Topics

1. Active movement functional – kinetic & kinematics analyses of various derived positions – physic & tonic activity of muscle.
2. Assessment of muscle strength – in group isolated subjective & objective methods. Trick movement. Methods of strengthening & maintenance.
3. Biophysical properties of connective tissue & effect of various types of mechanical loading. Assessment of restricted mobility. Methods of mobilization, traction, stretching exercise maintenance.
4. Assessment of limb length & girth discrepancy.
5. Posture – static dynamic analysis – physiological deviation, correction – maintenance.
6. Gait Analysis of normal gait show to running climbing up & down, detection of orthopaedic gait deviations precrutch training; crutch walking.
7. General fitness exercises – physiological effects on heart; lungs; mobility & endurance & pain relief – Contraindications.
8. Principles of P.N.F.
9. Coordination exercises.
10. Breathing retraining; exercise – maintenance.
11. Bronchial hygiene – principles of humidification, postural drainage-methods maintenance.

Note: To learn skills of evaluation of strength; mobility; limb length & girth; posture & gait on patients PRACTICAL CLINICAL EXAMS Marks 80-20 marks for Internal Asst.

Long case – 40 marks evaluation Assessment; Treatment skill; home programme & ergonomic advice – in any one the following –

1. Muscle strength
2. Mobility
3. Breathing
4. Bronchial hygiene

Short case – 20 marks

1. Limb length / girth measurement
2. Gait / posture analysis
3. Crutch walking
4. Coordination exs.
5. Mat exercises
6. General fitness exs.

VIVA- 20 MARKS – ANY TOPIC – INCLUDING P.N.F.

[4] ELECTROTHERAPEUTICS AND ACTINO THERAPEUTICS --250 hrs

Theory – 100 hrs.
Practical clinical – 150 hrs.

Electrical Agents : ultrasound Thermo & Actino Therapeutics & evaluation procedures.

OBJECTIVE

At the end of the course the student

1. Will gain knowledge about the Physiological effects. Therapeutic uses merits & demerits & contraindications of various elec.-therapeutic modalities.
2. Will acquire a skill of application of various modes for the purchase of a skill of application of various modes for the purchase of evaluation & therapeutics.
3. Will be able to select a specific modality and skill, for the issue & area specific application.

TOPICS

1. Therapeutic Currents
   a) Low frequency currents- Constant currents, micro currents, Iontophoresis short and long pulse modified interrupted current Surged current S.S.F.
   b) Basic Electro diagnostic procedures
      Galvanic Faradic Test
      Test for tendon continuity
      S.D. curves.
   c) Procedures of electrical re-education
   d) T.N.S.
   e) Medium frequency currents – beat frequency currents
2. Thermal agents
   a) Cryotherapy
   b) Radiant heat
   c) Ultrasound
   d) S.W.D. & M. W. D.
3. Actino Therapeutics
   a) U.V.R.
   b) Therapeutic Laser
4. Any one of the following
   (1) Motor points
   (2) S.D. Curves
   (3) U.V.R. test dose
   (4) S.S.F in elevation
   (5) (Laser-treatment to local area)
   (6) Application of beat frequency Medium frequency

SCHEME OF EXAMINATION FOR THE SECOND YEAR BACHELOR OF PHYSIOTHERAPY

Subject	Theory	I.A.	Total	Practical	IA	Total
[1] Pathology and Microbiology						
[A] Pathology	30	20	50	--	--	--
[B] Microbiology	30	20	50	--	--	--
[2] Pharmacology and Biochemistry						
[A] Pharmacology	30	20	50	--	--	--
[B] Biochemistry	30	20	50	--	--	--
[3] Kinesio therapeutics and Movement Therapy	60	40	100	60	40	100
[4] Electrotherapeutics and Actino Therapeutics	60	40	100	60	40	100

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SYLLABUS

THIRD YEAR BACHELOR OF PHYSIOTHERAPY

[applicable to all the classes from the year 1999-2000]

SUBJECTS	**TRANSCRIPT HOURS - 760 HRS**
[1] Surgery - I	50 hrs
[2] Surgery - II	
(a) Traumatology & Orthopaedics	90 hrs
(b) Plastic Surgery	20 hrs
(c) Clinical Radiology	10 hrs
[3] Medicine - I (Including Dermatology)	50 hrs
[4] Medicine- II	
(a) Neurology	90 hrs
(b) Psychiatry	45 hrs
[5] Physiotherapy – I (Functional Analysis & Clinical Reasoning)	200 hrs
[6] Community medicine	45 hrs
*[7] Principles of Bio-engineering	30 hrs

* College Level Examination

[Clinical Supervised practice – 265 Hrs. each in Surgery – II, Medicine – II and Physiotherapy – I.]

[1] SURGERY - I -- -- -- -- -- -- -- 50 hrs

(50 Hours including clinical Teaching)

1. Descriptions of events frequently accompanying Surgery in general anesthesia. Blood transfusion and Physiological response of the body to Surgery.
2. Common pre and post-operative complications: clinical picture treatment and prevention.
3. Wounds, sinuses and Ulcers: Incisions healing and Principles of treatment.
4. Abdominal Surgery (major)
   a) Incisions in abdominal Surgery
   b) Operations on the Stomach
   c) Operations on the intestine.
   d) Appendectomy
   e) Operation on the abdominal wall
   f) Complications in abdominal Surgery and its management.
5. Thoracic Surgery

   Outline indications, contraindications, site of incision, pre and post operative management and complications of the following.

   Lobectomy; pneumonectomy, segmenectomy, pleuro-pneumonectomy, Thoracoplasty, Decortication, Tracheotomy. Management of Endotracheal tubes, tracheal suction. Weaning the patient from ventilator. Extubation and post Extubation care.
6. Cardiac Surgery

   Outline indications, contraindications, site of incisions, pre and post operative management and complications of the following.

   a) Valvotomy and valve replacement
   b) Open Heart Surgery Cardiac by pass Surgery
   c) Surgery on pericardium
   d) Operation in congenital disorders
   e) Cardiac pacemaker
   f) Coronary Angioplasty
7. Brief about prostatectomy nephrectomy
8. Surgery of the breast
9. Neuro Surgery: Briefly outline the clinical features and management of the following.
   a) Congenital and childhood disorders (1) Hydrocephalus (2) Spina Bifida
   b) First aid and management of sequelae of head injury and spiral cord injury.
   c) Peripheral Nerve disorders- Peripheral Nerve injuries
   d) Intracranial tumours: Broad classification signs and symptoms.

10. a) Brief description of Deep Vein Thrombosis and pulmonary embolism

    b) Vascular Disease Phlebitis etc.

11. Plastic Surgery: Principles of cineplasty tendon transplant Cosmetic Surgery, Types of Grafts, Surgery of hand with emphasis and management on traumatic leprosy & rheumatoid hand.

12. Burns- classification early and late complications management and reconstructive Surgery.

13. Ophthalmology: Errors of refraction, conjunctivitis, trachoma corneal ulcer, iritic, cataract, retinitis, detachment of retina; Glaucoma:

14. E.N.T. Sinusitis, Rhinitis, Otitismedia, Functional aphonia and deafness.

PRACTICALS

The students have to undergo outdoor and indoor clinical teaching in General Surgery and Orthopedic. They have to prepare a clinical record to be submitted at the University practical examination. The student should take minimum five case of General Surgery and five case of Orthopaedics and obtain a signature of a teacher time to time.

TEXT BOOKS SURGERY

1. surgery for Nurses by Baily & Love C.H.K. Lewis & Co.
2. Short practice of surgery of Baily & Love
3. Outline of Orthopaedics by Adam (Livingstone)
4. Outlines of fractures by Adam.

REFERENCE BOOKS

1. Surgery by Nan
2. Short practice of Surgery by Rain & Retelite
3. System of Orthopaedics by Adam Vd. I & II
4. Surgical Handicrati by Pyels
5. General Surgical Operations by R.M. Kirk and R. O.N. Williamson
6. Shaw’s Text Book of Gynacology
7. Seffcoat’s principle of Gynacology.

[2] SURGERY - II

SUBJECTS	THEORY	CLINICAL TRAINING	TOTAL
(a) Orthopaedics	**30 hrs**	**60 hrs**	**90 hrs**
(b) Plastic Surgery	**10 hrs**	**10 hrs**	**20 hrs**
(c) Clinical Radiology	**10 hrs**	**-**	**10 hrs**

1. Pathology clinical manifestations of trauma & diseases of the bones & soft tissues of the musculo skeletal tissue.
2. Fractures of the spine & extremities-classification / management & complications.
3. Metabolic & hormonal disorders of the bone tissue- Osteoporosis.
4. Peripheral nerve injuries-management / complications / V.I.C.
5. Deformities of the spine, extremities- congenital malformation-spina Bifida, meningocele/ meningomyocele.
6. re-constructive surgeries in Polio or cerebral palsy.
7. Inflammatory & infections of the bone & joints T.B./Osteomyelitis.
8. Tumors of the bone.
9. Degenerative / Rheumatoid arthritis
10. Soft tissue injury/ common soft tissue injuries encountered during sports / Over-use
11. Amputation-classification-prosthetic management.
12. Hand injury- management
13. Clinical Radiology in Orthopaedics
14. Plastic surgical procedures-nerves/ tendon repairs in hand & foot skin grafts/ flaps/ micro vascular surgery re-constructive surgeries in facial nerve paralysis & common cosmetic surgeries (in brief)- surgery for obesity.

[3] MEDICINE - I (INCLUDING DERMATOLOGY) -- -- 50 hrs

MEDICINE INCLUDING DERMATOLOGY

Duration 50 hours including Clinical Teaching

1. Disease of Cardio Vascular system

   Ischaemic Heart Disease. Hypertensive Heart Disease, Rheumatic heart disease. Congenital heart disease, thyrotoxic heart disease, syphilitic heart disease, vascular disease, thrombosis embolisms.

2. Disease of endocrine system

   Diabetes mellitus definition, diagnosis, classification and complication brief description of management of diabetes mellitus. Outline of hypothyroidism, goiter, Hyperthyroidism and Hypothyroidism.

3. Rheumatic Disease – Rheumatic fever, Rheumatoid arthritis disease, collagen disease. Idiopathogenesis, clinical features, complications, diagnosis and brief outline of the management.

4. Diseases of Respiratory system

   a) Disease of lungs; Bronchitis, Bronchial Asthma, Bronchiectasis, pulmonary Embolism, pulmonary Tuberculosis, lung Abscess, Emphysema, pneumonia. Bronchopneumonia, Flubbed lung. Resp. failure pneumothorax, RDS, hydro Pn.

   b) Diseases of pluera-pleurisy, Empyema

5. Diseases of Digestive System: Gastric and Duodenal ulcers, Haematemesis (in brief)

6. Deficiency Diseases : Rickets, Protein deficiency

7. Obesity-etiology and management

8. Pediatrics Common Pediatric diseases and their management

9. Common Geriatric Disorders and their management

10. Dermatology

    (a) Common skin infections

    (b) Psoriasis

    (c) Leprosy- Aetiopathogensis, clinical features and treatment

    (d) Venereal diseases and Infections diseases (in brief)

CLINICALS

Student has to undergo outdoor and indoor clinical teaching in General Surgery cases. They have to prepare a clinical record to be submitted at the time of University practical Examination. The student should take minimum five cases or General Surgery conditions and obtain a signature of a teacher time to time.

[4] MEDICINE- II

SUBJECTS	THEORY	CLINICAL TRAINING	TOTAL
(a) Neurology	**30 hrs**	**60 hrs**	**90 hrs**
(b) Psychiatry	**30 hrs**	**15 hrs**	**45 hrs**

(a) Neurology

1. Circulation of the brain spinal cord- Cerebro-vascular- accidents.
2. Pyramidal & Extra Pyramidal lesions
3. Disorders of Nerve roots & Peripheral nerves
4. Disorders & Diseases of muscle
5. Disorders of the spinal cord & cauda equina
6. Demyelinating diseases
7. Infections of the nervous system
8. Epilepsy
9. Tetanus management
10. Disorders of higher cortical function
11. Hereditary & degenerative disorders
12. Disorders of cerebellar function.

(b) Psychiatry

1. Neurotic disorders
2. Psychotic disorders
3. Psycho-somatic disorders
4. Behavioral problems in children
5. Stress & its management

[5] PHYSIOTHERAPY – I -- -- -- -- -- -- 200 hrs
(Functional Analysis & Clinical Reasoning)

Theory – 60 hrs.
Clinical training – 140 hrs.

Section-1

1. Electro diagnosis- Bioelectricity, resting membrane potential.
2. Chemoresponsive Electrogenic system.
3. Nerve potential / Action potential – Transmission of Impulse- volume conduction.
4. Therapeutic current-as a tool for electrodiagnosis- physiological principles Faradic/ galvanic current – S.D.curve (motor/sensory/Plain threshold)
5. Principles of Electro myography- Motor unit – Normal Characteristics- recruitment / frequency/ Interference pattern
6. Classification of nerve / muscle fibers/ motor units
7. Principles of nerve conduction- standard methodology.
8. Principles of objective assessment of muscle power/ integrated E.M.G.

Section-II- Functional analysis & clinical reasoning

1. Biomechanical principles & application in the assessment of Posture [static/ dynamic, Gait & A.D.L. in pathological conditions
2. Assessment of pain- Intensity / quality- Objective assessment / documentation.
3. Principles of exercise tolerance test-assessment of vital parameters in simple functional test-5 minutes walk test/ stair climbing test / stair climbing test / Breath holding test / Spirometry / assessment of abnormal breath sounds- clinical reasoning
4. Principles of Functional diagnosis- Impairment / Disability / handicaps & application – Documentation.

[6] COMMUNITY MEDICINE -- -- -- -- -- 45 hrs

Theory – 30 hrs.
Clinical training – 15 hrs.

1. General concepts of Health & Diseases / Epidemiology / Anthropology/ Habitat & nutrition.
2. Public Health administration
3. The nature of Urban & rural societies- The Family
4. Health problems of vulnerable groups- women, children & Aged
5. Occupational health hazards- accidents compensation acts
6. Family planning
7. Mental health emphasis on community aspects
8. Communicable disease-prevention/ control
9. Introduction to C.B.R.
10. Design 7 methodology of an experiment of survey.
11. Sampling & Interpretation of Data
12. Role of health organization
13. Demography & vital statistics.
14. Environmental Hygiene
15. Socio-economic behavior
16. Rehabilitation team approach-Role of Physio therapy/ Occupational therapy/ speech & hearing / P & O/ social worker / clinical psychologist/ vocational trainer.
17. Role of Multi- purpose Health worker.

***[7] PRINCIPLES OF BIO-ENGINEERING -- -- -- 30 hrs**

Theory – 20 hrs.

Clinical training – 10 hrs.

1. Classification of Aids & appliances
2. Biomechanical principles in designing of appliances & assessment Procedures for static & dynamic alignment of the following- Aids & appliances / Splints / Orthoses – for spine upper & lower limb / Prostheses – for Lower limbs.

SCHEME OF EXAMINATION FOR THE THIRD YEAR BACHELOR OF PHYSIOTHERAPY

Subject	Theory	I.A.	Total	Practical	IA	Total
[1] Surgery - I	60	40	100	--	--	--
2] Surgery - II	60	40	100	--	30	20 = 50
[3] Medicine- I	60	40	100	--	--	-- = --
[4] Medicine- II	60	40	100	--	30	20 = 50
[5] Physiotherapy – I	60	40	100	--	60	40 = 100
[6] Community medicine	30	20	50	--	--	-- = --
*[7] Principles of Bio-engineering	30	20	50	--	--	-- = --

* [7] Principles of Bio-engineering is for the College level Examinations.

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SYLLABUS

FINAL YEAR BACHELOR OF PHYSIOTHERAPY

[Applicable to all the classes from the year 1999-2000]

SUBJECTS	**TRANSCRIPT HOURS - 950**
[1] PHYSIOTHERAPY – II -- (Physiotherapy in Musculo-skeletal condition)	200 hrs
[2] PHYSIOTHERAPY – III-- (Physiotherapy in Neuro-motor + Psychosomatic conditions)	200 hrs
[3] PHYSIOTHERAPY – IV (Physiotherapy in General Medicine, Surgery - Including Cardio Respiratory conditions)	200 hrs
[4] PHYSIOTHERAPY – V -- (Physiotherapy in Community)	200 hrs
*** [5] ETHICS, ADMINISTRATION AND INTRODUCTION TO RESEARCH & STATISTICS**	
ETHICS AND ADMINISTRATION	20 hrs
INTRODUCTION TO RESEARCH & STATISTICS	30 hrs
*** [6] PRINCIPLES OF ALTERNATIVE MEDICINE**	100 hrs

* College Level Examination

[1] PHYSIOTHERAPY – II
(Physiotherapy in Musculo - skeletal condition) -- -- 200 hrs

Theory – 60 hrs.

Clinical training – 140 hrs.

Following topics are applicable to all the conditions mentioned in the subjects included under the titles “Clinical orthopedics” and Rheumatological conditions” of the subjects “surgery paper 2 and medicine paper 1” respectively.

1. Examination of joint – Stability- normal / abnormal Mobility- assessment of accessory movements & end feel
2. Assessment of soft tissue status / pain / posture / strength & endurance/ gait & investigations & to co-relate the same with clinical findings
3. Subjective & Objective assessment & functional diagnosis of Musculo- skeletal Dysfunction
4. Planning of short term & long term [if any] goals with clinical reasoning.
5. Application of Simple therapeutic modes for relief of pain swelling, wound healing electrical re-education etc. with clinical reasoning.
6. Application of simple therapeutic modes of mobility like stretching, distraction rhythmic mobilization, friction massage, myofascial stretching.
7. Application of appropriate Therapeutic exercise, with the use of therapeutic gymnasium or auto exercise for functional restorative, measure, maintenance &/ Or preventive measure
8. Prescription appropriate/ Prosthetic device & fabrication of simple temporary splints during urgent requirement.
9. Ergonomic advice for preventive measures & maintenance of function

[2] PHYSIOTHERAPY – III
(Physiotherapy in Neuro-motor + Psychosomatic conditions) - 200 hrs

Theory – 60 hrs.
Clinical training – 140 hrs.

Following topics are applicable to all the topics included under the Title “Neuro sciences” & “Paediatric neurological Conditions” included in the subjects

“Medicine-Paper- II” & Paper- I” respectively

1. Normal development of the nervous system.
2. Neuro-physiology of normal locomotion.
3. assessment of Tone- Detection of Spasticity, rigidity,
4. assessment of in- coordination & abnormal movements
5. assessment of Psychosomatic & locomotor function, upper / lower motor neuron paralysis using subjective & objective modes such like therapeutic currents / integrated E.M.G. & Co-relate clinical findings with diagnostic E.M.G. conclusions.
6. Functional diagnosis of neuro muscular dysfunction & assessment of neuropathic pain
7. Planning short / long term goals for treatment
8. Application of appropriate Electro therapeutic models including back, for relief of pain & functional re-education with clinical reasoning
9. Application of skills such as P.N.F. techniques & co-ordination & balancing exercises by using techniques based on neuro physiological principles & tools of Therapeutic gymnasium such as vestibular ball, tilt boards.
10. Application of transfer & functional re-education exercises- posture & gait training.
11. Functional training for hand.
12. Functional training in Bladder dysfunction
13. Prescription of appropriate orthotic devices & fabrication of temporary splints during urgent requirement & with clinical reasoning for the purpose of prevention of postural deformities & for functional training
14. Ergonomic advice & parent education incase of paediatric cases.

[3] PHYSIOTHERAPY – IV
(Physiotherapy in General Medicine, Surgery - including Cardio Respiratory conditions) -- -- -- 200 hrs

Theory – 60 hrs.
Clinical training – 140 hrs.

The following topics are applicable to all the adult & paediatric conditions included under the title “Cardio Respiratary conditions “ in the subjects surgery-paper-I & Medicine Paper-I repectively.

1. Assessment of respiratory & hemo-dynamic by means of breath sounds, interpretation of dysfunction by spirometry / Exercise tolerance test / assessment of the thoracic mobility, & breathing pattern.
2. Interpretation of radiological & Biochemical & co-relate the same with clinical findings.
3. Functional diagnosis of cardio-respiratory dysfunction & associated Movement dysfunction.
4. Planning short / long term goals with clinical reasoning documentation.
5. application of appropriate skills for breathing & bronchial hygiene as preventive [used specifically in preoperative care] restorative & rehabilitative measures
6. Prescription of appropriate therapeutic exercise programme for conditioning
7. Prescription of home programs & ergonomic advice/ parents education in case of paediatric cases.

[4] PHYSIOTHERAPY – V
(Physiotherapy in Community) -- -- -- -- 200 hrs

Theory – 60 hrs.
Clinical training – 140 hrs.

The following topics are applicable to all the conditions included under the relevant Titles, covered in the subjects- Surgery & Medicine

1. Women's Health-

   Anatomy of Pelvic floor

   -Clinical reasoning for Physical exercises during pregnancy

   -Clinical reasoning for care to be taken during exercises during pregnancy.

   -Prenatal/ antenatal programme- Clinical reasoning for specific breathing exs/ relaxation/ postural training/ Pelvic floor stretching & strengthening exs.

   -Physio therapy during labor

   -Post-natal exercise programme after natural conditions/ invasive procedures

   -Uro-genital dysfunction- P.T. management

   -Menopause – Deconditioning- P.dT. management

   -Common Gynaecological surgeries-role of P.T.

   -Clinical reasoning for application of Electro-therapeutic measures in Obst/ Gynac

2. Geriatrics-

   -Physiology of Aging / degenerative changes- Musculoskeletal/ Neuromotor/ cardio- respiratory / Metabolic.

   -Role of Physio Therapy in a Home for the aged.

3. Fitness & Health promotion

   -Physiological effects of aerobic exercises

   -Clinical reasoning for advocating aerobic exs as preventive measure in Obesity & its related conditions / in cardio- respiratory conditioning / Aging / deconditioning effect after prolonged bed rest/ Diabetes.

   -PT in various sports injuries/preventive management.

4. Industrial Health – Environmental stress in the industrial –Biomechanical & Physiological analysis & ergonomic evaluation of work place

   -Common accidents – Role of P.T.

   -Stress management.

5. Role of P.T. in C.B.R.

*** [5] ETHICS ,Administration and Introduction to Research & Statistics.-- 50 hrs**

Ethics and administration Theory – 20 hrs.

1. Ethics and constitution & physiotherapy by world confederation of Physical therapists(WCPT) and by Indian Association of Physiotherapists (IAP)
2. Basis of administration in institutional and private clinics.
3. Personal, intra and interdepartmental relationship.
4. Documentation.

INTRODUCTION TO RESEARCH AND STATISTICS

Theory – 20 hrs.
Clinical training – 10 hrs.

OVERVI EW :

This courses aims to provide a basic understanding of the research process in order to develop research attitude.

OBJECTIVE : The students :

1. Understand the meaning and scope of research.
2. Are able to understand and apply the basic concept of research methodology in daily personal & professional practice.
3. Are able to understand and apply basic statistics in research.
4. Are able to appreciate research findings and apply it in practice where feasible.

UNIT I: Meaning of Research

-Basic concept of research

-Its need and importance in daily personal and professional practice

-Scope of research the practice of physiotherapy

-Characteristics of research

-Ethical consideration in research

-Qualities of research

-Classification of Research

-Developing an enquiring mind.

II. Research problem/ Question.

-Identification of problems, sources and selection of problems.

-Statement of the problem and objectives

-Library search

-Meaning and understanding of terms

- -Variables
- -Assumptions
- -Hypothesis
- -Limitations
- -Delimitations
- -Populations
- -Sample

III. Sampling Technique

-Random Technique

-Non-Random Techniques

IV Method of date collection- Tools and Technique

(a) Technique- Questioning

- -Interview
- -Observation

(b) Tool – Interview Schedule

- -Questionnaire
- -Observation Checklist
- -Retiring scale

(c) Criteria good tool, reliability and validity

(d) Pilot study

(e)Classification and interpretation of findings.

VI Statistics

Use of statistics types.

Measures of central tendency – Mean, Median, Mode,

Use of descriptive statistics- Frequency, percentage

Use of tables and graphs- Histogram, Pie chart, Bar graph, Frequency graph

VII Writing a research report

- References, documentations.

Note: Student Activity – Students under take a small project in their clinical area.

Reference:

1. Wilamsa, the Research craft Toronto Little Brown & Coy. 1977
2. Strauss & Cort, Basics of qualitative Research, London 1990.
3. Treece WE & Treece W. J. Elements of Research in Nursing, 4th edition, St. Louis C.V. Mosby 1986.
4. Polit D.F. and Hunglee B.P. Nursing Research Principles and methods, Philadelphia, Hippincot Copy, 1988
5. Garvet H.E.sss& Wood worth, Statistics in Psychology and Education, Bombay, Vakills Feffee and Simons Ltd. 1981.

*** [6] PRINCIPLES OF ALTERNATIVE MEDICINE** -- -- 100 hrs

Theory – 60 hrs.
Clinical training – 40 hrs.

1. Yoga- Concepts, Principles; Common yogic exercises.
2. Ayurveda- Concepts, Principles
3. Acupuncture
4. Holistic approach to health
5. Role of Physiotherapy in pain management

SCHEME OF EXAMINATION FOR THE FINAL YEAR BACHELOR OF PHYSIOTHERAPY

Subject	Theory		I.A.		Total	Practical		IA		Total
[1] PHYSIOTHERAPY – II (Physiotherapy in Musculo-skeletal condition)	60	-	40	=	100	60	-	40	=	100
[2] PHYSIOTHERAPY – III (Physiotherapy in Neuro-motor + Psychosomatic conditions]	60	-	40	=	100	60	-	40	=	100
[3] PHYSIOTHERAPY – IV (Physiotherapy in General Medicine, Surgery – including Cardio Respiratory conditions)	60	-	40	=	100	60	-	40	=	100
[4] PHYSIOTHERAPY – V (Physiotherapy in Community)	60	-	40	=	100	60	-	40	=	100
*[5] ETHICS / RESEARCH, ADMINISTRATION / MANAGEMENT	30	-	20	=	50	--	-	--		--
*[6] PRINCIPLES OF ALTERNATIVE MEDICINE	30	-	20	=	50	--	-	--		--

*[5] ETHICS / RESEARCH, ADMINISTRATION / MANAGEMENT *[6] ALTERNATIVE MEDICINE (AYURVEDA, ACUPUNCTURE AND YOGA) are for the College level Examinations.

-- INTERNSHIP --

Rules Governing Internship Training Programme for Final Year pass out B.P.Th. Candidates under the Faculty of Medical Health Sciences.

1. This Direction shall be called "Rules Governing Internship Training Programme for Final Year pass out B.P.Th. candidates.
2. This Direction shall come into force with effect from the date of its issuance.
3. For the Degree of Bachelor of Physiotherapy, the students after passing the professional examinations as per the syllabi prescribed by the S.N.D.T. Women's University, Mumbai, shall undergo Six months compulsory rotatory internship training programme to develop skill and acquire clinical knowledge with proficiency in managing patient independently.
4. These rules shall be implemented by all approved / recognized Physiotherapy colleges affiliated to the S.N.D.T. Women's University, Mumbai, meticulously from the first batch admitted in 2000-2001 to Physiotherapy course. The evaluation of the interns shall be done very carefully by the In-charge, Internship Training Programme and the Head of the concerned department on the basis of the skill, knowledge and ability to handle the cases independently. The Dean / Principal of the college shall have to monitor Internship Training Programme in collaboration with all Heads of the Departments. The In-charge, Internship Training Programme, Heads of the Departments and the Dean / Principal of the institution shall be responsible for the maintenance of standard and records of the interns. Any deviation/alteration in the training programme without the knowledge of the S.N.D.T. Women's University, Mumbai, shall not be permitted under any circumstances.
5. The programme of internship shall be as under.

GENERAL

Internship is a phase of training where in a candidate is expected to conduct actual Physiotherapy practice , with fair independence in clinical decision making in low risk cases where as to work under supervision at high risk areas ;so that at the end of Internship he/ she is capable to practice Physiotherapy independently.

Since Physiotherapy profession does not have a Council to regulate the education, till such Council is formed; the Rules & Regulations recommended by the Indian Association of Physiotherapists [I.A.P.], affiliated to the World Confederation for Physical Therapy , & accepted by the S.N.D.T. Women's University, Mumbai, shall be implemented.

The Internship programme shall mainly focus on acquisition of specific skills listed in the major areas of training by "hands on" experience & also on ability to conduct a scientific project.

1. The Chief of parent institute shall be responsible for implementation of Internship programme & also for the issue of Internship completion certificate.
2. Internship shall commence not later than One week from the day of declaration of results of IV B.P.Th examination.
3. It shall be binding on the candidate to follow strictly ,the code of conduct prescribed by the IAP & accepted by the S.N.D.T. Women's University, Mumbai. Any breach in the conduct / discipline shall disqualify the candidate from pursuing Internship for a period of One week to One month or more depending upon the gravity of breach of conduct.
4. No Stipend shall be paid.

5. Compulsory Internship shall include rotational clinical assignments, administrative skills & a Scientific project over a period of 26 weeks. Candidate is however encouraged to extend optional "Hands on" practice for six additional months in the desired areas at the hospitals, attached to a college affiliated to S.N.D.T. Women's University, Mumbai, conducting B.P.Th programme; as per the Rules & Regulations applicable to Internees regarding attendance, attitude, performance & evaluation. Such clinical experience on successful completion & on passing in evaluation, shall be documented in the transcript & shall be strongly recommended for additional credits for higher education or employment.

6. On successful completion of Internship, to the satisfaction of the Head of Physiotherapy Dept & the Chief of the parent institution ,the Internship completion certificate shall be issued by the parent institution; and it will be forwarded to the S.N.D.T. Women's University, Mumbai, for the award of B.P.Th Degree.

OBJECTIVES

At the end of Internship programme, the candidate shall be able to-

1. Detect & evaluate Anatomical, Patho-physiological, & Psycho-somatic impairments resulting in Dysfunction of MOVEMENT of all the ages, & occupations ;as well as epidemiological sectors in the population ;& arrive at the appropriate Physical & Functional diagnosis.

2. understand the rationale & basic investigative approach to the Medical system & Surgical intervention regimens & accordingly, Plan & implement specific Physio therapeutic measures effectively Or make a timely decision for referral to appropriate speciality

3. select strategies for cure & care ; adopt preventive, restorative & Rehabilitative measures for maximum possible independence of a client/ patient, at home, work place & in the community.

4. help in all types of emergencies medical, surgical, neonatal, & paediatric by appropriate therapeutic procedures & shall be able to implement , as a first level care, the. Cardio Pulmonary resuscitation, providing support to the injured area ,splinting etc, in the situation when medical aid is not available

5. demonstrate skill to promote Health in general as well as competitive level, such as sports, work productivity, Geriatric &, Women's` health etc, keeping in mind National Health policies;

6. develop skill to function as an essential member in co-partnership of the health team organized to deliver the health & family welfare services in existing socio-economic, political & cultural environment

7. Develop communication skill for purpose of transfer of suitable techniques to be used creatively at various stages of treatment , compatible with the psychological status of the beneficiary & skill to motivate the client & his family to religiously carry out prescribed home exercise programme & compliance to follow ergonomic advice given as a preventive / adoptive measure.

8. demonstrate skill of managing patients attending Physiotherapy services , by developing skills to use appropriate manipulative mobilization methods, Neuro-physiological maneuvers, techniques of Bronchial hygiene, Breathing retraining; application of Electro-therapeutic modalities & Therapeutic exercise; for the purpose of, evaluation, assessment, diagnostic procedures; & for the purpose of treatment as well, bearing in mind their indications & contraindications

9. Develop ability to prescribe, assess [fitting] & use of appropriate orthotic & prosthetic devices; in addition to an ability to fabricate simple splints for extremities, for the purpose of prevention, support & training for ambulation & activities of daily living.

10. Develop ability to do Functional Disability evaluation of Movement; & recommend for rest or alternative work substitution during the period of recovery or in case of permanent disability.

11. Practice professional autonomy & ethical principle with referral as well as first contact client in conformity with ethical code for Physiotherapists.

INTERNSHIP SCHEDULE

Candidate shall be posted to four Rotational Clinical assignments of total 26 weeks, including administrative skills pertaining to Physiotherapy practice & a Scientific project of 3 hours per week [total not less than 78 hours].

The schedule of Internship shall be as follows :

Assignment	Discipline	Duration	Place for Practice
Musculo-skeletal Physiotherapy	OPD/Indoor Orthopaedics /Burns/ Surgical amputations	4 weeks	Hospital at Kadodara
	Optional-Hand rehab. /Sports injury /wound & skin care	2 weeks	
Neuro-physiotherapy	OPD/ Neurology/ Neurosurgery/	4 weeks	Mahavir Hospital-Surat
	Optional-Paediatrics /EMG	4 weeks	Children's Orth. Center, Haji Ali
Cardio-pulmonary Physiotherapy	OPD /Medical/surgical	4 weeks	Mahavir Hospital-Surat
	Intensive care	4 weeks	V.S. Hospitals, Ahmedabad
Community Physiotherapy	* Womens health + Geriatric health at primary health centre or community	4 weeks	Mahavir Hospital-Surat
	TOTAL	26 weeks	

* Clinical Posting in Community P.T can also be conducted at the Rural set up with prior permission from the HOD and the Dean/ Principal of the parent institution.

SCIENTIFIC PROJECT

During the Internship, candidate shall undertake a scientific project of 3 hours per weeks [total duration not less than 78 hours] .Selection of topic & place for the conduct shall be in consultation & with consent of the H.O.D. P.T. dept & the ethical committee of parent institution .Scientific inquiry shall be based on Comparative diagnostic or clinical trials, having a sample size of not less than 20. The candidate shall submit the project not earlier than two weeks & not later than 4 weeks of the last day of internship & the HOD, P.T. dept of parent institution shall sign on the same if the project is up to her /his satisfaction.

Candidate shall then present the project in front of senior Faculty, & if found satisfactory, the evaluators shall offer an appropriate Grade [as per the S.N.D.T. criteria] in consultation with each other .Such grade shall appear on the transcript along with the recommendation for extra credits for higher education.

EVALUATION

During the rotational posting, student shall treat not less than 10 patients per day & also undertake skills of maintaining administrative records & Maintenance of equipment. The candidate shall maintain a log book & record all the events of the respective posting She shall be closely monitored by the senior Physiotherapy staff in charge through out the posting & the same shall also sign in the Log book on completion of the assignment

There shall be Formative & summative assessment at the end of each of the 4 postings given in the schedule & score will be given to each by the panel of minimum 3 teachers involved in supervision of the student during the respective assignment. Student shall repeat the respective assignment for a period of 25% of the period allotted to the respective posting, if she fails to score minimum 3 in the average of over all Formative + Summative score obtained during the respective posting.

During the Internship, student MUST CONDUCT following procedures

A) ***Electro-therapeutic Procedures –***

1. Application of Low frequency currents [galvanic/faradic like, rectangular, triangular , surged ,interrupted etc] for- I]-Electro-diagnosis-a]-short-long pulse test, b]- motor points,c]-S.D. curves, d]- sensory threshold, e]-Pain threshold & tolerance, II]-Therapeutic purpose-Iontophoresis of various pharmaco-therapeutic drugs, Cathodal & anodal galvanism, Electrical re-education, TN.S, Interferential current therapy ,Beat frequency, medium frequency currents , strong surged faradic stimulations, for pain relief & reduction of swelling etc.
2. Application of Superficial & Deep thermal agents- Cryotherapy, Hot packs, Paraffin wax bath ,Infra red radiations , Short wave diathermy,
3. Calculation of appropriate dosage & application of a]-U.V.R[B /C] for wound care, & U.V.A .for skin conditions, b]-Continuous & pulsed Ultrasound of 1 & 3 MHz frequency for direct application, with coupling agents, water bags & phonophoresis .
4. Testing of all the electrical equipment

B) ***Therapeutic Gymnastic Procedures-***

1. selection & application of appropriate gymnastic too for the management of dysfunction of mobility, strength, power, endurance, balance, coordination, cardio-pulmonary fitness; & for functional training such as transfers, mat activity, postural correction, gait training with or without aids, ambulation & A.D.L.

2. Group activity procedures-Select & implement group activity by effective & appropriate command & demonstration,-such as Jacobson's Relaxation exercises, standard Yoga postures, Mat exercises, transfer exercises, shoulder/ Back class, General fitness/ Aerobic exercises .Balancing exercises , Breathing exs

C) ***Manipulative Mobilisation Procedures -*** a]- massage maneuvers, for extremities, face , neck & back, b]-assessment of Physiological movements, & end-feel.; identification of target soft tissue to be mobilized, & application of NON-Thrust mobilization techniques of Kaltenborne ,Maitland, Mulligan ,Buttler, Cyriax, Mckenzie & muscle energy methods, passive sustained stretching on Spine & extremities, , manual traction for cervical & lumbar spine.

D) ***Therapeutic exercise [including auto stretching exercises.]-*** for Home programme, for restoration & maintenance of function , prevention of Dysfunction

E) ***Neuromotor & Psychosomatic Procedures-*** a]-Manual muscle testing[group & individual] ,identification of trick movements, muscle imbalance, b]-assessment of posture[static & dynamic] & its deviations, c]-assessment of Gait & its deviation; selection of appropriate walking aids, & training, stair climbing; d]-Neuro- developmental & /neurophysiological methods of assessment & treatment [P.N.F, N.D.T., Brunstromme, Bobath, Butler, Patricia Devis] of voluntary control, spasticity, [Ashworth `s scale],coordination, balance, abnormal movements, functional re-education, standing, gait training, ADL training, b]-assessment of L.O.C, Tilt table standing for Ca++ balance, passive mobilization for maintenance of paralytic limbs ,c]-Assessment of peripheral sensations, dermatomes, superficial & deep reflexes,

F) ***Cardio-Pulmonary Procedures-*** A]- assessment of B.P., R.R., Pulse, body temp. ,Abnormal breath sounds, breathing pattern, chest expansion, exercise tolerance[6 min. walk test] , P.E.F.R., b]selection & application of nebulisation, humidification, positioning for postural drainage, percussion manipulations for bronchial hygiene, coughing–huffing maneuvers, suctioning for tracheaostomized & non-tracheostomized patient, comatose patient, assist in bronchial hygiene in patients with Oxygen support or artificial ventilation; c]-selection & implementation of appropriate Breathing exercise,[inspiratory/ expiratory /modified inspiratory;] d]-Cardio-pulmonary resuscitation

G) ***Other Therapeutic Procedures-*** a]-Fabrication [with plaster of Paris bandages/ thermoplast/similar material-] splints- cock up, knuckle bender, outriggers, opponens splint, soft cervical collar ; posterior guards for gait training, b]-strapping & Taping of extremities for support, & pain relief c]-application of elastocrepe bandage for prevention of swelling, shaping of amputated stump, d]-wound care-application of U.V.R., TNS, etc, dressing ; UVR application for vitiligo, & psoriasis

H) ***Community Physiotherapy procedures-*** a]-Collect, analyse, interpret, & present , simple community & hospital based data, b]-participate as a member in co-partnership in the Rehabilitation work in the community c]-participate in the programmes in prevention & control of locally prevalent functional disorders, d]-be capable of conducting survey & employ its findings as a measures towards arriving at a community functional diagnosis e]-Provide health education to an individual / community on- i]-General fitness, ergonomic alterations for better quality life at home & work place ,ii]-preventive tools to avoid accidents, in the industrial area iii] skin care in case of loss /impairment of sensations, iv]- care of the back, v]-antenatal/ post-natal exercises; management of pelvic dysfunction [urinary / anorectal incontinence; per vaginal prolapse vi]-specific warming up activities & appropriate maintenance exercises to elderly patients

TO ASSIST IN PROCEDURES -

a] Fabrication of pylon
b] Electromyography,
c] Physiotherapy in Intensive care
d] Disaster management

EVALUATION SCHEME- Skills during Formative Evaluation shall include following

1. Musculo-skeletal Physiotherapy—relevant Skills mentioned at - A ,B ,C ,D ,& G above
2. Neuro-Physiotherapy- Relevant Skills mentioned at A ,B ,D ,E ,& G above
3. Cardio-pulmonary Physiotherapy – Relevant skills mentioned at B, D, & F above
4. Community Physiotherapy- Relevant Skills mentioned at D,G & H above

Overall total marks per evaluation scheme is 10 marks.

LEAVE FOR INTERNS -

An internee shall be entitled for maximum 6 days leave during six months period of internship posting. An internee will not be permitted to avail more than 2 days leave in any department. Period of leave in excess of 2 days in a department will have to be repeated in the same department. Under any circumstances this period will not be condoned by any authority.

Transfer of Internee to other Physiotherapy college :

The student desirous of transfer to another Physiotherapy college for doing internship training programme may apply to the University in the prescribed form along with the fee prescribed by the University from time to time.

(A) Colleges affiliated to S.N.D.T. Women's University, Mumbai,:

1. Internee shall be permitted to complete all parts of internship at approved/ recognized Physiotherapy college.
2. The student will have to apply for No Objection Certificate to parent college and also where she wants to get internship transferred.
3. Maximum 5% of total intake capacity of that college (outgoing and incoming) will be entertained for transfer. Out of total transfer 4 % will be kept for regular and 1 % for repeater batch.
4. The parent college will forward the application with No Objection Certificate to S.N.D.T. Women's University, Mumbai and the University authority will finalize the cases strictly on the basis of the merit.
5. The college in which the internee is transferred will have to complete the programme as per the guidelines including skill test/ performance.
6. The parent institution will then receive the Internship Completion Certificate from that college and will forward the same to S.N.D.T. Women's University, Mumbai for the award of degree.

(B) Colleges outside the jurisdiction of S.N.D.T.Women's University, Mumbai, :

1. No Objection Certificate from both relieving and receiving colleges shall be obtained by the candidate.
2. The application along with the No Objection Certificate's will be forwarded to S.N.D.T. Women's University, Mumbai for getting permission to allow the internship completion at colleges outside the jurisdiction of this University.
3. The concerned college will issue Internship Attendance Certificate mentioning the quantum of work done department-wise as per proforma of S.N.D.T. Women's University, Mumbai and it will be submitted by the internee to parent college.
4. The parent college will assess the skills by conducting skill performance tests as per the guidelines of internship.
5. After successful completion of skill tests, internship completion certificate will be issued by the parent college and it will be forwarded to S.N.D.T. Women's University, Mumbai for award of degree.

(C) Merit to be considered :

The applications for transfer of internees shall be considered and decided strictly on the basis of merit as follows:

1. Aggregate marks obtained at Final B.P.Th. Examination.
2. No. of attempts at Final B.P.Th. Examination.

   1 % marks will be deducted per attempt from aggregate marks of final B.P.Th.
3. In case of tie, combined marks of I, II, III & IV B.P.Th. to be considered.
4. Age to be considered.

Issue of Internship completion certificate

Internee will be issued internship completion certificate by the Dean / Principal only after completion of internship training programme satisfactorily.

Start of Internship programme

The programme will commence within 10 days after the declaration of Final B.P.Th. result by the University. Before commencement of the Internship Training Programme the Dean/ Principal shall conduct three days Orientation Workshop to orient the internees to get acquainted with the details of Internship Training Programme. The Orientation Workshop shall cover Disaster Management, Specific Emergency care of Patients, Hands- on, Medico-legal issues, Rehabilitation of patients, Internal Evaluation Scheme, Mandatory Skills to be acquired, Social and ethical aspects, National Health Policy, Patient Management. It shall be mandatory for the internees to attend the Orientation Workshop. The period of three days shall be included in the period of six months Internship.

This direction shall remain in force until the University makes regulations in this behalf.

Place :

Sd/-

Date : __/___/2003 The Registrar

FORMAT OF INTERNSHIP EVALUATION (For office use only)

Name :- _____ duration from _____ to_____

Assignment :-_____

SUMMATIVE EVALUATION		FORMATIVE EVALUATION	
MAXIMUM SCORE	**5 each**	**MAXIMUM SCORE**	**5 each**
Punctuality		**Cognitive (Problem solving / clinical decision & reasoning / planning Treatment**	
Attitude towards patients & colleagues/ Character		**Physical Assessment Skills**	
Urge for learning / Initiative		**Skills of Treatment maneuvers**	
Accountability / Responsibility		**Skills of equipment handling**	
Administrative ability (records / maintenance of equipment)		**Participation in Academic activities**	
Total		**Total**	

Head of the Dept. / Dean/ Principal of the College
Internship in-charge

Minimum Grade required for passing – Average of Over all score obtained from the respective assignment is to be considered. Minimum score for passing shall be

A : Excellent
B : Good
C : Satisfactory
D : Below Satisfactory
(To be repeated)

SCHEME RELATED TO THE PROFESSIONAL DEGREE COURSE IN BACHELOR OF PHYSIOTHERAPY (B.P.T.) WITH EFFECT FROM ACADEMIC YEAR 1999 – 2000.

(A) DURATION OF COURSE

The total duration of Professional Degree Course in Bachelor of Physiotherapy (B.P.T.) approved by the University only for girl candidate is $4^1/_2$ (Four and half) year including six months' of internship so as to be at par with the recommendation of Indian Association of Physiotherapists (I.A.P.). The medium of instruction will be in English language.

(B) ELIGIBILITY TO THE COURSE

For admission to the Degree course in Bachelor of Physiotherapy (B.Pth), a candidate shall have passed Higher Secondary Certificate Examination (Standard XII – 10 + 2 educational pattern) from (1) Maharashtra and Gujarat state Board of Secondary and Higher Secondary Education OR (2) Indian School Certificate Examination OR (3) Central Board of Secondary Education OR (4) equivalent in Science stream with Physics / Chemistry / Biology (including Theory and Practical examination) as mandatory subjects and minimum 50% marks. Over and above, English subject will be required as one of the subjects.

(C) ARRENGEMENT OF TERMS

For keeping terms the students shall have to put attendance 75% of the total lectures and practical taken to gather of two terms.

On account of bonafide illness or any other valid reason deemed sufficient by the principal, the total attendance of a student falls short not more than 30 days of the minimum number of days required stated above, in such cases the principal shall be competent to permit a candidate to appear in examination as a very special case.

(D) EXAMINATION

The University level and college level examination shall be conducted as per Syllabi, twice in a year i.e. annual examination will be conducted in the month of May-June and supplementary examination will be conducted in the month of November-December (commencement from academic year 2003-2004) of every year on suitable such dates fixed by the Examination departments of the University and College level examination dates fixed by the principal of respective college.

Students who has satisfied all the requirements of course of studies in the affiliated college, including the necessary minimum attendance and is certified by the principal of the college will become eligible for admission to the respective examinations as a regular candidate / ex-student.

(E) STANDARD OF PASSING THE EXAMINATION

All other provisions / Rules / Resolutions related to the examination of the University should be refer and apply at the time of preparing the result of any class by the examination section.

The minimum passing standard shall be 50% for internal assessment and for external assessment except in the subject of English. The minimum passing standard for English shall be 40% for internal and external assessment and shall come in to effect from the academic year 2003-2004(Before that passing standard was 50%).

Each candidate shall have to pass separately in theory and in practical in respective paper

The standard for declaring the class for every year and for each examination shall be as under:

- Class will be declared only for such student who has passed the examination in each subject in the first attempt.
- SECOND CLASS: will be declared to a candidate who obtains at least 50% marks and above but less than 60% marks in the aggregate of all examination
- FIRST CLASS will be declared to a candidate who obtains at least 60% marks and above but less than 75% marks in the aggregate of all examination.
- FIRST CLASS WITH DISTINCTION will be declared to candidate who obtains at least 75% marks or more in the aggregate of all examination.

The standard for declaring the A.T.K.T. (Allowed To Keep Terms) only up to Third year B.P.T. Examination shall be as under:

- A candidate will be allowed to keep terms in the next year, if she fails in one subject either in Theory or in Practical. Results of the proceeding year will be withheld until the ATKT subject will be cleared. The student shall not admit to the next class until the ATKT subject of the previous year is cleared.
- In case candidate fails in more than one subject she will not be granted ATKT. and the candidate will have to clear the failed subjects before admission to the following year.
- Number of attempts allowed in an examination to the candidates granted maximum five in all (i.e. 1+ 4)
- Candidates whose deficiency of marks in any head of passing at an examination or declared passed in A.T.K.T. or more than one attempt will not consider eligible for award, prize, Scholarship etc.

(F) ADMISSION TO A DEGREE OF BACHELOR OF PHYSIOTHERAPY (B.P.T.)

Every candidate who passes an examination for a degree of Bachelor of Physiotherapy (B.P.T.) and after completion of six months' internship as per syllabi shall become eligible for admission to the degree.

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